2013 – 2nd Quarter Report Support for Conducting Systems & Performance Audits of CASTNET Sites and NADP Monitoring Stations

EPA Contract No. EPW12019

Prepared for:

U. S. Environmental Protection Agency

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July 2013

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List of Acronyms and Abbreviations

% diff percent difference

A/D analog to digital converter
ARS Air Resource Specialist, Inc.

ASTM American Society for Testing and Materials
CASTNET Clean Air Status and Trends Network

DAS data acquisition system

DC direct current

deg degree

DVM digital voltmeter

EEMS Environmental, Engineering & Measurement Services, Inc.

EPA U.S. Environmental Protection Agency
ESC Environmental Systems Corporation

FSAD Field Site Audit Database

GPS geographical positioning system

lpm liters per minute
MLM Multilayer Model
m/s meters per second

mv milivolt

NIST National Institute of Standards and Technology NOAA National Oceanic and Atmospheric Administration

NPS National Park Service

QAPP Quality Assurance Project Plan SOP standard operating procedure

TEI Thermo Environmental Instruments
USNO United States Naval Observatory

V volts

WRR World Radiation Reference

1.0 CASTNET Quarterly Report

1.1 Introduction

The Clean Air Status and Trends Network (CASTNET) is a national air monitoring program developed under mandate of the 1990 Clean Air Act Amendments. Each site in the network measures acidic gases and particles and other forms of atmospheric pollution using a continuous collection filter aggregated over a one week period. Hourly averages of surface ozone concentrations and selected meteorological variables are also measured.

Site measurements 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 effects research.

CASTNET pollutant flux estimates are calculated as the aggregate product of weekly measured chemical concentrations and model-estimated deposition velocities. Currently, the National Oceanic and Atmospheric Administration's multilayer inferential model (NOAA-MLM) described by Meyers et al. [1998] is used to derive deposition velocity estimates.

As of June 2013, the network is comprised of 93 active rural sampling sites across the Untied States and Canada, cooperatively operated by the Environmental Protection Agency (EPA), the National Park Service (NPS), Environment Canada, and several independent partners. AMEC is responsible for operating the EPA and Environment Canada sponsored sites, and Air Resource Specialist, Inc. (ARS) is responsible for operating the NPS 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 evaluated 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. Only four EPA sponsored sites continue to operate meteorological sensors. Those sites are BEL116, BVL30, CHE185, and PAL190.

Table 1. Performance Audit Challenge and Acceptance Criteria

Sensor	Parameter	Audit Challenge	Acceptance Criteria
Precipitation	Response	10 manual tips	1 DAS count per tip
Precipitation	Accuracy	2 introductions of known amounts of water	≤±10.0% of input amount
Relative Humidity	Accuracy	Compared to reference instrument or standard solution	≤±10.0% RH
Solar Radiation	Accuracy	Compared to WRR traceable standard	≤±10.0% of daytime average
Surface Wetness	Response	Distilled water spray mist	Positive response
Surface Wetness	Sensitivity	1% decade resistance	N/A
Temperature	Accuracy	Comparison to 3 NIST measured baths (~0° C, ambient, ~ full-scale)	≤ ± 0.5° C
Temperature Difference	Accuracy	Comparison to station temperature sensor	≤± 0.50° C
Wind Direction	Orientation Accuracy	Parallel to alignment rod/crossarm, or sighted to distant point	≤±5° from degrees true
Wind Direction	Linearity	Eight cardinal points on test fixture	≤±5° mean absolute error
Wind Direction	Response Threshold	Starting torque tested with torque gauge	< 10 g-cm Climatronics; < 20 g-cm R.M. Young
Wind Speed	Accuracy	Shaft rotational speed generated and measured with certified synchronous motor	$\leq \pm 0.5$ mps below 5.0 mps input; $\leq \pm 5.0\%$ of input at or above 5.0 mps
Wind Speed	Starting Threshold	Starting torque tested with torque gauge	< 0.5 g-cm
Mass Flow Controller	Flow Rate	Comparison with Primary Standard	$\leq \pm 5.0\%$ of designated rate
Ozone	Slope	Linear regression of multi-	$0.9000 \le m \le 1.1000$
Ozone	Intercept	point test gas concentration as	-5.0 ppb ≤ b ≤ 5.0 ppb
Ozone	Correlation Coefficient	measured with a certified transfer standard	0.9950 ≤ r
DAS	Accuracy	Comparison with certified standard	≤ ± 0.003 VDC

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

Site systems audits 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 Sites Visited Second Quarter 2013

This report consists of the systems and performance audit results from the CASTNET sites audited during the first quarter (April through June) of 2013. The locations and dates of the audits are presented in Table 2.

Table 2. Site Audit Visits

Side ID	Audit Type	<u>Sponsor</u>	Site Visit Date	Station Name
CNT169	Audit w/o met	EPA	5/14/2013	Centennial
DCP114	Audit w/o met	EPA	4/22/2013	Deer Creek St. Park
GTH161	Audit w/o met	EPA	6/13/2013	Gothic

Side ID	Audit Type	Sponsor	Site Visit Date	Station Name
KNZ184	Audit w/o met	EPA	4//26/2013	Konza Prairie
LAV410	Audit with met	NPS	5/7/2013	Lassen Volcanic NP
OXF122	Audit w/o met	EPA	5/8/2013	Oxford
PIN414	Audit with met	NPS	4/11/2013	Pinnacles NM
PND165	Audit w/o met	EPA	5/12/2013	Pinedale
QAK172	Audit w/o met	EPA	5/9/2013	Quaker City
ROM206	Audit w/o met	EPA	6/11/2013	Rocky Mountain NP
ROM406	Audit with met	NPS	6/10/2013	Rocky Mountain NP (NPS)
SAN189	Audit w/o met	EPA	4/25/2013	Santee Sioux
SEK430	Audit with met	NPS	5/3/2013	Sequoia NP - Ash Mountain
YEL408	Audit with met	NPS	6/6/2013	Yellowstone NP
YOS404	Audit with met	NPS	5/1/2013	Yosemite NP

In addition to the sites listed in Table 2. that were visited for complete audits, the sites listed in Table 3. were visited to conduct Through-The-Probe (TTP) ozone Performance Evaluations (PE).

Table 3. Site Ozone PE Visits

Site ID	Sponsor Agency	Site Location	<u>Visit dates</u>
CAN407	NPS	Canyonlands NP	4/19/2013
CHA467	NPS	Chiricahua NM	4/1/1013
DEN417	NPS	Denali NP	6/15/2013
GRB411	EPA	Great Basin NP	4/16/2013
GRC474	NPS	Grand Canyon NP	4/4/2013
JOT403	NPS	Joshua Tree NP	4/8/2013
MCK231	EPA	Mackville (precision site)	5/18/2013
MEV405	NPS	Mesa Verde NP	4/18/2013
MOR409	NPS	Mount Rainier NP	6/17/2013
PET427	NPS	Petrified Forest NP	4/2/2013
PNF126	EPA	Cranberry	5/12/2013

1.4 Audit Results

The observations and results of the systems and performance audits are included in Appendix A, *Audit Report Forms* by site, arranged by audit date.

One kilometer, five kilometer, and forty kilometer radius maps are only included for those sites not previously audited. Other photographs of site conditions are included within each systems report where necessary.

Copies of the spot reports that were sent immediately following the audit of each site are included as Appendix B, *Site Spot Report Forms*.

The Ozone PE results and observations are included in Appendix C, Ozone Performance Evaluation Forms.

2.0 NADP Quarterly Report

2.1 Introduction

The National Atmospheric Deposition Program (NADP) operates three 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 200 sites. The Atmospheric Integrated Research Monitoring Network (AIRMoN) began operation in 1992 and currently measures event based precipitation events at 7 sites. The Mercury Deposition Network (MDN) measures total mercury in precipitation samples from more than 100 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 NADP Program Office operates and administers the three precipitation chemistry networks (NTN, MDN and AIRMoN), two atmospheric concentration networks (AMNet and AMoN), two analytical laboratories (the Central Analytical Laboratory (CAL) located at the University of Illinois/Illinois State Water Survey and the Mercury Analytical Laboratory (HAL) located at Frontier Global Sciences), and the network equipment depot (NED).

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 Sites Visited Second Quarter 2013

This report covers the results from the NADP sites surveyed during the first quarter (April through June) of 2013. The station name and dates of the audits are presented in Table 4.

Table 4. Sites Surveyed – Second Quarter 2013

	•	•	
Side ID	Network	Survey Date	Station Name
AK01	NTN	6/14/2013	Poker Creek
AK03	NTN	6/15/2013	Denali National Park-Mt. McKinley
AK06	MDN/NTN	6/14/2013	Gates of the Arctic National Park - Bettles
AK97	NTN	6/9/2013	Katmai National Park-King Salmon
AK98	MDN	6/11/2013	Kodiak
AZ02	MDN	4/3/2013	Sycamore Canyon
CA20	MDN	5/9/2013	Yurok Tribe-Requa
CA42	NTN	4/10/2013	Tanbark Flat
CA45	NTN	5/6/2013	Hopland
CA50	NTN	4/28/2013	Sagehen Creek
CA66	NTN	4/11/2013	Pinnacles National Monument-Bear Valley
CA67	NTN/AMoN	4/8/2013	Joshua Tree National Park-Black Rock
CA75	MDN/NTN	5/3/2013	Sequoia National Park-Giant Forest
CA76	NTN	5/10/2013	Montague
CA88	NTN	4/30/2013	Davis
CA94	MDN/NTN	4/9/2013	Converse Flats
CA96	NTN	5/7/2013	Lassen Volcanic National Park-Manzanita Lake
CA99	NTN	5/1/2013	YosemiteNational Park - Hogdon Meadow
IN34	NTN	4/23/2013	Indiana Dunes National Lakeshore
KY35	NTN	5/7/2013	Clark State Fish Hatchery
MA01	MDN/NTN	5/21/2013	North Atlantic Coastal Lab
MA08	NTN	5/22/2013	Quabbin Reservoir
MD08	MDN/NTN/AMoN	5/10/2013	Piney Reservoir
MD15	NTN	5/28/2013	Smith Island
MD18	NTN	5/24/2013	Assateague Island National Seashore-Woodcock
	1		1

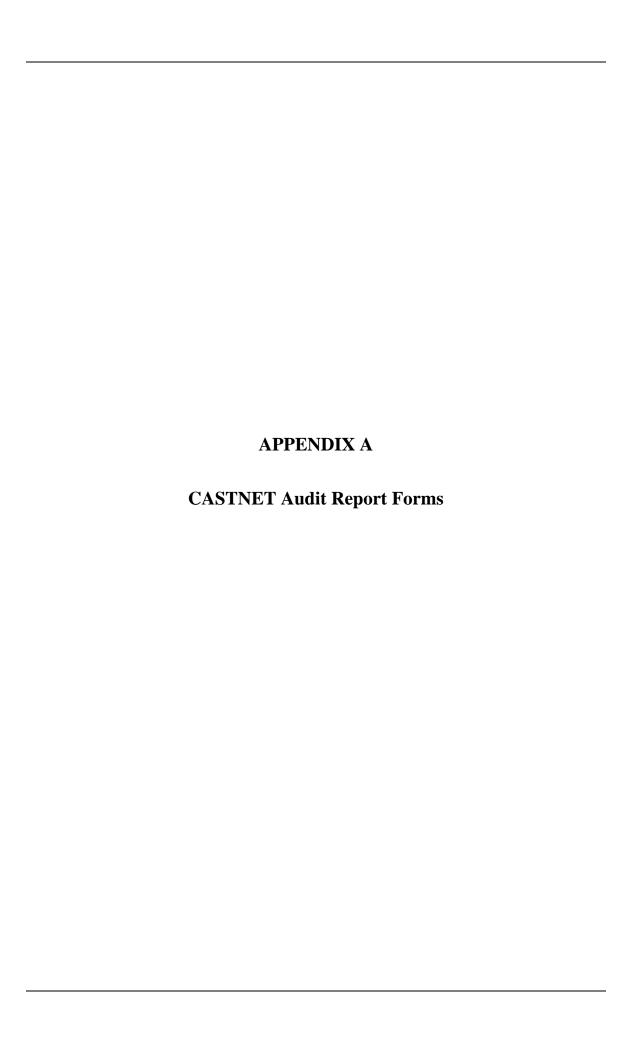
Side ID	Network	Survey Date	Station Name		
MT07	NTN	6/5/2013	Clancy		
MT95	MDN	6/3/2013	Badger Peak		
NY96	NTN	5/23/2013	Cedar Beach, Southold		
ОН17	NTN	5/8/2013	Delware		
SC03	MDN/NTN	4/2/2013	Savannah River		
TN00	AIRMoN	4/29/2013	Walker Branch Watershed		
WA98	NTN	6/17/2013	Columbia River Gorge		
WV05	NTN	4/20/2013	Cedar Creek State Park		
WV18	NTN	4/19/2013	Parsons		
WY00	NTN	5/14/2013	Snowy Range		
WY02	NTN	5/15/2013	Sinks Canyon		
WY06	NTN	5/12/2013	Pinedale		
WY08	MDN/NTN	6/4/2013	Yellowstone National Park-Tower Falls		
WY26	MDN	5/16/2013	Roundtop Mountain		
WY95	NTN	5/14/2013	Brooklyn Lake		
WY97	NTN	5/15/2013	South Pass City		
WY98	NTN	5/13/2013	Gypsum Creek		

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 EEMS' server where the NADP PO and the U.S. EPA POs can access them and download them as needed by login into the server site.

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



Site Inventory by Site Visit

Site Visit Date		Parameter	Mfg	Owner ID	Model Number	Serial Number
PIN4	414-Eric H	ebert-04/11/2013				
1	4/11/2013	Computer	Gateway	none	Solo	unknown
2	4/11/2013	DAS	Environmental Sys Corp	90612	8816	2615
3	4/11/2013	Elevation	Elevation	None	1	None
4	4/11/2013	F460 translator	Climatronics	none	100163	788
5	4/11/2013	Filter pack flow pump	Thomas	none	107CA18	1088002897
6	4/11/2013	Flow Rate	Tylan	03385	FC280	AW9403017
7	4/11/2013	Infrastructure	Infrastructure	none	none	none
8	4/11/2013	MFC power supply	Tylan	03685	RO-32	FP9404005
9	4/11/2013	Modem	US Robotics	none	33.6 fax modem	unknown
10	4/11/2013	Ozone	ThermoElectron Inc	90765	49C	49c-74530376
11	4/11/2013	Ozone Standard	ThermoElectron Inc	90752	49C	49C-74532-376
12	4/11/2013	Precipitation	Climatronics	91040	100508-2	illegible
13	4/11/2013	Printer	Hewlett Packard	none	842C	unknown
14	4/11/2013	Relative Humidity	Vaisala	none	HMP45ASP	A1040016
15	4/11/2013	Sample Tower	Aluma Tower	928348	В	AT-5381-F9-3
16	4/11/2013	Shelter Temperature	ARS	none	none	none
17	4/11/2013	Siting Criteria	Siting Criteria	None	1	None
18	4/11/2013	Solar Radiation	Licor	none	LI-200	PY29490
19	4/11/2013	Solar Radiation Translator	Climatronics	none	100144	350
20	4/11/2013	Temperature	Climatronics	none	100093	missing
21	4/11/2013	Temperature Translator	Climatronics	none	100088-2	397
22	4/11/2013	Wind Direction	Climatronics	none	100076	1808
23	4/11/2013	Wind Speed	Climatronics	91053	100076	4559
24	4/11/2013	Zero air pump	Werther International	none	PC 70/4	000706555

DAS Data Form

DAS Time Max Error:

0.67

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2615	PIN414	Eric Hebert	04/11/2013	DAS	Primary
Das Date: 4/11 Das Time: 17 Das Day: Low Channel:	Audit D 103:30 Audit T 101 Audit D High Ch x Diff: Avg Diff	ate 4 /11/2013 ime 17:04:10 ay 101	Mfg Serial Number Tfer ID Slope Cert Date Mfg Serial Number Tfer ID	Datel 4000392 01321 1.0000 2/13/201 Fluke 86590148 01310 1.0000	Parameter Tfer Desc. Intercept CorrCoff Parameter Tfer Desc.	DAS Source generator (D 0.00000 1.00000 DAS
			Slope Cert Date	1/27/201		1.00000
			CCIT Date	1/21/201	Correon	1.0000

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
2	0.0000	0.0000	-0.0001	V	V	-0.0001
2	0.1000	0.1000	0.1000	V	V	0.0000
2	0.3000	0.3000	0.3001	V	V	0.0001
2	0.5000	0.5000	0.5003	V	V	0.0003
2	0.7000	0.7000	0.7004	V	V	0.0004
2	0.9000	0.9000	0.9005	V	V	0.0005
2	1.0000	1.0000	1.0007	V	V	0.0007
9	0.0000	0.0000	0.0000	V	V	0.0000
9	0.1000	0.1000	0.1002	V	V	0.0002
9	0.3000	0.3000	0.3000	V	V	0.0000
9	0.5000	0.5000	0.4999	V	V	-0.0001
9	0.7000	0.7000	0.7002	V	V	0.0002
9	0.9000	0.9000	0.8999	V	V	-0.0001
9	1.0000	1.0000	1.0002	V	V	0.0002

Flow Data Form **Technician** Owner ID Mfg Serial Number Ta Site Site Visit Date Parameter PIN414 Eric Hebert 03385 Tylan AW9403017 04/11/2013 Flow Rate Mfg BIOS **Parameter** Flow Rate Tylan Mfg 122974 Tfer Desc. BIOS 220-H **Serial Number** FP9404005 03685 **SN/Owner ID** 01416 Tfer ID **Parameter** MFC power supply Slope 1.00000 **Intercept** 0.00000 1/8/2013 1.00000 CorrCoff **Cert Date** 0 **DAS 1: DAS 2: Cal Factor Zero** 0 Cal Factor Full Scale A Avg % Diff: A Max % Di A Avg %Dif A Max % Di 0.11% 0.14% 2.95 **Rotometer Reading:** Input 1/m: Input STP: OutputSignal: Output S E: InputUnit: OutputSignall PctDifference: UseDescription: Test type: MfcDisp.: 1/m primary pump off 0.000 0.000 -0.53 -0.476 0.03 1/m-0.476 1/m leak check 0.000 0.000 -0.53 0.03 1/mprimary -0.14% primary test pt 1 0.000 3.024 2.49 2.254 3.02 1/m1/m0.000 3.023 2.49 2.254 3.02 1/m1/m-0.11% primary test pt 2 3.022 2.49 2.254 3.02 1/m -0.07% test pt 3 0.000 1/m primary Status pass Sensor Component Leak Test Condition Sensor Component | Filter Azimuth Condition 90 deg Status pass Sensor Component | Filter Depth Condition 0.0 cm **Status** pass

Condition Fair

Condition

Condition Good

Condition 5.0 cm

Condition No moisture present

Condition Clean and dry

Status pass

Status pass

Status pass

Status pass

Status pass

Status pass

Sensor Component | Filter Position

Sensor Component | System Memo

Sensor Component | Filter Distance

Sensor Component | Tubing Condition

Sensor Component | Moisture Present

Sensor Component Rotometer Condition

Ozone Data Form

Mfg Se	erial Number Ta	Site	Tec	hnician		Site Visi	it Date	Parame	eter	Owner I	D
ThermoElectron Inc 4	9c-74530376	PIN414	Erio	: Hebert		04/11/20	013	Ozone		90765	
Intercept 0.1	98686 Slope: 3471 Intercept 99998 CorrCoff	0.00000 0.00000 0.00000		Mfg Serial N	umber	ThermoE 5171121			er Desc.	zone zone primary	/ stan
				Tfer ID		01111					
DAS 1:	DAS 2:			Slope			0.9972	Inter	rcept	0.18	3428
A Avg % Diff: A Ma		Dif A Max %		Cert Da	ta		1/2/201	3 Corr	·Coff	1.00	0000
1.1%	1.7%					ļ	.,.,	Corr	Con		
UseDescription:	ConcGroup:	Tfer Raw:	Tfer C	corr:	Si	te:	Site	Unit:	PctDif	fference:	
primary	1	0.05	-0.1	3	-0.	01	ppb				
primary	2	30.65	30.5	55	30.	03	ppb			-1.70%	
primary	3	49.69	49.6	54	49.	40	ppb			-0.48%	
primary	4	84.48	84.5	13	83.		ppb			-0.91%	
primary	5	109.50	109.0	62	108	.10	ppb			-1.39%	
Sensor Component	Cell B Noise		Condition	0.4 pp	b			Status	pass		
Sensor Component	Cell B Tmp.		Condition	n				Status	pass		
Sensor Component	Fullscale Voltage		Condition	n 1.0016	3			Status	pass		
Sensor Component	Inlet Filter Condition	n	Condition	Clean				Status	pass		
Sensor Component	Line Loss		Condition Not tested				Status	pass			
Sensor Component	Offset		Condition 1.2				Status	pass			
Sensor Component	Span		Condition 1.002				Status	pass			
Sensor Component	Cell B Freq.		Condition 72.1 kHz				Status	Fail			
Sensor Component	System Memo		Condition See comments				Status	pass			
Sensor Component	Sample Train		Condition Good				Status	pass			
Sensor Component	Cell B Pressure		Condition	n				Status	pass		
Sensor Component	Cell B Flow		Condition	0.75 lp	m			Status	pass		
Sensor Component	Cell A Tmp.		Condition	38.7 C	;			Status	pass		
Sensor Component	Cell A Pressure		Condition	707 m	mHg			Status	pass		
Sensor Component	Cell A Noise		Condition	0.6 pp	b			Status	pass		
Sensor Component	Cell A Freq.		Condition	77.2 k	Hz			Status	Fail		
Sensor Component	Cell A Flow		Condition	0.76 lp	om			Status	pass		
Sensor Component	Battery Backup		Condition	n N/A				Status	pass		
Sensor Component	Zero Voltage		Condition	0.0006	6			Status	pass		

Wind Speed Data Form Mfg Serial Number Ta Site **Technician** Site Visit Date Parameter Owner ID PIN414 Wind Speed 91053 4559 Eric Hebert 04/11/2013 Climatronics Parameter wind speed Mfg RM Young Climatronics Mfg Tfer Desc. wind speed motor (h Serial Number 788 **SN/Owner ID** none 01262 Tfer ID F460 translator **Parameter** 0.00000 1.00000 **Slope Intercept** 2333 Prop or Cups SN 0.4 **to** 0.5 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** N/A Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (I **Serial Number** 01261 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/13/2010 1.00000 **Cert Date** CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 0.01 0.28% Abs Avg Err 0.03 0.33% Abs Max Er UseDescription: InputDevice: Input RPM: Output V: Diff/ % Diff: Difference: Input m/s: DAS m/s: 00000 0 0.20 0.000 0.2 0.03 primary 00000 50 1.40 0.000 1.4 0.00 primary primary 00000 100 2.57 0.000 2.6 0.01 4.22 4.2 0.01 00000 170 0.000 primary primary 00000 250 6.10 0.000 6.1 0.33% 11.97 12.0 0.17% primary 00000 500 0.000 00000 800 19.02 0.000 19.1 0.32% primary primary 00000 2000 47.22 0.000 47.4 0.30% Sensor Component | System Memo Status pass **Condition** Sensor Component | Sensor Plumb **Condition** Plumb Status pass Sensor Component | Sensor Heater **Condition** N/A Status pass Sensor Component Prop or Cups Condition **Condition** Good Status pass Sensor Component | Condition **Condition** Good Status pass Sensor Component | Torque **Condition** Fair Status pass

Wind Direction Data Form

Mfg	Serial Number	Ta Site	ŗ	Fechnician	Site Visit	t Date Paran	neter	Owner ID
Climatronics	1808	PIN414		Eric Hebert	04/11/20	13 Wind [Direction	none
Mfg Climatronics SN/Owner ID 788 none Parameter F460 translator Vane SN: 3503 C. A. Align. deg. tru VaneTorque 8 to 8				Mfg Serial Nun Tfer ID Slope Cert Date	Ushikata 190037 01265	1.00000 Int		wind direction
				Mfg Serial Nun Tfer ID	RM Youn one one one one one one one		_	wind direction wind direction wheel
	DAS 1:		AS 2:	T ! ! (
Abs Avg Err	Orientation Line 3.4	earity: Or	ientation	Linearity:				
Abs Max Er	6	6						
UseDescription		Input Raw:	Linearity	Output V:	Output Deg.:	Difference:	Change:	Error:
primary	01266	0	Linearity	0.000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	Change. 46	1 EHOL.
primary	01266	45	✓	0.000	43	2	43	-2
primary	01266	90	✓	0.000	87	3	44	-1
primary	01266	135	✓	0.000	132	3	45	0
primary	01266	180	✓	0.000	183	3	51	6
primary	01266	225	✓	0.000	223	2	40	-5
primary	01266	270	✓	0.000	270	0	47	2
primary	01266	315	✓	0.000	314	1	44	-1
primary	01265	3		0.000	0	3		3
primary	01265	93		0.000	88	5		5
primary	01265	93		0.000	87	6		6
primary	01265	183		0.000	183	0		0
primary	01265	273		0.000	270	3		3
Sensor Comp	onent Mast		Condi	tion Good		Status	pass	
Sensor Comp	onent Condition		Condi	tion Poor		Status	Fail	
Sensor Component Sensor Heater			Condi	tion N/A		Status	pass	
Sensor Comp	onent Sensor Plum	b	Condi	Plumb		Status	pass	
Sensor Comp	onent Torque		Condi	Good		Status	pass	
	onent Vane Condition		<u></u>	Good		Status	pass	
Sensor Comp	onent System Mem	0	Condi	tion See com	ments	Status	pass	

Temperature Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site PIN414 Eric Hebert 04/11/2013 Temperature Climatronics none missing Mfg Extech Parameter Temperature Climatronics Mfg Tfer Desc. RTD H232679 **Serial Number SN/Owner ID** none 01228 Tfer ID **Parameter** Temperature Translator **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 **Cert Date** CorrCoff Abs Avg Err **Abs Max Er Abs Avg Err Abs Max Er** 0.08 0.11 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: | UseDesc.: Test type: Temp Low Range -0.07 0.05 0.000 primary 0.2 \mathbf{C} 0.1 C Temp Mid Range 17.35 17.35 0.000 17.2 -0.11 primary 45.7 C 0.02 primary Temp High Range 45.87 45.66 0.000 Sensor Component | Shield **Status** pass Condition Clean Sensor Component Blower Status Switch **Condition** N/A Status pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Humidity Data Form Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Mfg Site PIN414 Eric Hebert 04/11/2013 Relative Humidity Vaisala A1040016 none Mfg Rotronic **Parameter** Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 1.00000 0.00000 Slope **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 2.5 4.0 Abs Avg Err 4.2 4.0 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: 32.8 RH Low Range Hygroclip 30.3 0.320 32.0 -0.8 primary 32.8 -4.2 RH Low Range 48.9 primary Hygroclip 52.9 52.9 0.487 48.7 primary RH High Range Hygroclip 93.6 88.1 93.6 0.896 89.6 -4.0 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Condition Functioning Status pass Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Condition Clean **Status** pass Sensor Component Shield **Condition** Clean Status pass

Solar Radiation Data Form Serial Number Ta **Technician** Mfg Site Visit Date Parameter Owner ID PY29490 PIN414 Eric Hebert Solar Radiation Licor 04/11/2013 none Mfg **Eppley** Parameter solar radiation Climatronics Mfg Tfer Desc. SR transfer translat 10765 **Serial Number** none **SN/Owner ID** 01246 Tfer ID **Parameter** Solar Radiation Translator Slope 1.00000 **Intercept** 0.00000 **DAS 1: DAS 2:** 1/6/2010 1.00000 **Cert Date** CorrCoff % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max Parameter solar radiation Mfg **Eppley** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 Tfer ID 01245 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 9.0% 0.0% 9.4% 0.0% Measure Date MeasureTime Tfer Corr: PctDifference: UseDescription: DAS w/m2: 4/12/2013 59 11.9% 6:00 66 primary -17.5% 4/12/2013 7:00 372 307 primary primary 4/12/2013 8:00 565 506 -10.4% -9.6% primary 4/12/2013 9:00 741 670 4/12/2013 10:00 872 790 -9.4% primary primary 4/12/2013 11:00 941 851 -9.6% 4/12/2013 12:00 943 858 -9.0% primary 4/12/2013 13:00 879 803 -8.6% primary 4/12/2013 14:00 740 685 -7.4% primary Sensor Component | Sensor Level Condition 1/2 bubble off level Status pass Sensor Component | Sensor Clean **Condition** Clean Status pass Sensor Component | Properly Sited **Condition** Properly sited **Status** pass

Condition

Status pass

Sensor Component | System Memo

Precipitation Data Form

Mfg	Se	erial N	lumber Ta	Site		Te	chnician		Site	Visit Date	Parame	eter		Owner ID
Climatronics	il	legible		PIN414		Er	ic Hebert		04/	11/2013	Precipita	ation		91040
DAS 1:			DAS 2:				Mfg Serial Nu	nher	PMF	-06134-50				sipitation ml graduate
		x % D 4.0	i A Avg %	A Max % Di		D:		01250		or Desc.		g. adda		
						Slope			1.0000	0 Inter	cept		0.00000	
							Cert Date			9/5/200	Corr	Coff		1.00000
UseDesc.	Test ty	ype:	TferVolume:	Iteration:	TimePerTi	ip:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Un	it: TferU	Jnits:	PctDifference
primary	tip chec	k	10 manual	1	2 sec		1.00	1.0	00	mm	mm	n	nl	
primary	test 1		231.5	1	10 sec		5.00	5.	00	mm	mm	n	ıl	0.0%
primary	test 2		231.5	2	10 sec		5.00	4.	80	mm	mm	n	ıl	-4.0%
Sensor Com	ponent	Syster	m Memo		Cond	itio	See com	ments	;		Status	pass		
Sensor Com	ponent	Senso	or Heater		Cond	itio	Not func	tioning			Status	Fail		
Sensor Com	ponent	Prope	rly Sited		Cond	itio	on See comments				Status pass			
Sensor Com	ponent	Gauge	e Drain Scree	n	Cond	itio	Not insta	lled			Status	Fail		
Sensor Com	ponent	Level			Cond	itio	Level				Status	pass		
Sensor Com	ponent	Gauge	e Clean		Cond	itio	Clean				Status	pass		
Sensor Com	ponent	Funne	el Clean		Cond	itio	Clean				Status	pass		
Sensor Com	ponent	Condi	tion		Cond	itio	Fair				Status	pass		
Sensor Com	ponent	Gauge	e Screen		Cond	itio	Installed				Status	pass		

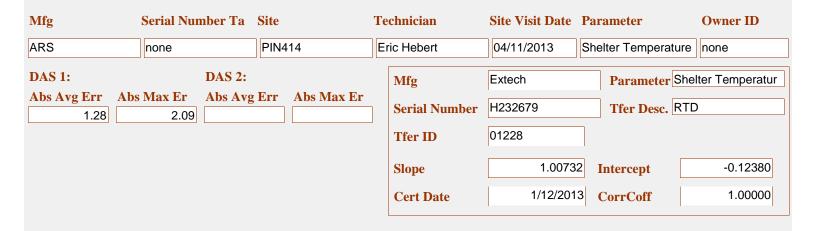
Infrastructure Data For

Site ID PIN414 Technician Eric Hebert Site Visit Date 04/11/2013

Shelter Make	Shelter Model	Shelter Size	
Alan pre-fab	s/n 861168 1808	512 cuft	

Sensor Component	Shelter Roof	Condition	Poor	Status	Fail
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Not installed	Status	Fail
Sensor Component	Power Cables	Condition	Fair	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	Fair	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Poor	Status	Fail
Sensor Component	Shelter Floor	Condition	Poor	Status	Fail
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Fair	Status	pass
Sensor Component	Tubing Type	Condition	1/2 inch Teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	20.17	20.15	0.000	22.2	C	2.09
primary	Temp Mid Range	24.51	24.45	0.000	23.4	С	-1.04
primary	Temp Mid Range	22.50	22.46	0.000	23.2	С	0.71

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone This analyzer diagnostic	PIN414 check is outside	Eric Hebert	04/11/2013 recommended	Cell B Freq. value.	ThermoElectron	2770		✓
Ozone PIN414 Eric Hebert 04/11/2013 Cell B Freq. ThermoElectron 2770 Ozone PIN414 Eric Hebert 04/11/2013 Cell A Freq. ThermoElectron 2770 This analyzer diagnostic check is outside the manufacturer's recommended value. Precipitation PIN414 Eric Hebert 04/11/2013 Properly Sited Climatronics 2767 Objects violate the 45 degree rule for the tipping bucket rain gage. Precipitation PIN414 Eric Hebert 04/11/2013 Sensor Heater Climatronics 2767 The tipping bucket rain gauge heater is not functioning.							✓	
1				Properly Sited	Climatronics	2767		✓
•			04/11/2013	Sensor Heater	Climatronics	2767		
Wind Direction The upper and lower sec	PIN414	Eric Hebert I sensor body are lo	04/11/2013 pose. This condi	Condition	Climatronics	3738 e sensor and car	☐ n affect data	✓ accuracy.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator reported that the flow pump is routinely turned on while the tower is down after the dry deposition filter is installed. She reported that she was instructed by ARS to operate the flow pump while the tower was in the down position to check for proper filter pack installation. It was discussed that this is not a proper check of filter installation since air flow could be going through the connector with the connector completely locked in place. The operator reported that the plastic bag is used to handle the filter and that gloves are not used. The site operator reported that the ozone inlet filter is changed while the dry deposition filter is still installed and exposed on the tower.

2 Parameter: SiteOpsProcedures

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

3 Parameter: ShelterCleanNotes

Shelter has some loose tiles and signs of a leak in the SW corner. It is somewhat cluttered with equipment that is unused and some that requires installation. The lighting is poor.

Field Systems Data Form

F-02058-1500-S1-rev001

Site ID	PIN414		Technician	Eric Hebert	Site Visit Date 04/11/2013		1/2013	
					HadaM		North Chalana Daak	
Site Sponsor	(agency)	NPS			USGS Map		North Chalone Peak	
Operating Gr	oup	NPS			Map Scale			
AQS#					Map Date			
Meteorologica	al Type	Climatron	ics					
Air Pollutant	Analyzer	Ozone, IM	IPROVE	QAPP Latitude		36.4850		
Deposition M	eposition Measurement dry, wet			QAPP		e	-121.1556	
Land Use	Land Use		- scrub	QAPP Elevation	335			
Terrain		complex			QAPP Declination	n		
Conforms to	MLM	Marginally	/		QAPP Declination	on Date		
Site Telephon	ie	(831) 389	-4586		Audit Latitude		36.483235	
Site Address	1	5000 Hwy	146		Audit Longitude		-121.156876	
Site Address	2				Audit Elevation		317	
County		San Benit	0		Audit Declinatio	n	13.5	
City, State		Paicines,	CA			Present		
Zip Code		95043			Fire Extinguishe	r 🗸	inspected 5/19/2012	
Time Zone		Pacific		First Aid Kit	✓			
Primary Ope	rator				Safety Glasses	V		
Primary Op.	Phone #			POST OF THE SECTION O	Safety Hard Hat			
Primary Op.	E-mail				Climbing Belt			
Backup Oper	ator				Security Fence			
Backup Op.	Phone #				Secure Shelter	✓		
Backup Op.	E-mail				Stable Entry Ste	p 🗹		
Shelter Work	ing Room✓	Make	Alan pre-fab	Me	odel s/n 861168 1	808	Shelter Size 512 cuft	
Shelter Clean Notes Shelter has some loose tiles equipment that is unused and					orner. It is somewhat cluttered with			
Site OK	•	Notes			The true required in			
Driving Direct	From west	Hollister pr on 146 and	continue to the	fee station. Le			Pinnacles National Monument. Turn station the site will be visible 100 yards	
	liom	me road on	the right up a h	iiii. Maasaan ka maan				

Field Systems Data Form

F-02058-1500-S2-rev001

Site ID PIN414 Eric Hebert Site Visit Date 04/11/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km		~
City 10,000 to 50,000 population	10 km		V
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m	-	
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		V
Large parking lot	200 m		
Small parking lot	100 m		
Tree line	50 m		
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Comment

Field S	ystems	Data	Form
	, Declaro	- aca	

F-02058-1500-S3-rev001

Site	e ID	PIN414	Technician E	ric Hebert		Site Visit Date 04/11/2013]
					✓		
1		nd speed and directi nfluenced by obstruc		9 to a voia			
2	(i.e. wi	nd sensors mounted nd sensors should be ntally extended boon into the prevailing w	mounted atop the to 1 >2x the max diame	ower or on a	✓		
3	Are th	e tower and sensors j	olumb?		✓	201921 22 TO GAIN THE PROPERTY BY THE PARTY STATE OF THE PARTY STATE O	
4	avoid radiated heat sources such as buildings, walls, etc?				✓		
5	conditi surface	mperature and RH so ions? (i.e. ground bel e and not steeply slop ng water should be a	ow sensors should be bed. Ridges, hollows,	e natural	✓		
6	Is the	solar radiation senso	r plumb?		✓	1/2 bubble off level	
7	Is it sit light?	ed to avoid shading,	or any artificial or r	eflected	✓		
8	Is the	rain gauge plumb?		+	✓		
9	Is it sit towers	ed to avoid shelterin , etc?	g effects from buildi	ngs, trees,	✓	45 degree rule violation	
10	Is the s	surface wetness senso north?	or sited with the grid	surface	✓	N/A	
11	Is it in	clined approximatel	y 30 degrees?		✓	N/A	
		y additional explana man-made, that may			sary	regarding conditions listed above, or	any other features,

ielo	l Systems Da	ata Form			F-0)2058-1500-S4-rev	v00
Site ID	PIN414	Technician [Eric Hebert		Site Visit Date 04/11/20	13	
	o all the meterologic ndition, and well m	cal sensors appear to be inaintained?	ntact, in good				20000124
	re all the meteorolo porting data?	gical sensors operational	online, and	✓			
Aı	re the shields for th	e temperature and RH se	nsors clean?	V			
Aı	Are the aspirated motors working?						
Is the solar radiation sensor's lens clean and free of scratches?				~			
Is	the surface wetness	s sensor grid clean and ur	ndamaged?	✓ N	/A		
	e the sensor signal ndition, and well m	and power cables intact, naintained?	in good	V			
		and power cable connect d well maintained?	ions protected	✓			
aram	eter	Manufacturer	Model		S/N	Client ID	
recipi	tation	Climatronics	100508-2	10.1922	illegible	91040	
olar F	Radiation	Licor	LI-200		PY29490	none	
elativ	e Humidity	Vaisala	HMP45ASF		A1040016	none	
empe	rature	Climatronics	100093	erana arbita	missing	none	
	Direction	Climatronics	100076		1808	none	
Vind D		the street of the last section in the second of the second	The second second second second second	STREET, ST.	4559	91053	

Field Systems Data Form F-02058-1500-S5-rev001 PIN414 Site Visit Date 04/11/2013 Site ID Technician Eric Hebert Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E **V** Do the sample inlets have at least a 270 degree arc of unrestricted airflow? ~ Are the sample inlets 3 - 15 meters above the ground? ~ Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? Pollutant analyzers and deposition equipment operations and maintenance ~ Do the analyzers and equipment appear to be in good condition and well maintained? ~ Are the analyzers and monitors operational, on-line, and reporting data? Describe ozone sample tube. 1/4 teflon by 12 meters Describe dry dep sample tube. 1/2 teflon by 10 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) ~ Are sample lines clean, free of kinks, moisture, and obstructions? **V** 7 Is the zero air supply desiccant unsaturated? Are there moisture traps in the sample lines? Is there a rotometer in the dry deposition filter line, and is it <a> Clean and dry clean? **Parameter** Manufacturer S/N **Client ID** Model Sample Tower Aluma Tower В AT-5381-F9-3 928348 Ozone 90765 ThermoElectron Inc 49C 49c-74530376 MFC power supply Tylan RO-32 FP9404005 03685 Filter pack flow pump Thomas 107CA18 1088002897 none PC 70/4 Werther International 000706555 Zero air pump none

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-rev001

Site	e ID	PIN414	Technician Eric	Hebert	ra november	Site Visit Dat	04/11/201	3		
	DAS, so	ensor translators,	and peripheral equipme	nt operation	ıs ar	nd maintenance				
1	Do the well ma	DAS instruments aintained?	appear to be in good cor	ndition and	✓					
2		the components (a, backup, etc)	of the DAS operational? (printers,	✓					
3		analyzer and sens	sor signal leads pass thro uitry?	ugh	✓	Met sensors only				
4		e signal connection aintained?	ns protected from the we	ather and	✓					
5	Are the	e signal leads com	nected to the correct DAS	S 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 10	Is the met tower stable and grounded? Us the sample tower stable and grounded?					Stable 🗸		Grounded		18
11	Tower	comments?						V		
Par	ameter		Manufacturer	Model		S/N		Clie	ent ID	
Cor	nputer		Gateway	Solo	EROSON.	unknown		non	е	
DA	S		Environmental Sys Corp	p 8816	323/253	2615		906	12	
F46	60 transla	ator	Climatronics	100163		788		non	е	
Мо	dem		US Robotics	33.6 fax m	ode	m unknown		non	е	
Prir	nter		Hewlett Packard	842C	Hama	unknown		non	е	
Sol	ar Radiat	tion Translator	Climatronics	100144	1210-22	350		non	е	
Ter	nperature	e Translator	Climatronics	100088-2		397		non	е	
			nnation (photograph or sk nay affect the monitoring			y) regarding con	ditions listed	l above, or a	any other fea	itures,

Field Systems Data Form

F-02058-1500-S7-rev001

Site ID PIN414		Tech	nician	Eric Hebert		Site Visit Date	e 04/11/2013	3	
Documentation									
Does the site have the requir	od in	a t	ont and	aguinment me	muola?				
	<u>ea m</u> Yes	<u>strumo</u> No	ent and N/A		muais?		Yes	No	N/A
Wind speed sensor			1\//		ta logge	r	✓		IN/A
Wind direction sensor		✓			ta logge				<u></u>
Temperature sensor		✓				recorder			✓
Relative humidity sensor		✓			mputer			V	
Solar radiation sensor		✓			dem			V	
Surface wetness sensor			V	Pri	nter			V	
Wind sensor translator		✓			ro air pu	ımp	✓		
Temperature translator		✓			ter flow			✓	
Humidity sensor translator			✓		rge prot				✓
Solar radiation translator			✓	UPS	S				✓
Fipping bucket rain gauge			✓	Lig	htning	protection devic	e 🗆		✓
Ozone analyzer	V			She	elter hea	iter		✓	
Filter pack flow controller		✓		She	elter air	conditioner	✓		
ilter pack MFC power supply		✓							
Does the site have the requi	ired a	nd mo	st rece	nt QC docume	nts and	report forms?			
	Pres	10.15					Curre	ent	
tation Log			DataVie	2w2		4	✓		
SRF		<u> </u>	Datavio	5VVZ			<u> </u>		
ite Ops Manual		✓	Jan 200	 16			<u> </u>		
ASP			0411 Z00						
ield Ops Manual									
alibration Reports		✓	Not cur	rent					
zone z/s/p Control Charts									
eventive maintenance schedu	l								
1 Is the station log properly	comp	oleted (during	every site visit?	? 🗸 D	ataview checklist	S		
2 Are the Site Status Report	Forr	ns beir	ng comp	oleted and	✓ FI	ow section only			
current?									
Are the chain-of-custody for sample transfer to and from			rly used	d to document	✓				
4 Are ozone z/s/p control chacurrent?	arts p	roper	ly comp	oleted and	С	ontrol charts not	used		
Provide any additional explana	tion (photo	graph o	or sketch if nece	essarv)	regarding condi	itions listed	above.	or any o
atural or man-made, that may									
	restricted to				the Parish Asia				

Field Systems Data Form F-02058-1500-S8-rev001 Site ID PIN414 Site Visit Date 04/11/2013 Technician Eric Hebert Site operation procedures Trained by previous operator, ARS provides updates Has the site operator attended a formal CASTNET training semiannually course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? V Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant V** ~ Semiannually **Multipoint Calibrations** ~ ~ Weekly **Visual Inspections V** ~ Weekly **Translator Zero/Span Tests (climatronics) V** ~ Monthly **Manual Rain Gauge Test V V** Weekly **Confirm Reasonableness of Current Values** ~ N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **Compliant QC Check Performed** Frequency **Multi-point Calibrations** V **V** Monthly and semiannually ~ **V Automatic Zero/Span Tests** Daily **V** V Every 2 weeks Manual Zero/Span Tests

Automatic Precision Level Tests Daily	
Manual Precision Level Test ✓ As neede	ed 🗸
Analyzer Diagnostics Tests ✓ Alarm val	lues only
In-line Filter Replacement (at inlet) ✓ Every 2 w	veeks 🗸
In-line Filter Replacement (at analyze N/A	
Sample Line Check for Dirt/Water Weekly	V
Zero Air Desiccant Check Weekly	
 Do multi-point calibration gases go through the complete sample train including all filters? Do automatic and manual z/s/p gasses go through the complete sample train including all filters? 	
3 Are the automatic and manual z/s/p checks monitored and reported? If yes, how?	Datalogger only

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

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

Field Systems Data Form F-02058-1500-S9-rev001 PIN414 Site Visit Date 04/11/2013 Site ID Technician Eric Hebert Site operation procedures Is the filter pack being changed every Tuesday as scheduled? ✓ Filter changed mornings 90% Are the Site Status Report Forms being completed and filed correctly? No longer required Are data downloads and backups being performed as scheduled? SSRF and dataview checklists Are general observations being made and recorded? How? **V** Are site supplies on-hand and replenished in a timely fashion? Are sample flow rates recorded? How? SSRF Are samples sent to the lab on a regular schedule in a timely lacksquarefashion? Bag used as glove, gloves not used Are filters protected from contamination during handling and shipping? How? Are the site conditions reported regularly to the field operations manager or staff? **QC Check Performed** Frequency **Compliant** ~ ✓ Semiannually **Multi-point MFC Calibrations** V **✓** Weekly Flow System Leak Checks **Filter Pack Inspection** ~ ✓ Weekly Flow Rate Setting Checks V ✓ Weekly **Visual Check of Flow Rate Rotometer**

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:

✓ As needed

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

V

The site operator reported that the flow pump is routinely turned on while the tower is down after the dry deposition filter is installed. She reported that she was instructed by ARS to operate the flow pump while the tower was in the down position to check for proper filter pack installation. It was discussed that this is not a proper check of filter installation since air flow could be going through the connector with the connector completely locked in place. The operator reported that the plastic bag is used to handle the filter and that gloves are not used. The site operator reported that the ozone inlet filter is changed while the dry deposition filter is still installed and exposed on the tower.

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number			
DCP114-Sandy Grenville-04/22/2013									
1	4/22/2013	DAS	Campbell	000345	CR3000	2124			
2	4/22/2013	Elevation	Elevation	None	1	None			
3	4/22/2013	Filter pack flow pump	Thomas	04926	107CAB18	100300020819			
4	4/22/2013	Flow Rate	Apex	000659	AXMC105LPMDPCV	54748			
5	4/22/2013	Infrastructure	Infrastructure	none	none	none			
6	4/22/2013	Modem	Raven	06479	H4222-C	0808311283			
7	4/22/2013	Ozone	ThermoElectron Inc	000732	49i A1NAA	1105347319			
8	4/22/2013	Ozone Standard	ThermoElectron Inc	000545	49i A3NAA	0929938241			
9	4/22/2013	Sample Tower	Aluma Tower	000030	В	AT-81056-J-4			
10	4/22/2013	Shelter Temperature	Campbell	none	107-L	none			
11	4/22/2013	Siting Criteria	Siting Criteria	None	1	None			
12	4/22/2013	Temperature	RM Young	02828	41342	illegible			
13	4/22/2013	Zero air pump	Werther International	06939	PC70/4	000829175			

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2124 DCP114 Sandy Grenville 04/22/2013 DAS Primary Das Date: 4 /22/2013 **Audit Date** 4 /22/2013 Datel **Parameter** DAS Mfg 14:31:37 14:31:37 Das Time: **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 112 **Audit Day** 112 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 Slope **Intercept** 0.0001 0.0001 0.0001 0.0001 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 95740135 Tfer Desc. DVM 01311 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/26/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0001 0.0001 V V 7 0.1000 0.0999 0.1000 0.0001 7 0.3000 0.2998 0.2998 V V 0.0000

0.4998

0.6997

0.8997

0.9995

V

V

V

V

V

V

V

V

0.0001

0.0000

0.0001

0.0001

7

7

7

7

0.5000

0.7000

0.9000

1.0000

0.4997

0.6997

0.8996

0.9994

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Tec	chnician	Site Visit I	ite Visit Date Param		Owner ID
Apex	54748		DCP114	Sa	andy Grenville	04/22/2013	Flow R	ate	000659
					Mfg	BIOS	P	arameter FI	ow Rate
					Serial Number	103471	Т	fer Desc. ne	exus
					Tfer ID	01420			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	6/13		rCoff	1.00000
					Mfg	BIOS		arameter FI	ow Rate
					Serial Number			fer Desc. Bl	
					Tfer ID	01410	*	ici Desc.	00000
					Her ID			_	
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	1/27/2012 Cor		rCoff	1.00000
DAS 1:		DAS 2:		L	Cal Factor Z	ero	-0.0)9	
A Avg % Diff:	A Max % Di	A Avg %	6Dif A Max	% Di	Cal Factor F	ull Scale	0.9	98	
1.64%	1.70%				Rotometer R	eading:	1	.5	
UseDescription:	Test type:	Input 1/n	n: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSigna	IIPctDifference
primary	pump off	0.000	0.000	0.01	0.007	-0.02	1/m	1/m	
primary	leak check	0.000	0.000	0.00	0.001	-0.02	1/m	1/m	
primary	test pt 1	1.541	1.524	1.53	1.518	1.50	1/m	1/m	-1.57%
primary	test pt 2	1.542	1.525	1.52	1.515	1.50	1/m	l/m	-1.64%
primary	test pt 3	1.543	1.526	1.52	1.518	1.50	1/m	l/m	-1.70%
Sensor Compo	onent Leak Tes	st		Conditio	on		Status	pass	
Sensor Compo	onent Filter Azi	muth		Conditio	Not tested		Status	pass	
Sensor Compo	onent Filter Dep	oth		Conditio	3.0 cm		Status	pass	
Sensor Compo	onent Filter Pos	sition		Conditio	Good		Status	pass	
Sensor Compo	onent Moisture	Present		_	No moisture p	resent	Status	pass	
	onent Rotomete		on	Conditio	Clean and dry		Status		
	onent System M			Conditio			Status		
	onent Tubing C			Conditio			Status		
					4.0 cm				
Sensor Component Filter Distance		Condidi	T.0 0111	Status		pass			

Ozone Data Form

Mfg S	erial Number Ta	Site	Teo	chnician		Site Visit I	Date Param	eter	Owner ID
ThermoElectron Inc 1	105347319	DCP114	Sa	indy Grer	ville	04/22/2013	Ozone		000732
Intercept 0.9	9300 Slope: 02403 Intercept 09999 CorrCoff	0.00000 0.00000 0.00000		Mfg Serial N	umber	ThermoElec		rameter oz	one zone transfer
CorrCoff 0.9	O9999 CorrCoff	0.00000	<u>'</u>	Tfer ID		01100			
DAS 1:	DAS 2:			Slope		1.	00308 Inte	rcept	-0.17961
A Avg % Diff: A Ma	2.6% A Avg %	6Dif A Max %	% Di	Cert Da	te	4/2	2/2013 Cor	rCoff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si		Site Unit:	PctDif	ference:
primary	1	0.00	0.1		1.	11			
primary	2	31.00	31.		31.				2.64%
primary	3	50.74	50.		51.				0.65%
primary primary	5	80.16 103.74	80.0 103		80. 104	11			0.26%
Sensor Component			Conditio			.00 рр	Status	pass	0.3970
Sensor Component			Conditio				Status	pass	
Sensor Component			Conditio				Status		
Sensor Component	Inlet Filter Condition	n	Conditio	on Clean			Status	pass	
Sensor Component	Line Loss		Conditio	on < 1 %			Status	pass	
Sensor Component	Offset		Conditio	on -0.60			Status	pass	
Sensor Component	Span		Conditio	0.998			Status	pass	
Sensor Component	Cell B Freq.		Conditio	99.5 k	Hz		Status	pass	
Sensor Component	System Memo		Conditio	on			Status	pass	
Sensor Component	Sample Train		Conditio	Good			Status	pass	
Sensor Component	Cell B Pressure		Conditio	on			Status	pass	
Sensor Component	Cell B Flow		Conditio	0.73 lp	om		Status	pass	
Sensor Component	Cell A Tmp.		Conditio	36.6 C	;		Status	pass	
Sensor Component	Cell A Pressure		Conditio	725 m	mHg		Status	pass	
Sensor Component	Cell A Noise		Conditio	0.9 pp	b		Status	pass	
Sensor Component	Cell A Freq.		Conditio	n 113.8	kHz		Status	pass	
Sensor Component	Cell A Flow		Conditio	0.74 lp	om		Status	pass	
Sensor Component	Battery Backup		Conditio	n N/A			Status	pass	
Sensor Component	Zero Voltage		Conditio	N/A			Status	pass	

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg DCP114 Sandy Grenville Temperature 02828 RM Young illegible 04/22/2013 Mfg Extech Parameter Temperature Tfer Desc. RTD H232734 **Serial Number** 01227 Tfer ID -0.08480 Slope 1.00435 **Intercept DAS 1: DAS 2:** 1/12/2013 1.00000 **Cert Date** CorrCoff Abs Avg Err Abs Max Er Abs Avg Err **Abs Max Er** 0.13 0.15 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: Temp Low Range -0.02 0.000 primary -0.100.1 \mathbf{C} 0.1 C Temp Mid Range 24.51 24.49 0.000 24.6 0.15 primary C primary Temp High Range 48.36 48.23 0.000 48.4 0.13 Condition Moderately clean Sensor Component | Shield **Status** pass Sensor Component Blower Status Switch **Condition** Functioning **Status** pass **Condition** Not functioning **Sensor Component** Blower **Status** Fail Condition See comments Sensor Component | System Memo Status pass

Infrastructure Data For

Si	te ID	DCP114	Technician	Sandy Grenville	Site Visit Date	04/22/2013	
	Shelter M	ake	Shelter Model	She	lter Size		
	Ekto		8810 (s/n 2149-	-13) 640	cuft		
		CONTRACTOR INCOME.					

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	Fair	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	25.84	25.81	0.000	25.7	C	-0.1
primary	Temp Mid Range	25.14	25.12	0.000	25.0	С	-0.11
primary	Temp Mid Range	25.07	25.05	0.000	24.9	С	-0.12

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard Pro	blem
Temperature	DCP114	Sandy Grenville	04/22/2013	Blower	RM Young	1006		
TT1 C 1 1 1 1 C								

The forced-air blower for the shield is not functioning.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is following procedures and doing a very good job with filter handling.

2 Parameter: DasComments

One leg of the meteorological sensor tower is damaged and has a hole near the midpoint of the tower.

3 Parameter: SiteOpsProcedures

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

4 Parameter: SitingCriteriaCom

The site is located in a wooded thicket within a state park. The area surrounding the park is almost completely intensive agriculture. The site may not be regionally representative.

5 Parameter: ShelterCleanNotes

The shelter is currently in fair condition. There are loose floor tiles. There are signs of rodent infestation.

6 Parameter: MetOpMaintCom

The blower for the aspirated temperature sensor shield is not functioning. This will affect sensor accuracy and data quality.

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Site ID DCP114	Technician Sandy Grenville	Site Visit Date 04/2	2/2013
Site Sponsor (agency)	EPA	USGS Map	Mount Sterling
Operating Group	private / state	Map Scale	
AQS#	39-047-9991	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone	QAPP Latitude	39.6358
Deposition Measurement	dry, wet	QAPP Longitude	-83.2600
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	267
Terrain	flat	QAPP Declination	6.25
Conforms to MLM	Marginally	QAPP Declination Date	2/23/2006
Site Telephone	(740) 869-4722	Audit Latitude	39.635888
Site Address 1	Waterloo Road	Audit Longitude	-83.260563
Site Address 2	Deer Creek State Park	Audit Elevation	264
County	Fayette	Audit Declination	-6.3
City, State	Mount Sterling, OH	Present	
Zip Code	43143	Fire Extinguisher	No inspection date
Time Zone	Eastern	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator	none	Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room $\overline{\checkmark}$	Make Ekto Mo	odel 8810 (s/n 2149-13)	Shelter Size 640 cuft
Shelter Clean	Notes The shelter is currently in fair c infestation.	ondition. There are loose floo	r tiles. There are signs of rodent
Site OK	Notes Notes		
Driving Directions From	Circleville take 22/56 west. Stay on 22 the		
lodge.	for the park office and lodge. After crossing Continue approximately 1.5 miles and tube next right onto a stone road. Continue	irn right again into the park. G	o past the office and golf course and

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Site ID DCP114 Technician Sandy Grenville Site Visit Date 04/22/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km		~
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m		
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		
Large parking lot	200 m		
Small parking lot	100 m		~
Tree line	50 m	15 m	
Obstacles to wind	10 times obstacle height		~

Siting Distances OK

Siting Criteria Comment

The site is located in a wooded thicket within a state park. The area surrounding the park is almost completely intensive agriculture. The site may not be regionally representative.

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Site	ID	DCP114	Technician Sandy Grenville		Site Visit Date 04/22/2013
1		d speed and directio	n sensors sited so as to avoid tions?	✓	N/A
2	(i.e. win	d sensors should be tally extended boom	o as to minimize tower effects? mounted atop the tower or on a >2x the max diameter of the	✓	N/A
3		to the prevailing win tower and sensors p		✓	N/A
4			pointed north or positioned to such as buildings, walls, etc?	✓	
5	conditio surface	ons? (i.e. ground belo	nsors sited to avoid unnatural ow sensors should be natural ed. Ridges, hollows, and areas of oided)	✓	
6		olar radiation sensor		✓	N/A
7	Is it site light?	d to avoid shading, o	or any artificial or reflected	✓	N/A
8	Is the ra	ain gauge plumb?		✓	N/A
9	Is it site towers,		effects from buildings, trees,	✓	N/A
10	Is the su facing n		r sited with the grid surface	✓	N/A
11	Is it inc	lined approximately	30 degrees?	✓	N/A
	A CONTRACTOR OF STREET		ion (photograph or sketch if nece affect the monitoring parameters		y) regarding conditions listed above, or any other features,

1 Do all the	OCP114				F-0	2058-1	500-S4-rev00
		Technician	Sandy Grenville		Site Visit Date 04/22/20	13	
condition.	meterological sens		intact, in good	✓			
	and well maintain meteorological ser		ıl online, and	V			
reporting of Are the sh	data? ields for the tempe	rature and RH s	sensors clean?	✓	Moderately clean		
	pirated motors wo			V	Not functioning		
	r radiation sensor's		fron of	~	N/A		
scratches?							
Is the surf	ace wetness sensor	grid clean and u	ındamaged?		N/A		
	nsor signal and pov and well maintain		t, in good	✓			
	nsor signal and pov lements and well n		ctions protected	V			
Parameter	N	lanufacturer	Model		S/N	(Client ID
emperature	R	M Young	41342	NO PROPERTY.	illegible	0	2828
tural or man-	litional explanation made, that may af	(photograph or fect the monitor	r sketch if necessing parameters:		regarding conditions listed	above, or	any other feature

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Site ID	DCP114	Technician Sa	andy Grenville		Site Visit Date 04/22/201	3]		
Sitin	g Criteria: Are the p	ollutant analyzers and	deposition eq	<u>uipn</u>	nent sited in accordance witl	1 40 CFR 5	8, Appendix	<u>(E</u>	
	he sample inlets have stricted airflow?	at least a 270 degree a	arc of	✓					
2 Are	the sample inlets 3 - 1	15 meters above the gro	ound?	✓					
	the sample inlets > 1 20 meters from trees	meter from any major ?	obstruction,		Small trees within 10 meters				
Pollu	itant analyzers and d	eposition equipment o	perations and	mai	<u>ntenance</u>				
	he analyzers and equ lition and well mainta	ipment appear to be in ained?	good	V					
	Are the analyzers and monitors operational, on-line, and reporting data?								
3 Desc	ribe ozone sample tu	be.			1/4 teflon by 12 meters				
4 Desc	ribe dry dep sample	tube.			3/8 teflon by 12 meters				
	in-line filters used in cate location)	the ozone sample line?	(if yes	✓					
	sample lines clean, fr	ee of kinks, moisture,	and	✓					
7 Is th	e zero air supply desi	ccant unsaturated?		V					
8 Are	there moisture traps	in the sample lines?		V					
9 Is th		e dry deposition filter l	line, and is it	V	Clean and dry				
Paramet	er	Manufacturer	Model		S/N	Cli	ent ID		
Sample T	ower	Aluma Tower	В	element .	AT-81056-J-4	000	0030		
Filter pac	k flow pump	Thomas	107CAB18		100300020819	049	926		
Zero air p	oump	Werther International	PC70/4		000829175	069	939		
Ozone		ThermoElectron Inc	49i A1NAA		1105347319	000	0732		
		tion (photograph or sky affect the monitoring		ary)	regarding conditions listed	above, or a	ny other fea	tures,	

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Site	ID	DCP114	Technician	Sandy Grenville		Site Visit Date 0	4/22/2013	
	DAS, se	ensor translators, and	peripheral equi	pment operation	s and	<u>maintenance</u>		
1	Do the l	DAS instruments appointained?	ear to be in good	d condition and		No.		
2		the components of the , backup, etc)	DAS operation	al? (printers,	V			
3		analyzer and sensor si ng protection circuitry		through	M	et sensors only		
4		signal connections pr intained?	otected from th	e weather and	V			
5	Are the DAS, sensor translators, and shelter properly				V			
6	Are the ground		ors, and shelter	properly	✓			
7	Does th	e instrument shelter h	ave a stable pov	wer source?	V			
8	Is the in	nstrument shelter tem	perature contro	lled?	~			
9	Is the m	net tower stable and g	rounded?			Stable	Grounded	
10	Is the sa	ample tower stable an	d grounded?					
11	Tower o	comments?			To	owers are not groun	ded	
						COL		
Par	ameter	M	lanufacturer	Model		S/N	Cli	ent ID
DAS			lanufacturer ampbell	Model CR3000		2124		ent ID
	S	C						0345
DAS	S	C	ampbell	CR3000		2124	000	0345
Mod	dem wide any	C	ampbell aven on (photograph	CR3000 H4222-C or sketch if neces		2124 0808311283	000)345 1 79
Pro nat	dem vide any ural or n	Rain Rain Rain Rain Rain Rain Rain Rain	ampbell aven on (photograph ffect the monito	CR3000 H4222-C or sketch if necesoring parameters		2124 0808311283 regarding condition	ons listed above, or a)345 1 79
Pro nat	dem vide any ural or n	c additional explanationan-made, that may a	ampbell aven on (photograph ffect the monito	CR3000 H4222-C or sketch if necesoring parameters		2124 0808311283 regarding condition	ons listed above, or a)345 1 79

F-02058-1500-S7-rev001 **Field Systems Data Form** Site ID DCP114 Technician Sandy Grenville Site Visit Date 04/22/2013 **Documentation** Does the site have the required instrument and equipment manuals? N/A No Yes No N/A Yes П **V** V Wind speed sensor **Data logger** V Wind direction sensor V **Data logger** V **V** Temperature sensor Strip chart recorder V V Relative humidity sensor Computer ~ \Box П ~ Solar radiation sensor Modem V П \Box ~ П Surface wetness sensor **Printer** V ~ Wind sensor translator Zero air pump ~ **Temperature translator** V Filter flow pump ~ ~ **Humidity sensor translator** Surge protector V **V UPS** Solar radiation translator П ~ Lightning protection device **V** Tipping bucket rain gauge **V V** П **Shelter heater** Ozone analyzer V **V** \Box Filter pack flow controller Shelter air conditioner **V** Filter pack MFC power supply Does the site have the required and most recent QC documents and report forms? Present Current **Station Log** V **V** SSRF ~ **V** Site Ops Manual

Field Ops Manual		July 1990						
Calibration Reports	✓					✓		
Ozone z/s/p Control Charts						✓		
Preventive maintenance schedul								
 Is the station log properly con Are the Site Status Report For current? 			>		1			
3 Are the chain-of-custody form sample transfer to and from la	V534 # 5.2212301	erly used to document	✓					
4 Are ozone z/s/p control charts current?	prope	rly completed and	C	Control charts n	ot used			
Provide any additional explanation	ı (phot	ograph or sketch if neces	sary)	regarding con	nditions li	isted abov	e, or any ot	ther features,

~

V

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

Nov 2009

HASP

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Site	ID DCP114	Technician	Sandy Grenville	Site Visit Date 04/22/	2013
	Site operation procedures				
1	Has the site operator attended course? If yes, when and who		STNET training	Trained during site installat	ion by ESE employee DDK
2	Has the backup operator attertraining course? If yes, when	nded a formal			
	Is the site visited regularly on schedule?			V	
	Are the standard CASTNET of followed by the site operator?		cedures being	V	
5	Is the site operator(s) knowled the required site activities? (in	geable of, and cluding docum	able to perform entation)	V	
	Are regular operational QA/Q	C checks perfo	ormed on meteor	ological instruments?	
QC	Check Performed		Frequency		Compliant
Mul	tipoint Calibrations	V	N/A		<u> </u>
	al Inspections	V	N/A		V
	nslator Zero/Span Tests (clima	tronics)	N/A		
Man	nual Rain Gauge Test	V	N/A		
Con	firm Reasonableness of Curre	nt Values	N/A		✓
Test	Surface Wetness Response	V	N/A		✓
	Are regular operational QA/Q	C checks perfe	ormed on the ozo	ne analyzer?	
	Check Performed		Frequency		Compliant
Mul	ti-point Calibrations	V	Semiannually		
Auto	omatic Zero/Span Tests	V	NAME OF TAXABLE PARTY OF TAXABLE PARTY.		
	nual Zero/Span Tests				
	omatic Precision Level Tests	V	Daily		
Man	nual Precision Level Test			00 40/000 to 18-000-0000 /- Member 100-80-20-9-4000	
Ana	lyzer Diagnostics Tests	V	Weekly		✓
In-li	ne Filter Replacement (at inlet	SCHOOL SERVICE MANAGEMENT SERVICE SERV	CONTRACTOR OF THE PARTY OF THE	S	
In-li	ne Filter Replacement (at anal	A STATE OF THE PARTY OF THE PAR	SHIP SAME OF THE PARTY OF THE P		
Sam	ple Line Check for Dirt/Water		26333		
Zero	Air Desiccant Check	V	Weekly		
	Do multi-point calibration gassample train including all filte		the complete		
2	Do automatic and manual z/s/j	gasses go thr	ough the	V	
	complete sample train includir			SSRF, call-in	
	Are the automatic and manual reported? If yes, how?	z/s/p checks n	nonitored and	SSRF, call-in	
	ide any additional explanation ral or man-made, that may affo			sary) regarding conditions lis	ted above, or any other features,
	ozone inlet filter is replaced and the			/ two weeks.	

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Site	ID	DCP114	Tecl	mician	Sandy Grenville		Site Visit Date	e 04/22/2013			
	Site o	peration procedures									
1		filter pack being change	d every	Tuesd	av as scheduled?	V	Filter changed mo	rinings			
			,					3-			
2	Are the	ne Site Status Report For ctly?	ms bei	ng com	pleted and filed	✓					
3	Are d	ata downloads and backtuled?	ups bei	ng perf	ormed as		No longer required	d			
4	Are go	eneral observations being	g made	and re	corded? How?	✓	SSRF, logbook				
5	Are si fashio	te supplies on-hand and n?	repleni	shed in	a timely	✓					
6	Are sample flow rates recorded? How? Are samples sent to the lab on a regular schedule in a time fashion?					✓	SSRF, call-in				
7			a regul	ar sche	dule in a timely	✓					
8		Iters protected from cont	tamina	tion du	ring handling	✓	Clean gloves on a	nd off			
9	Are th	ne site conditions reporte tions manager or staff?	d regul	arly to	the field	✓					
QC	Check	Performed		Free	quency			Compliant			
N	Iulti-p	oint MFC Calibrations		✓ Sem	iannually	01(0)		✓			
F	low Sy	stem Leak Checks		Wee	ekly	10.15					
F	ilter P	ack Inspection				1401121					
		te Setting Checks		Wee	SERVICE CONTRACTOR AND ADDRESS OF THE PARTY	and the	V				
		Check of Flow Rate Rotor		wee	NAME OF TAXABLE PARTY.	277700	V				
		Filter Inspection/Replace		CITY OLD	iannually	E016,317/3		∨			
		Line Check for Dirt/Wat		✓ Wee		633					
		y additional explanation (nan-made, that may affe					y) regarding condi	tions listed above, or an	y other features,		
		rator is following procedure	100	THE RESERVE		0.3	er handling.				

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
SAN	189-Sandy	Grenville-04/25/2013				
1	4/25/2013	Computer	Dell	000271	D520	unknown
2	4/25/2013	DAS	Campbell	000360	CR3000	2138
3	4/25/2013	Elevation	Elevation	None	1	None
4	4/25/2013	Filter pack flow pump	Thomas	06026	107CAB18	060400022659
5	4/25/2013	flow rate	Tylan	000174	FC280SAV	AW423006
6	4/25/2013	Infrastructure	Infrastructure	none	none	none
7	4/25/2013	MFC power supply	MACTEC	none	none	none
8	4/25/2013	Modem	Raven	06453	V4221-V	0808337397
9	4/25/2013	Ozone	ThermoElectron Inc	000740	49i A1NAA	1105347311
10	4/25/2013	Ozone Standard	ThermoElectron Inc	000444	49i A3NAA	CM08200020
11	4/25/2013	Sample Tower	Aluma Tower	000207	В	none
12	4/25/2013	Shelter Temperature	Campbell	none	107-L	223461
13	4/25/2013	Siting Criteria	Siting Criteria	None	1	None
14	4/25/2013	Temperature	RM Young	06537	41342VC	14798
15	4/25/2013	Zero air pump	Werther International	06875	C 70/4	000814272

DAS Data Form 0 **DAS Time Max Error: Serial Number** Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2138 **SAN189** Sandy Grenville 04/25/2013 DAS Primary Das Date: 4 /25/2013 **Audit Date** 4 /25/2013 Datel **Parameter** DAS Mfg Das Time: 15:46:01 **Audit Time** 15:46:01 15510194 Tfer Desc. Source generator (D **Serial Number** 115 Das Day: **Audit Day** 115 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 Slope **Intercept** 0.0001 0.0001 0.0001 0.0001 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 95740135 Tfer Desc. DVM 01311 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/26/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0000 0.0000

0.0999

0.2998

0.4997

0.6996

0.8995

0.9993

7

7

7

7

7

7

0.1000

0.3000

0.5000

0.7000

0.9000

1.0000

0.0999

0.2999

0.4997

0.6997

0.8996

0.9994

V

V

V

V

V

V

V

V

V

V

V

V

0.0000

-0.0001

0.0000

-0.0001

-0.0001

-0.0001

Flow Data Form

Mfg	Serial Nu	mber Ta	Site	Tec	chnician	Site Visit I	Date Param	eter	Owner ID
Tylan	AW42300)6	SAN189	Sa	andy Grenville	04/25/2013	flow rat	te	000174
Mfg	MACTEC				Mfg	BIOS	P	arameter Flo	w Rate
SN/Owner ID	none	none			Serial Number	103471	Т	fer Desc. nex	kus
Parameter	MFC power su	ıpply			Tfer ID	01420			
	<u> </u>		<u> </u>		Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	6/1:	3/2012 Cor	rCoff	1.00000
					Mfg	BIOS	P	arameter Flo	w Rate
					Serial Number	103424	Т	fer Desc. Blo	OS cell
					Tfer ID	01410			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	1/2	7/2012 Cor	rCoff	1.00000
DAS 1:		DAS 2:		L	Cal Factor Z	ero	-0.0)2	
A Avg % Diff:	A Max % Di	A Avg %	6Dif A Max	x % Di	Cal Factor F	ull Scale	1.0)1	
1.13%	1.15%				Rotometer R	eading:	1.	.5	
UseDescription	: Test type:	Input 1/n	n: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference:
primary	pump off	0.000	0.000	-0.11	-0.011	-0.03	1/m	l/m	
primary	leak check	0.000	0.000	-0.11	-0.011	-0.03	1/m	l/m	
primary	test pt 1	3.121	2.966	2.82	2.816	3.00	1/m	l/m	1.15%
primary	test pt 2	3.121	2.966	2.82	2.817	3.00	1/m	1/m	1.15%
primary	test pt 3	3.121	2.968	2.82	2.816	3.00	1/m	l/m	1.08%
Sensor Comp	onent Leak Te	st		Conditio	on		Status	pass	
Sensor Comp	onent Filter Az	rimuth		Conditio	270 deg		Status	pass	
Sensor Comp	onent Filter De	epth		Conditio	3.5 cm		Status	pass	
Sensor Comp	onent Filter Po	sition		Conditio	Good		Status	pass	
Sensor Comp	onent Moisture	e Present		Conditio	No moisture p	resent	Status	pass	
Sensor Comp			on	Condition	Clean and dry		Status		
Sensor Comp				Conditio			Status		
	onent Tubing			Condition			Status		
	onent Filter Di			_	3.5 cm		Status		
Sensor Comp	onem Linei Di	stariot		Condido	3.5 611		Status	μασσ	

Ozone Data Form

Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	Date Para	meter	Owner ID
ThermoElectron Inc 1	105347311	SAN189	Sa	indy Grer	ville	04/25/20	13 Ozon	е	000740
Slope: 0.9	95175 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Parameter	ozone
•	21042 Intercept	0.00000		Serial N	umber	49C-7310	04-373	Tfer Desc.	Ozone transfer
CorrCoff 0.9	99993 CorrCoff	0.00000)			01100		2101 2 0500	
				Tfer ID		01100			
DAS 1:	DAS 2:	/TD:0 4 T/F 0	/ D:	Slope			1.00308 In	tercept	-0.17961
A Avg % Diff: A Ma 3.0%	3.6% A Avg %	6Dif A Max %	% Di	Cert Da	te	4	4/2/2013 C	orrCoff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Unit:	Pctl	Difference:
primary	1	0.00	0.1				opb		
primary	2	30.02	30.			-	opb		-1.99%
primary	3	51.62	51.				opb		-3.64%
primary	5	82.16 101.29	82. 101		97		opb		-2.91% -3.51%
primary	<u> </u>	101.29				.00 <u>J</u>	opb	noon	-3.31%
Sensor Component	Cell B Noise		Conditio	υ.4 pp	מו		Stati	pass	
Sensor Component	Cell B Tmp.		Conditio	on			State	pass	
Sensor Component	Fullscale Voltage		Conditio	n N/A			Stati	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			State	pass	
Sensor Component	Line Loss		Conditio	on < 1 %			Stati	pass	
Sensor Component	Offset		Conditio	-0.10			Stati	pass	
Sensor Component	Span		Conditio	1.005			Stati	pass	
Sensor Component	Cell B Freq.		Conditio	83.7 k	Hz		Stati	pass	
Sensor Component	System Memo		Conditio	on			Stati	pass	
Sensor Component	Sample Train		Conditio	Good			Stati	pass	
Sensor Component	Cell B Pressure		Conditio	on			Stati	pass	
Sensor Component	Cell B Flow		Conditio	0.65 lp	om		State	pass	
Sensor Component	Cell A Tmp.		Conditio	35.9 C	;		State	pass	
Sensor Component	Cell A Pressure		Conditio	688 m	mHg		State	pass	
Sensor Component	Cell A Noise		Conditio	0.4 pp	b		Stati	pass	
Sensor Component	Cell A Freq.		Conditio	92.0 k	Hz		Stati	pass	
Sensor Component	Cell A Flow		Conditio	0.68 lp	om		Stati	pass	
Sensor Component	Battery Backup		Conditio	n N/A			Stati	pass	
Sensor Component	Zero Voltage		Conditio	N/A			Stati	pass	

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young SAN189 Temperature 06537 14798 04/25/2013 Mfg Extech Parameter Temperature Tfer Desc. RTD H232734 **Serial Number** 01227 Tfer ID -0.08480 **Slope** 1.00435 **Intercept DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.11 0.24 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: 0.000 0.09 primary Temp Low Range 0.32 0.40 0.5 \mathbf{C} C Temp Mid Range 24.20 24.18 0.000 24.2 -0.01 primary C -0.24 primary Temp High Range 48.31 48.19 0.000 48.0 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** Functioning **Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Infrastructure Data For

Site ID SAN189 Technician Sandy Grenville Site Visit Date 04/25/2013

Shelter Make	Shelter Model	Shelter Size	
Shelter One	E8109-26012	720 cuft	

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	N/A	Status	pass
Sensor Component	Moisture Trap	Condition	Not installed	Status	Fail
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	Pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Good	Status	pass
Sensor Component	Shelter Floor	Condition	Good	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	1/4 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	223461	SAN189	Sandy Grenville	04/25/2013	Shelter Temperature	none
DAS 1:	DAS 2:		Mfg	Extech	Parameter She	elter Temperatur
Abs Avg Err 0.34	8 Max Er Abs Avg 0.65	Err Abs Max Er	Serial Number	H232734	Tfer Desc. RT	D
			Tfer ID	01227		
			Slope	1.00435	Intercept	-0.08480
			Cert Date	1/12/2013	CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	27.38	27.35	0.000	27.4	С	0.04
primary	Temp Mid Range	27.38	27.35	0.000	27.7	С	0.32
primary	Temp Mid Range	23.36	23.34	0.000	22.7	С	-0.65

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator was observed to be not completely familiar with all aspects of CASTNET site operation. Additional training is recommended. Flow rate leak checks are not performed although they are reported. The initial and final flow rates are not recorded correctly. These observations were reported following the previous audit.

2 Parameter: SiteOpsProcedures

CASTNET procedures including filter pack leak check and filter pack final flow rate are not being performed correctly. Additional training is recommended.

3 Parameter: ShelterCleanNotes

The shelter is in very good condition, however somewhat cluttered.

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Site ID SAN189	Technician Sandy Grenville	Site Visit Date 04/2	5/2013
Site Sponsor (agency)	EPA	USGS Map	Santee
Operating Group	Santee Sioux Nation	Map Scale	
AQS#	31-107-9991	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone, SO2, NOx, CO	QAPP Latitude	
Deposition Measurement	dry	QAPP Longitude	
Land Use	range	QAPP Elevation Meters	429
Terrain	rolling	QAPP Declination	
Conforms to MLM	Yes	QAPP Declination Date	6/21/2006
Site Telephone	(402) 857-2546	Audit Latitude	42.829154
Site Address 1	SR S54D	Audit Longitude	-97.854128
Site Address 2	Santee Sioux Indian Reservation	Audit Elevation	434
County	Knox	Audit Declination	5.0
City, State	Niobrara, NE	Present	
Zip Code	68760	Fire Extinguisher	No inspection date
Time Zone	Central	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Shelter One Mo	E8109-26012	Shelter Size 720 cuft
	Notes The shelter is in very good cond	dition, however somewhat clut	tered.
	Notes		
appro: appro:	Yankton, South Dakota go south on route ximately 26 miles. Just past the casino ar ximately 6.5 miles. The site will be visible ing Santee.	nd gas station, turn right (north) onto SR 54 toward Santee. Continue

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Site ID SAN189 Technician Sandy Grenville Site Visit Date 04/25/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km		~
City 10,000 to 50,000 population	10 km		V
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m	-	
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		V
Large parking lot	200 m		
Small parking lot	100 m		
Tree line	50 m		
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Commen

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Site	ID	SAN189	Technician	Sandy Grenville		Site Visit Date 04/25/2013
1		nd speed and directifuenced by obsta	ction sensors sited so ructions?	as to avoid	✓	N/A
2	(i.e. win	nd sensors should	ed so as to minimize be mounted atop the om >2x the max diar wind)	tower or on a	>	N/A
3		tower and sensor			✓	N/A
4			elds pointed north or ces such as buildings		✓	
5	condition surface	ons? (i.e. ground l	I sensors sited to avo pelow sensors should loped. Ridges, hollov avoided)	be natural	>	
6	Is the so	olar radiation sen	sor plumb?		✓	N/A
7	Is it site light?	ed to avoid shadin	g, or any artificial o	r reflected	✓	N/A
8	Is the ra	ain gauge plumb?			✓	N/A
9	Is it site towers,		ing effects from buil	dings, trees,	✓	N/A
10	Is the si		nsor sited with the gr	id surface	✓	N/A
11	Is it inc	clined approximat	tely 30 degrees?		✓	N/A
			nation (photograph o ay affect the monito			y) regarding conditions listed above, or any other features,
		. 1				

			0.4/05	(0040		
Technician	Sandy Grenville	6573	Site Visit Date 04/25	2013		
	e intact, in good	✓				
2 Are all the meteorological sensors operational online, and reporting data?						
3 Are the shields for the temperature and RH sensors clean?						
4 Are the aspirated motors working?						
Is the solar radiation sensor's lens clean and free of scratches?			N/A			
Is the surface wetness sensor grid clean and undamaged?		N/A				
Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained?			N/A			
nufacturer	Model		S/N	Client ID		
Temperature RM Young 41342VC			14798	06537		
	s appear to be? ors operations ture and RH ing? ens clean and rid clean and er cables intac er cable conne intained? nufacturer	Technician Sandy Grenville s appear to be intact, in good? ors operational online, and ature and RH sensors clean? ing? ens clean and free of rid clean and undamaged? er cables intact, in good? er cable connections protected intained? nufacturer Model	Technician Sandy Grenville s appear to be intact, in good ? ors operational online, and atture and RH sensors clean? ing? ens clean and free of rid clean and undamaged? er cables intact, in good ? er cable connections protected intained? nufacturer Model	Technician Sandy Grenville Site Visit Date 04/25/ s appear to be intact, in good ? ors operational online, and atture and RH sensors clean? ing? ens clean and free of N/A rid clean and undamaged? or cables intact, in good ? or cable connections protected intained? mufacturer Model S/N	Technician Sandy Grenville Site Visit Date 04/25/2013 s appear to be intact, in good ? ors operational online, and with the and RH sensors clean? ing? ens clean and free of with N/A rid clean and undamaged? recables intact, in good ? or cable connections protected intained? nufacturer Model S/N Client ID	

Field Systems Data Form F-02058-1500-S5-rev001 **SAN189** Technician Sandy Grenville Site Visit Date 04/25/2013 Site ID Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E **V** Do the sample inlets have at least a 270 degree arc of unrestricted airflow? ~ Are the sample inlets 3 - 15 meters above the ground? ~ Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? Pollutant analyzers and deposition equipment operations and maintenance ~ Do the analyzers and equipment appear to be in good condition and well maintained? ~ Are the analyzers and monitors operational, on-line, and reporting data? Describe ozone sample tube. 1/4 teflon by 16 meters Describe dry dep sample tube. 1/4 teflon by 16 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) ~ Are sample lines clean, free of kinks, moisture, and obstructions? **V** 7 Is the zero air supply desiccant unsaturated? Are there moisture traps in the sample lines? Is there a rotometer in the dry deposition filter line, and is it clean? **Parameter** Manufacturer S/N Client ID Model Sample Tower Aluma Tower В 000207 none MACTEC MFC power supply none none none Ozone ThermoElectron Inc 49i A1NAA 1105347311 000740 Filter pack flow pump Thomas 107CAB18 060400022659 06026 C 70/4 Werther International 000814272 06875 Zero air pump

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

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Site	ID	SAN189	Technician	Sandy Grenville		Site Visit Date 04/25/2	2013	
	DAS, se	ensor translators, a	nd peripheral equi	pment operations	and	<u>maintenance</u>		
1	Do the well ma	DAS instruments a intained?	ppear to be in goo	d condition and				
2		the components of , backup, etc)	the DAS operation	al? (printers,				
3		analyzer and sensong protection circui		through	П	et sensors only		
4		signal connections intained?	protected from th	e weather and				
5	5 Are the signal leads connected to the correct DAS channel?							
6	Are the ground	DAS, sensor transed?	lators, and shelter					
7	Does th	e instrument shelte	er have a stable pov	wer source?				
8	Is the ii	nstrument shelter to	emperature contro	lled?				
		net tower stable and				Stable ✓	Grounded	
		ample tower stable comments?	and grounded?				V	
Par	ameter		Manufacturer	Model		S/N	Clie	ent ID
Con	puter		Dell	D520		unknown	000	271
DAS			Campbell	CR3000		2138	000	360
Mod	em		Raven	V4221-V		0808337397	064	53
								_##
		additional explana nan-made, that ma			sary)	regarding conditions lis	sted above, or a	any other features,
			33.0					

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Documentation Does the site have the required instrument and equipment manuals? Yes No N/A Yes No N/A
Does the site have the required instrument and equipment manuals? Yes No N/A Wind speed sensor
Wind speed sensor
Wind speed sensor
Wind direction sensor
Temperature sensor
Relative humidity sensor
Solar radiation sensor
Surface wetness sensor
Wind sensor translator
Temperature translator
Humidity sensor translator
Solar radiation translator
Tipping bucket rain gauge
Ozone analyzer
Filter pack flow controller
Filter pack MFC power supply
Does the site have the required and most recent QC documents and report forms? Present Current Station Log SSRF Site Ops Manual Feb 2005 Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Present Current Station Log SSRF Site Ops Manual HASP Feb 2005 Galibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Station Log SSRF Site Ops Manual HASP Feb 2005 Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
SSRF Site Ops Manual Feb 2005 HASP Feb 2005 Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Site Ops Manual HASP Feb 2005 Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and
HASP Feb 2005 Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 2 Are the Site Status Report Forms being completed and
 1 Is the station log properly completed during every site visit? ✓ 2 Are the Site Status Report Forms being completed and
2 Are the Site Status Report Forms being completed and
2 Are the Site Status Report Forms being completed and
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 Control charts not used
current?
Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other featu natural or man-made, that may affect the monitoring parameters:
advarded of many matter may direct the monitoring parameters.

Field Systems Data Form F-02058-1500-S8-rev001 **SAN189** Technician Sandy Grenville Site ID Site Visit Date 04/25/2013 Site operation procedures Has the site operator attended a formal CASTNET training Trained by previous site operator course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET П training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant V** ~ N/A **Multipoint Calibrations** ~ ~ N/A **Visual Inspections** ~ N/A **Translator Zero/Span Tests (climatronics) V** ~ N/A **Manual Rain Gauge Test V V** N/A **Confirm Reasonableness of Current Values** ~ ~ N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **Compliant OC Check Performed** Frequency **Multi-point Calibrations** ~ **V** Semiannually ~ ~ **Automatic Zero/Span Tests** Daily Manual Zero/Span Tests **V V** Daily **Automatic Precision Level Tests Manual Precision Level Test** ~ ~ Weekly **Analyzer Diagnostics Tests** ~ Every 2 weeks **In-line Filter Replacement (at inlet)** ~ N/A In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water ~ ~ **Zero Air Desiccant Check** Weekly

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

V

Do multi-point calibration gases go through the complete

Are the automatic and manual z/s/p checks monitored and

Do automatic and manual z/s/p gasses go through the

complete sample train including all filters?

sample train including all filters?

reported? If yes, how?

Unknown

SSRF, logbook, call-in

CASTNET procedures including filter pack leak check and filter pack final flow rate are not being performed correctly. Additional training is recommended.

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Site	e ID	SAN189	Technicia	Sandy Grenville		Site Visit Date 04/25/2013
	Site on	eration procedures				
	<u>Site op</u>	cration procedures				
1	Is the f	ilter pack being changed o	very Tue	sday as scheduled?	✓	Filter changed morinings
2	Are the	e Site Status Report Forms	s being co	mpleted and filed		
3	Are da schedu	ta downloads and backups led?	s being pe	rformed as		No longer required
						SSRF, logbook
fashion?					✓	
fashion? 6 Are sample flow rates recorded? How?					✓	SSRF, call-in
7	Are sar	mples sent to the lab on a 1 1?	egular sc	hedule in a timely	✓	
8		ters protected from contar ipping? How?	nination o	luring handling	✓	
9		e site conditions reported i ions manager or staff?	egularly	to the field	✓	
QC	Check 1	Performed	F	requency		Compliant
N	Aulti-po	int MFC Calibrations	✓ S	emiannually	en en en en	✓
F	low Sys	tem Leak Checks				
F	ilter Pa	ck Inspection		NATIONAL DESCRIPTION OF THE PARTY OF THE PAR	********	
F	low Rat	e Setting Checks	✓ [V	eekly eekly	Turbys	
7	isual C	heck of Flow Rate Rotome	ter 🗆 N	/A	2000	
I	n-line F	ilter Inspection/Replaceme	ent 🛂 S	emiannually	DEPENDENT.	
S	ample I	Line Check for Dirt/Water	L_		100	
	COLUMN DAY OF STREET	additional explanation (pl an-made, that may affect	The second secon		10/12/14/05	ry) regarding conditions listed above, or any other features,
recor	nmende		not perfo	rmed although they	are	ects of CASTNET site operation. Additional training is re reported. The initial and final flow rates are not recorded

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
KNZ	Z184-Sandy	Grenville-04/26/2013				
1	4/26/2013	Computer	Dell	000278	D520	unknown
2	4/26/2013	DAS	Campbell	000361	CR3000	2139
3	4/26/2013	Elevation	Elevation	None	1	None
4	4/26/2013	Filter pack flow pump	Thomas	04925	107CAB18D	100300020744
5	4/26/2013	Flow Rate	Apex	000654	AXMC105LPMDPCV	54774
6	4/26/2013	Infrastructure	Infrastructure	none	none	none
7	4/26/2013	Modem	Raven	06478	V4221-V	0808311141
8	4/26/2013	Ozone	ThermoElectron Inc	000616	49i A1NAA	1009241781
9	4/26/2013	Ozone Standard	ThermoElectron Inc	000495	49i A3NAA	0622717849
10	4/26/2013	Sample Tower	Aluma Tower	missing	В	none
11	4/26/2013	Shelter Temperature	Campbell	none	107-L	none
12	4/26/2013	Siting Criteria	Siting Criteria	None	1	None
13	4/26/2013	Temperature	RM Young	04686	41342VC	6700
14	4/26/2013	Zero air pump	Werther International	000626	PC 70/4	000815300

DAS Data Form DAS Time Max Error: 0 Mfg **Serial Number** Site **Technician** Site Visit Date Parameter Use Desc. Campbell 2139 KNZ184 Sandy Grenville 04/26/2013 DAS Primary Das Date: 4 /26/2013 **Audit Date** 4 /26/2013 Datel **Parameter** DAS Mfg 17:37:25 17:37:25 Das Time: **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** 116 Das Day: **Audit Day** 116 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 **Slope Intercept** 0.0000 0.0000 0.0001 0.0001 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg Tfer Desc. DVM **Serial Number** 95740135 01311 Tfer ID 1.00000 0.00000 Slope Intercept 1/26/2013 1.00000 **Cert Date** CorrCoff

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	0.2998	0.2998	V	V	0.0000
7	0.5000	0.4997	0.4997	V	V	0.0000
7	0.7000	0.6997	0.6997	V	V	0.0000
7	0.9000	0.8996	0.8995	V	V	-0.0001
7	1.0000	0.9995	0.9994	V	V	-0.0001

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Tec	Technician		Date Param	neter	Owner ID	
Apex	54774		KNZ184	Sa	andy Grenville	04/26/2013	Flow R	ate	000654	
					Mfg	BIOS	P	arameter FI	ow Rate	
					Serial Number	103471	Т	fer Desc. ne	exus	
					Tfer ID	01420				
					Slope	1.	00000 Inte	ercept	0.00000	
					Cert Date	6/1:		rCoff	1.00000	
					Mfg	BIOS	,	arameter FI	ow Rate	
					Serial Number					
								fer Desc. Bl	O3 ceii	
					Tfer ID	01410				
					Slope	1.	00000 Inte	ercept	0.00000	
					Cert Date	1/27/2012 CorrCoff			1.00000	
DAS 1:		DAS 2:		L	Cal Factor Z	ero	-0.0)1		
A Avg % Diff:	A Max % Di	A Avg %	Dif A Max	« % Di	Cal Factor F	_	1.0)1		
0.08%	0.13%				Rotometer R	eading:		3		
UseDescription:	: Test type:	Input 1/m	n: Input STP:	MfcDisp.:	: OutputSignal:	Output S E:	InputUnit:	OutputSigna	ll PctDifference	
primary	pump off	0.000	0.000	0.00	0.002	-0.01	1/m	l/m		
primary	leak check	0.000	0.000	0.01	0.006	0.00	l/m	l/m		
primary	test pt 1	3.048	2.994	2.96	2.954	2.99	1/m	1/m	-0.13%	
primary	test pt 2	3.055	2.993	2.96	2.953	2.99	l/m	l/m	-0.10%	
primary	test pt 3	3.051	2.990	2.96	2.948	2.99	1/m	1/m	0.00%	
Sensor Comp	onent Leak Tes	st		Conditio	on		Status	pass		
Sensor Comp	onent Filter Azi	muth		Conditio	360 deg		Status	pass		
Sensor Comp	onent Filter Dep	oth		Conditio	3.5 cm		Status	pass		
Sensor Comp	onent Filter Pos	sition		Conditio			Status	pass		
	onent Moisture			_	No moisture p	resent	Status			
	onent Rotomete		n e		Clean and dry		Status			
				_						
Sensor Comp	onent System M	Memo		Conditio			Status	pass		
Sensor Component Tubing Condition				Conditio	Good		Status	Status pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young 6700 KNZ184 Temperature 04686 04/26/2013 Mfg Extech Parameter Temperature Tfer Desc. RTD H232734 **Serial Number** 01227 Tfer ID -0.08480 **Slope** 1.00435 **Intercept DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.17 0.19 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Temp Low Range 0.04 0.000 0.17 primary 0.12 0.3 \mathbf{C} C Temp Mid Range 27.26 27.23 0.000 27.4 0.14 primary C 0.19 primary Temp High Range 48.58 48.45 0.000 48.6 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** Functioning **Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Infrastructure Data For

Site ID KNZ184 Technician Sandy Grenville Site Visit Date 04/26/2013

Shelter Make	Shelter Model	Shelter Size	
Wells Cargo	EW1211 (s/n 1WC200E1623048028)	640 cuft	

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Good	Status	pass
Sensor Component	Shelter Floor	Condition	Good	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	24.93	24.91	0.000	23.7	C	-1.17
primary	Temp Mid Range	26.84	26.81	0.000	25.9	С	-0.95
primary	Temp Mid Range	27.00	26.97	0.000	26.3	C	-0.67

Field Systems Comments

1 Parameter: SiteOpsProcComm

One clean glove is used to handle the filter for removal and installation.

2 Parameter: SiteOpsProcedures

Ozone monitor not operating.

3 Parameter: SitingCriteriaCom

The site is located at a Long Term Ecological Research site operated by KSU.

4 Parameter: ShelterCleanNotes

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

5 Parameter: PollAnalyzerCom

By request of the Kansas Department of Health and Environment, the site ozone monitor was not operating at the time of the site audit.

F-02058-1500-S1-rev001

Site ID KNZ184	Technician Sandy Grenville	Site Visit Date 04/2	6/2013
Site Sponsor (agency)	EPA	USGS Map	Swede Creek
Operating Group	Kansas State University	Map Scale	
AQS#	20-161-9991	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone	QAPP Latitude	39.1021
Deposition Measurement	dry, wet	QAPP Longitude	-96.6096
Land Use	range	QAPP Elevation Meters	348
Terrain	gently rolling	QAPP Declination	4.5
Conforms to MLM	Yes	QAPP Declination Date	01/07/2005
	(785) 770-8426	Audit Latitude	39.10216
Site Telephone	Konza Prairie Lane		-96.609583
Site Address 1	CR 901	Audit Longitude	346
Site Address 2		Audit Elevation	
County	Riley	Audit Declination	4.2
City, State	Manhattan, KZ	Present	
Zip Code	66502	Fire Extinguisher	Inspected Feb 2002
Time Zone	central	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	CONTRACTOR
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Wells Cargo Mo	EW1211 (s/n 1WC20	Shelter Size 640 cuft
Shelter Clean	Notes The shelter is very clean, neat,	well organized and well maint	ained.
Site OK	Notes	SPERMINE TENNICE DELL'AND PARAGET	
right o	Manhattan take route 177 south. At the earn of the country of the	tinue approximately 6.2 miles	and turn left into the Konza Prairie

F-02058-1500-S2-rev001

Site ID KNZ184 Technician Sandy Grenville Site Visit Date 04/26/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		_
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m	No.	
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m		
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		
Large parking lot	200 m		
Small parking lot	100 m		
Tree line	50 m		
Obstacles to wind	10 times obstacle height		

Siting Distances OK ✓

Siting Criteria Comment

The site is located at a Long Term Ecological Research site operated by KSU.

F-02058-1500-S3-rev001

Site	ID	KNZ184	Technician	Sandy Grenville		Site Visit Date 04/26/2013
1			ction sensors sited so	as to avoid	✓	N/A
		ofluenced by obsta			V	N/A
2	(i.e. win	d sensors should	ed so as to minimize to be mounted atop the com >2x the max dian wind)	tower or on a	V	N/A
3		tower and sensor			✓	N/A
4			elds pointed north or ces such as buildings		✓	
5	condition surface	ons? (i.e. ground l	I sensors sited to avouble below sensors should loped. Ridges, hollow avoided)	be natural	>	
6	Is the so	olar radiation sen	sor plumb?		✓	N/A
7	Is it site light?	ed to avoid shadin	ng, or any artificial on	reflected	✓	N/A
8	Is the ra	ain gauge plumb?			✓	N/A
9	Is it site towers,		ring effects from buil	dings, trees,	✓	N/A
10	Is the su		nsor sited with the gr	id surface	✓	N/A
11		clined approxima	tely 30 degrees?		~	N/A
			nation (photograph on a street the monitor			y) regarding conditions listed above, or any other features,

Field S	ystems Data	Form]	F-02058-	1500-S4-r	ev00
Site ID	KNZ184	Technician	Sandy Grenville		Site Visit Date 04/2	6/2013		
	the meterological s ion, and well maint	ensors appear to be ained?	intact, in good	✓				
	l the meteorologica ing data?	l sensors operational	online, and	✓				
Are th	e shields for the ter	nperature and RH s	ensors clean?	✓				
Are th	e aspirated motors	working?		✓				
Is the solar radiation sensor's lens clean and free of scratches?					N/A			
Is the	surface wetness sen	sor grid clean and u	ndamaged?	✓	N/A			
	e sensor signal and ion, and well maint	power cables intact, ained?	in good	✓	N/A			
	e sensor signal and he elements and we	power cable connec ell maintained?	tions protected	✓	N/A			
Parameter		Manufacturer	Model		S/N		Client ID	
emperatu	е	RM Young	41342VC	NI NAME OF	6700	(04686	
		tion (photograph or v affect the monitori		ary	regarding conditions l	isted above, or	any other fea	tures,

Field Systems Data Form F-02058-1500-S5-rev001 KNZ184 Technician Sandy Grenville Site Visit Date 04/26/2013 Site ID Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E **V** Do the sample inlets have at least a 270 degree arc of unrestricted airflow? ~ Are the sample inlets 3 - 15 meters above the ground? ~ Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? Pollutant analyzers and deposition equipment operations and maintenance Do the analyzers and equipment appear to be in good condition and well maintained? Are the analyzers and monitors operational, on-line, and reporting data? Describe ozone sample tube. 1/4 teflon by 12 meters Describe dry dep sample tube. 3/8 teflon by 12 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) ~ Are sample lines clean, free of kinks, moisture, and obstructions? **V** 7 Is the zero air supply desiccant unsaturated? **V** Are there moisture traps in the sample lines? Clean and dry Is there a rotometer in the dry deposition filter line, and is it clean? **Parameter** Manufacturer S/N **Client ID** Model Sample Tower Aluma Tower В missing none ThermoElectron Inc 1009241781 Ozone 49i A1NAA 000616 Thomas 107CAB18D 100300020744 04925 Filter pack flow pump PC 70/4 Zero air pump Werther International 000815300 000626 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: By request of the Kansas Department of Health and Environment, the site ozone monitor was not operating at the time of the site audit.

F-02058-1500-S6-rev001

Site	ID	KNZ184	Technician	Sandy Grenville		Site Visit	Date 04/26/20)13		
	DAS, se	nsor translators, and	peripheral equi	pment operation	ns and	maintenand	<u>se</u>			
1		DAS instruments appointained?	ear to be in good	d condition and	✓	A STATE				
2		the components of the , backup, etc)	DAS operation	al? (printers,	V					ACTION OF THE PERSON
3		analyzer and sensor si g protection circuitry		through	V					SERVENCEN
4		signal connections printained?	otected from th	e weather and	V					
5	Are the	signal leads connected	DAS channel?	V					Med Substantian	
6	Are the ground	DAS, sensor translated?	properly	✓						
7	Does th	e instrument shelter h	ave a stable pov	wer source?	V					000000000000000000000000000000000000000
8	Is the in	strument shelter temp	perature contro	lled?	V					STATE
		net tower stable and gr				Stable ✓		Grounded ✓		
11	Tower o	comments?				•				
Par	ameter	M	anufacturer	Model		S/N		Cli	ent ID	
Cor	nputer	De	ell	D520		unknow	'n	000	278	
DAS	CONTRACTOR OF THE PARTY OF THE	Ca	ampbell	CR3000	nanena ara	2139		000	361	
Mod			aven	V4221-V	TOTAL STREET	080831	1141	064	78	
							4			
		additional explanationan-made, that may a				regarding (conditions list	ed above, or	any other features,	
								New State of the last		g Al

F-02058-1500-S7-rev001

Site ID KNZ184	Ž.	Technic	cian	Sandy Grenville	Site Visit Date	04/26/2013	3	
Documentation								
Does the site have the requir					<u>?</u>			
Wind speed sensor	Yes	No	N/A	A Data log	TOP.	Yes	No 🗸	N/A
Wind direction sensor				Data log				∠
Temperature sensor	✓				rt recorder			<u> </u>
Relative humidity sensor				Compute				<u> </u>
Solar radiation sensor			✓	Modem				
Surface wetness sensor			✓	Printer				✓
Wind sensor translator			✓	Zero air	pump		✓	
Temperature translator			✓	Filter flo			✓	
Humidity sensor translator			V	Surge pr			✓	
Solar radiation translator			✓	UPS			✓	
Tipping bucket rain gauge			V	Lightnin	g protection device			✓
Ozone analyzer	V			Shelter h	eater		V	
Filter pack flow controller		V		Shelter a	ir conditioner	✓		
Filter pack MFC power supply	, 🔲		V					
Does the site have the requ	ired a	nd most	rece	nt QC documents an	d report forms?			
	Pres	ent				Curre	ent	
Station Log						✓		
SSRF		/				✓		
Site Ops Manual		8 ET (1)	t 200)1				
HASP								
Field Ops Manual	Γ							
Calibration Reports	[/				✓		
Ozone z/s/p Control Charts								
Preventive maintenance schedu	al [
1 Is the station log properly	comp	leted dur	ring (every site visit? 🔽				
				<u>. </u>				
2 Are the Site Status Report current?	t Form	is being o	comp	oleted and				
3 Are the chain-of-custody to sample transfer to and from			used	d to document				
4 Are ozone z/s/p control ch			comp	leted and	Control charts not u	sed		
current?								Western State of the State of t
Provide any additional explana) regarding condit	ions listed	above, o	or any other
natural or man-made, that may	y affec	t the mo	nitor	ring parameters:				
	100000000000000000000000000000000000000					o encorrenter		

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Site ID KNZ184	Technician	Sandy Grenville	Site Visit Date	04/26/2013	
Site operation procedures 1 Has the site operator attended	l a formal CAST	FNET training	✓ Trained by MACTEC	personnel during site	installation
course? If yes, when and who		The state of			
2 Has the backup operator atte training course? If yes, when			Trained by site opera	ator	
3 Is the site visited regularly on schedule?	the required Tu	esday	V		
4 Are the standard CASTNET of flollowed by the site operator?		edures being			
5 Is the site operator(s) knowled the required site activities? (in	geable of, and a cluding docume	ble to perform ntation)		MODEL SCHOOL SECTION AND SECTION	
Are regular operational QA/Q	C checks perfor	med on meteor	ological instruments?		
QC Check Performed		Frequency		Compliant	
Multipoint Calibrations	✓	N/A		V	
Visual Inspections	✓	Weekly		✓	
Translator Zero/Span Tests (clima	tronics)	N/A		✓	
Manual Rain Gauge Test	✓	N/A		✓	
Confirm Reasonableness of Current	nt Values	N/A		✓	
Test Surface Wetness Response	✓	N/A		✓	
Are regular operational QA/Q	C checks perfor	med on the ozo	ne analyzer?		
QC Check Performed		Frequency	A CANADA	Compliant	
Multi-point Calibrations				✓	
Automatic Zero/Span Tests				V	
Manual Zero/Span Tests			w.2.5464. P027.007.2.54.54.54.5. VNFP6244	V	
Automatic Precision Level Tests				✓	
Manual Precision Level Test				✓	
Analyzer Diagnostics Tests				✓	
In-line Filter Replacement (at inlet	Charles and the control of the contr			✓	
In-line Filter Replacement (at anal	lyze 🔽	N/A	AND AND SOCIAL DESIGNATION OF THE PROPERTY OF	V	
Sample Line Check for Dirt/Water				<u> </u>	
Zero Air Desiccant Check	Ų			✓	
1 Do multi-point calibration gas	PRODUCT OF STREET AND ADDRESS OF STREET	ne complete			
sample train including all filte Do automatic and manual z/s/y		ugh the		NOSEE CONTRACTOR OF THE SECOND	
complete sample train includi					
3 Are the automatic and manual reported? If yes, how?	l z/s/p checks mo	onitored and			
Provide any additional explanation natural or man-made, that may aff			sary) regarding condition	ons listed above, or a	ny other features,
Ozone monitor not operating.					
2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3					

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Site	KNZ184 Tec	chnician [Sandy Grenville		Site Visit Date	04/26/2013			
	Site operation procedures								
1	Is the filter pack being changed even	y Tuesday	y as scheduled?	✓	Filter changed morinings				
2	Are the Site Status Report Forms be correctly?	ing compl	leted and filed	✓					
3	Are data downloads and backups be scheduled?	ing perfo	rmed as		No longer required				
4	Are general observations being mad	e and reco	orded? How?	✓	SSRF, logbook				
5	Are site supplies on-hand and replet fashion?	nished in a	a timely	✓					
6	Are sample flow rates recorded? Ho	w?		✓	SSRF, call-in				
7	Are samples sent to the lab on a regrashion?	ılar sched	lule in a timely	~					
8	Are filters protected from contamin and shipping? How?	ation duri	ng handling	✓	Clean glove (one only) on and off				
9	Are the site conditions reported regroperations manager or staff?	ılarly to tl	he field	✓					
QC	Check Performed	Freq	uency			Compliant			
N	Iulti-point MFC Calibrations	Will be the second of the seco	annually	es consta					
	low System Leak Checks	Week	dy	postari					
	ilter Pack Inspection			MBILZE		✓			
	low Rate Setting Checks	✓ Week✓ Week	PROPERTY OF THE PERSON OF THE	HEATER	WERE SERVICE SERVICES	Ŭ			
	isual Check of Flow Rate Rotometer	✓ Week	The second secon	apple of the					
	n-line Filter Inspection/Replacement ample Line Check for Dirt/Water	✓ Week	Later Street Control Control	1063173		✓			
Prov natu		ograph or monitorii	sketch if necess ng parameters:	sary	regarding condit	ions listed above, or any other features,			
TO USE	GOOD TO SEE THE SECOND SEC		SZERIO CHENCIPO PEZZ (NO	3.93					
				66					

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
YOS	5404-Eric H	lebert-05/01/2013				_
1	5/1/2013	DAS	Environmental Sys Corp	90645	8816	2558
2	5/1/2013	Elevation	Elevation	None	1	None
3	5/1/2013	F460 translator	Climatronics	none	100163	1101
4	5/1/2013	Filter pack flow pump	Thomas	00253	107CA18	0688001767
5	5/1/2013	flow rate	Tylan	none	FC280SAV	AW02213002
6	5/1/2013	Infrastructure	Infrastructure	none	none	none
7	5/1/2013	Met tower	unknown	none	unknown	none
8	5/1/2013	MFC power supply	Tylan	03870	RO-32	FP9508008
9	5/1/2013	Modem	US Robotics	none	V.92	unknown
10	5/1/2013	Ozone	ThermoElectron Inc	90763	49C	49C-74534-376
11	5/1/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1130450190
12	5/1/2013	Precipitation	Climatronics	illegible	100508-2	illegible
13	5/1/2013	Relative Humidity	Rotronic	none	MP 601A	59018
14	5/1/2013	Sample Tower	Aluma Tower	none	В	none
15	5/1/2013	Shelter Temperature	ARS	none	none	none
16	5/1/2013	Siting Criteria	Siting Criteria	None	1	None
17	5/1/2013	Solar Radiation	Licor	none	LI-200	PY77051
18	5/1/2013	Solar Radiation Translator	RM Young	03184	70101-X	none
19	5/1/2013	Temperature	RM Young	none	41342	18748
20	5/1/2013	Wind Direction	Climatronics	90832	100076	4058
21	5/1/2013	Wind Speed	Climatronics	91022	100075	4088
22	5/1/2013	Zero air pump	Werther International	none	PC70/4	531397

DAS Data Form

Mfg

DAS Time Max Error:

Technician Site Visit Date Parameter Use Desc.

05/01/2013

 Environmental Sys
 2558
 YOS404

 Das Date:
 5 /2 /2013
 Audit Date
 5 /2 /2013

Site

Serial Number

 Das Time:
 11:15:24
 Audit Time
 11:14:00

 Das Day:
 122
 Audit Day
 122

Low Channel: High Channel:

 Avg Diff:
 Max Diff:
 Avg Diff:
 Max Diff:

 0.0000
 0.0001
 0.0001
 0.0003

Mfg	Datel	Parameter DAS
Serial Number	4000392	Tfer Desc. Source generator (D
	0.4004	

DAS

1.4

Primary

Tfer ID 01321

Eric Hebert

Slope 1.00000 **Intercept** 0.00000

Cert Date 2/13/2012 **CorrCoff** 1.00000

Mfg Fluke Parameter DAS

Serial Number 86590148 Tfer Desc. DVM

Tfer ID 01310

Slope 1.00000 **Intercept** 0.00000

Cert Date 1/27/2013 **CorrCoff** 1.00000

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
6	0.0000	0.0000	0.0000	V	V	0.0000
6	0.1000	0.1000	0.1000	V	V	0.0000
6	0.3000	0.3000	0.3000	V	V	0.0000
6	0.5000	0.5000	0.5000	V	V	0.0000
6	0.7000	0.7000	0.7001	V	V	0.0001
6	0.9000	0.9001	0.9001	V	V	0.0000
6	1.0000	1.0001	1.0001	V	V	0.0000
15	0.0000	0.0000	0.0000	V	V	0.0000
15	0.1000	0.1000	0.0999	V	V	-0.0001
15	0.3000	0.3000	0.3001	V	V	0.0001
15	0.5000	0.5000	0.4999	V	V	-0.0001
15	0.7000	0.7000	0.6999	V	V	-0.0001
15	0.9000	0.9000	0.8997	V	V	-0.0003
15	1.0000	1.0000	0.9999	V	V	-0.0001

Flow Data Form

Mfg	S	erial Nun	iber Ta	Site	Tec	hnician	Site Visit l	Date Param	eter	Owner ID	
Tylan	A	W022130	002	YOS404	Erio	c Hebert	05/01/201	3 flow rat	te	none	
Mfg	Tylan	l				Mfg BIOS		P	Parameter Flow R		
SN/Owner ID	FP95	08008	03870			Serial Number	122974 T 1		fer Desc. BIC	OS 220-H	
Parameter				Tfer ID	01416						
Tarameter o poster capp.)				G.		00000		0.0000			
						Slope	1.	.00000 Inte	ercept	0.00000	
						Cert Date	1/	8/2013 Cor	rCoff	1.00000	
DAS 1:			DAS 2:			Cal Factor Z	ero	0.2	28		
A Avg % Diff:	A Ma	x % Di	A Avg %	Dif A Max	% Di	Cal Factor F	ull Scale	10.8	8		
3.14%		3.22%				Rotometer R	eading:	3.4	5		
UseDescription	Te	st type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference	
primary	pump	off	0.000	0.000	-0.20	-0.1670	-0.07	1/m	1/m		
primary	leak o	check	0.000	0.000	-0.19	-0.1680	-0.06	1/m	1/m		
primary	test p	t 1	0.000	3.086	1.26	1.2770	2.99	l/m	l/m	-3.10%	
primary	test p	t 2	0.000	3.090	1.26	1.2770	2.99	l/m	l/m	-3.22%	
primary	test p	t 3	0.000	3.086	1.26	1.2770	2.99	l/m	l/m	-3.11%	
Sensor Comp	onent	Leak Tes	t		Condition	n		Status	pass		
Sensor Comp	onent	Filter Azimuth		Condition	135 deg	Status		pass			
Sensor Comp	onent	Filter Dep	oth		Condition	n - 1.0 cm	Status	Fail			
Sensor Comp	onent	Filter Pos	sition		Condition	Poor		Status	Fail		
Sensor Comp	onent	Moisture	Present		Condition	No moisture p	resent	Status	pass		
Sensor Component Rotometer Conditi		er Condition	n	Condition	n N/A		Status pass				
Sensor Component System Memo			Condition	ndition See comments		Status pass					
Sensor Component Tubing Condition			Condition	ion Good		Status	pass				
Sensor Component Filter Distance		tance		Condition	3.5 cm		Status	pass			

Ozone Data Form

Mfg Se	erial Number Ta	Site	Tec	chnician		Site Visit	Date Paran	neter	Owner ID
ThermoElectron Inc 4	9C-74534-376	YOS404	Eri	c Hebert		05/01/201	Ozone	!	90763
Intercept -0.9	No. Slope:	0.00000 0.00000 0.00000		Mfg Serial N Tfer ID	umber	ThermoEle 517112179		arameter ozo	one primary stan
DAS 1: A Avg % Diff: A Ma 1.3%	DAS 2: x % Di	6Dif A Max %	% Di	Slope Cert Da	te	C	0.99720 Int /2/2013 Co	ercept rrCoff	0.18428
UseDescription:	ConcGroup:	Tfer Raw:	Tfer C	Corr:	Si		Site Unit:	PctDiff	erence:
primary	1	0.65	0.4		-0.		pb		1.0.5
primary	2	30.22	30.1		29.	1	pb		-1.86%
primary	3	49.95	49.9		48.	-	pb		-1.88%
primary	5	79.75 109.60	79.7 109.		79.	1	pb 		-0.71% -0.66%
primary					109	.00 р	pb		-0.00%
Sensor Component	Cell B Noise		Conditio	1.1 pp	b		Statu	pass	
Sensor Component	Cell B Tmp.		Conditio	on			Statu	pass	
Sensor Component	Fullscale Voltage		Conditio	n 1.003′]		Statu	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			Statu	pass	
Sensor Component	Line Loss		Conditio	Not te	sted		Statu	pass	
Sensor Component	Offset		Conditio	on 0.3			Statu	pass	
Sensor Component	Span		Conditio	1.012			Statu	pass	
Sensor Component	Cell B Freq.		Conditio	85.1 k	Hz		Statu	pass	
Sensor Component	System Memo		Conditio	See co	omments		Statu	pass	
Sensor Component	Sample Train		Conditio	Good			Statu	pass	
Sensor Component	Cell B Pressure		Conditio	n			Statu	pass	
Sensor Component	Cell B Flow		Conditio	0.62 lp	om		Statu	pass	
Sensor Component	Cell A Tmp.		Conditio	36.5 C	;		Statu	pass	
Sensor Component	Cell A Pressure		Conditio	n 621 m	mHg		Statu	pass	
Sensor Component	Cell A Noise		Conditio	2.0 pp	b		Statu	pass	
Sensor Component	Cell A Freq.		Conditio	78.6kl	Ηz		Statu	Fail	
Sensor Component	Cell A Flow		Conditio	0.62 lp	om		Statu	pass	
Sensor Component	Battery Backup		Conditio	n N/A			Statu	pass	
Sensor Component	Zero Voltage		Conditio	0.0044	1		Statu	pass	

Wind Speed Data Form Mfg Serial Number Ta **Technician** Site Visit Date Parameter Owner ID YOS404 Wind Speed 91022 4088 Eric Hebert 05/01/2013 Climatronics Parameter wind speed Mfg RM Young Climatronics Mfg Tfer Desc. wind speed motor (h Serial Number **SN/Owner ID** 1101 none 01262 Tfer ID F460 translator **Parameter** 0.00000 1.00000 **Slope Intercept** 2335 Prop or Cups SN 0.3 to 0.3 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** N/A Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (I **Serial Number** 01261 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/13/2010 1.00000 **Cert Date** CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 0.02 0.70% Abs Avg Err 0.03 0.75% Abs Max Er UseDescription: InputDevice: Input RPM: Diff/ % Diff: Difference: Input m/s: Output V: DAS m/s: 00000 0 0.20 0.0000 0.2 0.02 primary 00000 50 1.40 1.4 -0.01 primary 0.0000 primary 00000 100 2.57 0.0000 2.6 -0.01 4.22 4.2 -0.03 00000 170 0.0000 primary primary 00000 250 6.10 0.0000 6.1 -0.66% 11.97 11.9 -0.75% primary 00000 500 0.0000 00000 800 19.02 0.0000 18.9 -0.68% primary primary 00000 2000 47.22 0.0000 46.9 -0.70% Sensor Component | System Memo Status pass **Condition** See comments Sensor Component | Sensor Plumb Condition Plumb Status pass Sensor Component | Sensor Heater **Condition** Functioning Status pass Sensor Component | Prop or Cups Condition **Condition** Good Status pass Sensor Component | Condition **Condition** Poor Status Fail Sensor Component | Torque **Condition** Good Status pass

Wind Direction Data Form

Mfg	Se	erial Num	ber Ta	Site		T	echnician		Site Visit	Date 1	Param	eter	Owner ID
Climatronics	4(058		YOS40)4	E	Eric Hebert		05/01/20	13	Wind D	irection	90832
Mfg SN/Owner ID	1101	tronics	none				Mfg Serial Nur Tfer ID	nber	Ushikata 190037 01265			arameter v	vind direction ransit
Parameter	F460 I	liarisialoi					TICI ID						
Vane SN: 3	3063		C. A.	Align.	deg. true	:	Slope		•	1.00000	Inte	rcept	0.00000
VaneTorque	8	to	8			2	Cert Date		1	/4/2011	Cor	rCoff	1.00000
							Mfg		RM Young	9	Pa	arameter	vind direction
							Serial Nur	nber			T	fer Desc.	vind direction wheel
							Tfer ID		01266				
	DAS 1:	:			DAS 2:								
	Orienta	ation L	inearity	:	Orientati	on	Linearity:						
Abs Avg Err		10.8		1.5									
Abs Max Er		13		4									
UseDescriptio	n:	TferID:	Inp	ut Raw	: Line	arity	Output V:	Outr	out Deg.:	Differe	nce:	Change:	Error:
primary		01266		0	✓		0.0000		353		7	46	1
primary		01266		45	~		0.0000		34		11	41	-4
primary		01266		90	✓		0.0000		79		11	45	0
primary		01266		135	✓		0.0000		124		11	45	0
primary		01266		180	✓]	0.0000		172		8	48	3
primary		01266		225	~	1	0.0000		215		10	43	-2
primary		01266		270	~	1	0.0000		261		9	46	1
primary		01266		315	✓	1	0.0000		307		8	46	1
primary		01265		2			0.0000		353		9		9
primary		01265		92			0.0000		79		13		13
primary		01265		182			0.0000		172		10		10
primary		01265		272			0.0000		261		11		11
Sensor Comp	ponent	Mast				Condit	ion Good				Status	pass	
Sensor Comp	ponent	Condition				Condit	ion Poor				Status	Fail	
Sensor Comp	ponent	Sensor He	ater			Condit	ion Function	ing			Status	pass	
Sensor Comp	ponent	Sensor Plu	ımb			Condit	ion Plumb				Status	pass	
Sensor Comp	ponent	Torque				Condit	ion Good				Status	pass	
Sensor Comp	ponent	Vane Cond	dition			Condit	ion Poor				Status	Fail	
Sensor Comp	ponent	System Me	emo			Condit	ion See com	ments	1		Status	pass	

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young YOS404 Eric Hebert Temperature 18748 05/01/2013 none Mfg Extech **Parameter** Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err Abs Max Er **Cert Date** CorrCoff Abs Avg Err Abs Max Er 0.05 0.12 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: -0.03 0.09 0.0000 primary Temp Low Range 0.1 C -0.04C Temp Mid Range 25.31 25.25 0.0000 25.3 primary 0 C 0.12 primary Temp High Range 47.26 47.04 0.000047.2 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Condition** Functioning **Sensor Component** Blower **Status** pass Sensor Component | System Memo Condition Status pass

Humidity Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg YOS404 Eric Hebert 05/01/2013 Relative Humidity Rotronic 59018 none Mfg Rotronic Parameter Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 1.00000 0.00000 Slope **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 3.3 2.1 Abs Avg Err 4.3 2.1 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 34.8 32.8 0.3497 35.0 2.2 primary RH Low Range 52.9 4.3 primary Hygroclip 55.1 52.9 0.5724 57.2 primary RH High Range Hygroclip 93.6 89.4 93.6 0.9574 95.7 2.1 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Condition Functioning Status pass Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Condition Clean **Status** pass Sensor Component Shield **Condition** Clean Status pass

Solar Radiation Data Form Serial Number Ta **Technician** Owner ID Mfg Site Visit Date Parameter PY77051 YOS404 Eric Hebert Solar Radiation Licor 05/01/2013 none Mfg **Eppley** Parameter solar radiation RM Young Mfg 10765 Tfer Desc. SR transfer translat **Serial Number** 03184 none **SN/Owner ID** 01246 Tfer ID **Parameter** Solar Radiation Translator Slope 1.00000 **Intercept** 0.00000 **DAS 1: DAS 2:** 1/6/2010 1.00000 **Cert Date** CorrCoff % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max Parameter solar radiation Mfg **Eppley** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 Tfer ID 01245 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 0.0% 3.8% 4.8% 0.0% UseDescription: PctDifference: Measure Date MeasureTime Tfer Corr: DAS w/m2: 5/2/2013 -2.5% 8:00 668 651 primary 9:00 -3.7% 5/2/2013 840 809 primary primary 5/2/2013 10:00 962 919 -4.5% 969 -4.8% primary 5/2/2013 11:00 1018 5/2/2013 12:00 1007 960 -4.7% primary primary 5/2/2013 13:00 933 896 -4.0% 5/2/2013 14:00 802 776 -3.2% primary 5/2/2013 15:00 622 610 -1.9% primary Sensor Component | Sensor Level Condition 1/2 bubble off level **Status** pass Sensor Component | Sensor Clean Condition Clean Status pass **Condition** Properly sited Sensor Component | Properly Sited Status pass Sensor Component | System Memo Status pass Condition

Precipitation Data Form

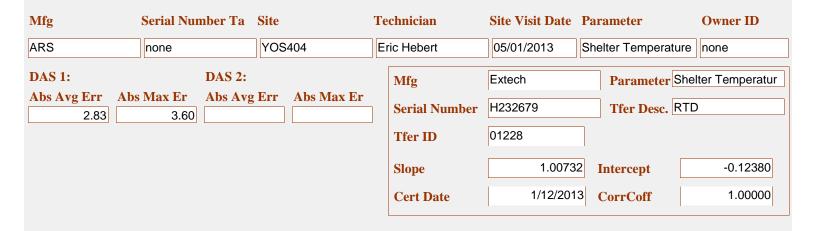
Mfg	Seri	al Number Ta	Site	Te	chnician		Site	Visit Date	Parame	ter	Owner ID
Climatronics	illeg	ible	YOS404	Eı	ric Hebert		05/0	1/2013	Precipita	ition	illegible
DAS 1:	f. A May ⁰	DAS 2: % Di	adif An	May % Di	Mfg Serial Nur	nber		06134-50			recipitation 50ml graduate
3.0%		4.0%		lax /0 DI	Tfer ID		0125	0			
					Slope			1.0000	0 Inter	cept	0.00000
					Cert Date			9/5/200	05 Corr	Coff	1.00000
UseDesc.	Test type	: TferVolume:	Iteration:	TimePerTip:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Uni	t: TferUni	ts:PctDifference
primary	tip check	10 manual	1	2 sec	1.00	1.0	00	mm	mm	ml	
primary	test 1	231.5	1	8 sec	5.00	4.8	30	mm	mm	ml	-4.0%
primary	test 2	231.5	2	10 sec	5.00	4.9	90	mm	mm	ml	-2.0%
Sensor Con	nponent Sy	stem Memo		Condition	on				Status	pass	
Sensor Con	nponent Se	nsor Heater		Condition	Function	ing			Status	pass	
Sensor Con	nponent Pr	operly Sited		Condition	on Properly	sited			Status	pass	
Sensor Con	nponent G	auge Drain Scree	en	Condition	Not insta	lled			Status	Fail	
Sensor Con	nponent Le	vel		Condition	Level				Status	pass	
Sensor Con	nponent G	auge Clean		Condition	on Clean				Status	pass	
Sensor Con	nponent Fu	nnel Clean		Condition	on Clean				Status	pass	
Sensor Con	Sensor Component Condition		Condition	ion Good				Status	pass		
Sensor Con	nponent G	auge Screen		Condition	Not insta	lled			Status	Fail	

Infrastructure Data For

Site ID	YOS404	Technician Eric H	lebert	Site Visit Date	05/01/2013	
Shelter	Make	Shelter Model	Shelt	ter Size		
Ekto	No. of the second second second	8812 (s/n 3515-2)	768 c	cuft		
AND DECEMBERS OF			500-500 NO. 100	TSMANIANTANIANTANIAN		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Met Tower	Condition	Fair	Status	pass
Sensor Component	Moisture Trap	Condition	Not installed	Status	Fail
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	Fair	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Good	Status	pass
Sensor Component	Shelter Floor	Condition	Good	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	24.40	24.35	0.000	26.5	C	2.11
primary	Temp Mid Range	24.69	24.63	0.000	27.4	С	2.78
primary	Temp Mid Range	24.71	24.65	0.000	21.1	C	-3.6

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Flow Rate	YOS404	Eric Hebert	05/01/2013	Filter Position	Tylan	1254		✓
The filter attachment orientation.	plate is mounted	too low in the enclos	sure resulting in	the filter being expo	osed to wind-driven	rain and in the	standard ge	ometric
Ozone	YOS404	Eric Hebert	05/01/2013	Cell A Freq.	ThermoElectron	438		✓
This analyzer diagno	estic check is outside	de the manufacturer'	s recommended	value.				
Wind Direction	YOS404	Eric Hebert	05/01/2013	Vane Condition	Climatronics	3750		✓
The wind direction v	ane is slightly ben	t and could be causing	ng additional bia	s in wind direction	measurements.			
Wind Direction	YOS404	Eric Hebert	05/01/2013	Condition	Climatronics	3750		
The upper and lower	sections of the wi	nd sensor body are l	oose. This cond	ition will cause prei	mature failure of th	e sensor and car	n affect data	accuracy.
Wind Speed	YOS404	Eric Hebert	05/01/2013	Condition	Climatronics	3751		
The upper and lower	sections of the wi	nd sensor body are l	oose. This cond	ition will cause prei	mature failure of th	e sensor and car	n affect data	accuracy.

Field Systems Comments

1 Parameter: PollAnalyzerCom

The DAS full scale and zero factors for the ozone channel are set to 497 and -3 respectively. The usual settings are 500 and 0. This may not be a problem but it does contribute to the error observed during the ozone accuracy check. It is possible that polled data at the central polling station have different factors.

2 Parameter: ShelterCleanNotes

The site is neat, clean, and well organized.

F-02058-1500-S1-rev001

Site ID YOS404	Technician Eric Hebert	Site Visit Date 05/0	1/2013
Site Sponsor (agency)	NPS	USGS Map	El Capitan
Operating Group	NPS	Map Scale	
AQS#	06-043-0003	Map Date	
Meteorological Type	Climatronics		
Air Pollutant Analyzer	Ozone, CO, NOx, IMPROVE	QAPP Latitude	37.7133
Deposition Measurement	dry	QAPP Longitude	-119.7061
Land Use	mountain top, woodland - evergreen	QAPP Elevation Meters	1605
Terrain	complex	QAPP Declination	
Conforms to MLM	Marginally	QAPP Declination Date	
Site Telephone	(209) 372-4411	Audit Latitude	37.713251
Site Address 1	Turtleback Dome	Audit Longitude	-119.706196
Site Address 2		Audit Elevation	1599
County	Mariposa	Audit Declination	13.5
City, State	Yosemite National Park, CA	Present	
Zip Code	95389	Fire Extinguisher	Not present
Time Zone	Pacific	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Ekto Mo	8812 (s/n 3515-2)	Shelter Size 768 cuft
	Notes The site is neat, clean, and well	ll organized.	
	Notes Vegeties Vegeties		44 toward Oakhurst Castiana ushill
and the approx	Mariposa take route 140 into Yosemite. Farough the tunnel. Approximately one mile ximately 1/2 mile past the gate to the comards on the path behind the station.	e past the tunnel look for a dirt	road on the left. Continue

F-02058-1500-S2-rev001

Site ID YOS404 Technician Eric Hebert Site Visit Date 05/01/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		✓
Major highway, airport or rail yard	2 km		V
Secondary road, heavily traveled	500 m	10	✓
Secondary road, lightly traveled	200 m	1	V
Feedlot operations	500 m		✓
Intensive agricultural ops (including aerial spraying)	500 m	10	✓
Limited agricultural operations	200 m		✓
Large parking lot	200 m		~
Small parking lot	100 m		✓
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		✓

Siting	Distances OK
Siting	Criteria Comment

R	iel	Ы	ST	vet	em	I S	าลา	19	F	orn	n
-30		· ·					200		2.50		

F-02058-1500-S3-rev001

Site	e ID	YOS404	Technician	Eric Hebert		Site Visit Date 05/01/2013	
1		nd speed and direct nfluenced by obstru		as to avoid	✓		
2	(i.e. win	nd sensors mounted nd sensors should b ntally extended book into the prevailing v	e mounted atop the m >2x the max dian	tower or on a	✓		
3	Are the	e tower and sensors	plumb?		✓	3,000 (2004) A 604 A 50, 414 3 A 1960 (2000) E 5030 A 60 A 60 A 50 A 50 A 50 A 50 A 50 A 5	
4		e temperature shield radiated heat source			✓		
5	conditi surface	mperature and RH stons? (i.e. ground be and not steeply slong water should be a	low sensors should ped. Ridges, hollow	be natural	✓		
6	Is the s	solar radiation senso	or plumb?		✓		
7	Is it sit light?	ed to avoid shading	, or any artificial or	reflected	~		
8	Is the r	rain gauge plumb?			✓		
9	Is it site	ed to avoid shelterin , etc?	ng effects from build	lings, trees,	✓		
10	Is the s	surface wetness sens	or sited with the gri	d surface	✓	N/A	
11	Is it in	clined approximate	ly 30 degrees?		✓	N/A	
	Company of the Compan	y additional explana man-made, that ma				y) regarding conditions listed above, or	any other features,
			7.555.555.555.555.555.555.555.555.555.5		mere		

iciu byst	ems Data	a Form			·02058-1500-S4-r	evu(
Site ID Y	OS404	Technician E	ric Hebert	Site Visit Date 05/01/2	2013	
	meterological s and well main	sensors appear to be it tained?	ntact, in good			
Are all the reporting of		al sensors operational	online, and			
Are the shi	ields for the te	mperature and RH se	nsors clean?			
Are the asp	pirated motors	working?	V			
Is the solar scratches?	r radiation sen	sor's lens clean and fr	ee of			
Is the surfa	ace wetness ser	nsor grid clean and un	damaged?	N/A		
' Are the ser	nsor signal and and well main	l power cables intact, itained?	in good			
Are the ser condition, Are the ser	and well main		iii good			
Are the ser condition, Are the ser from the el	and well main	tained? I power cable connecti	iii good		Client ID	
Are the ser condition, Are the ser from the el	and well main	tained? I power cable connecti ell maintained?	ions protected		Client ID	
Are the ser condition, Are the ser from the elements of the condition of t	and well main nsor signal and lements and w	tained? I power cable connecti ell maintained? Manufacturer	ions protected Model	S/N		
Are the ser condition, Are the ser from the el	and well main nsor signal and lements and w	tained? I power cable connectiell maintained? Manufacturer Climatronics	Model 100508-2	S/N illegible	illegible	
Are the ser condition, Are the ser from the elements of the el	and well main nsor signal and lements and w	tained? I power cable connective	Model 100508-2 MP 601A	S/N illegible 59018	illegible	
Are the ser condition, Are the ser from the elements of the ser from the	and well main nsor signal and lements and w	tained? I power cable connectivell maintained? Manufacturer Climatronics Rotronic unknown	Model 100508-2 MP 601A unknown	S/N illegible 59018 none	illegible none none	
Are the ser condition, Are the ser	and well main nsor signal and lements and w	tained? I power cable connective cell maintained? Manufacturer Climatronics Rotronic unknown Climatronics	Model 100508-2 MP 601A unknown 100076	S/N illegible 59018 none 4058	illegible none none 90832	

F-02058-1500-S5-rev001

Site ID	YOS404	Technician	Eric Hebert		Site Visit Date 05/01/201	3	
g.v.	~					. 40 000 50 1	
				S 17 1	nent sited in accordance wit	h 40 CFR 58, Appendi	<u>x E</u>
	e sample inlets have at a cricted airflow?	least a 270 degre	ee arc of	V			
	ne sample inlets 3 - 15 n	neters above the	ground?	V			
	e sample inlets > 1 met) meters from trees?	ter from any ma	jor obstruction,	V			
Pollut	ant analyzers and depo	osition equipmen	t operations and	l mai	<u>intenance</u>		
	e analyzers and equipmion and well maintaine		e in good	V			
	e analyzers and monitoring data?	ors operational,	on-line, and	V			
3 Descri	be ozone sample tube.				1/4 teflon by 10 meters		
4 Descri	be dry dep sample tub	e.			3/8 teflon by 10 meters		
	-line filters used in the te location)	ozone sample lin	ne? (if yes	V	At inlet only		
	mple lines clean, free octions?	of kinks, moistur	e, and	V			
7 Is the	zero air supply desicca	nt unsaturated?		✓			
8 Are th	ere moisture traps in t	he sample lines?		Ш	Not present		
9 Is the	e a rotometer in the di	ry denosition filt	or line and is it	V	Clean and dry		
clean?		ly deposition inc	er mie, and is it		olouri unu dry		
Parameter	·	Lanufacturer	Model		S/N	Client ID	
Sample To	wer A	luma Tower	В		none	none	
Ozone	SCHOOL COLOR DE DE CAR	hermoElectron Inc	MASSOCIATION OF THE PROPERTY O	EO.T	49C-74534-376	90763	
Filter pack		homas	107CA18	UEESS I	0688001767	00253	
MFC powe	CARSON STATES	ylan	RO-32	957545	FP9508008	03870	
Zero air pu		Verther Internation		W. A.	531397	none	
			A STREET,	sarv)	regarding conditions listed		tures

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 DAS full scale and zero factors for the ozone channel are set to 497 and -3 respectively. The usual settings are 500 and 0. This may not be a problem but it does contribute to the error observed during the ozone accuracy check. It is possible that polled data at the central polling station have different factors.

F-02058-1500-S6-rev001

Site ID	YOS404	Technician Eric He	ebert	Site Visit Date	05/01/2013	
DAS, se	ensor translators,	and peripheral equipment	operations a	nd maintenance		
	DAS instruments aintained?	appear to be in good condit	tion and			
	the components o	of the DAS operational? (pri	inters,			
	analyzer and sens	sor signal leads pass through uitry?	h 🗸	Met sensors only		
	signal connection intained?	ns protected from the weath	er and			
5 Are the	signal leads com	nected to the correct DAS ch	nannel? 🔽			
6 Are the ground		nslators, and shelter properl				
7 Does th	e instrument shel	lter have a stable power sou	rce?			
8 Is the in	nstrument shelter	temperature controlled?	~			
	net tower stable a			Stable 🗸	Grounded 🗸	
10 Is the sa	ample tower stab	le and grounded?				
	ample tower stab	le and grounded?				
			vlodel	S/N		ent ID
11 Tower						
11 Tower	comments?	Manufacturer Manuf		S/N	Cli	645
11 Tower Parameter DAS	comments?	Manufacturer Environmental Sys Corp 8 Climatronics 1	8816	S/N 2558	Cli	645 ne
Parameter DAS F460 transla Modem	comments?	Manufacturer Environmental Sys Corp Climatronics US Robotics	8816 00163	S/N 2558 1101	906 	ne ne
Parameter DAS F460 transla Modem Solar Radiat	ttor ion Translator y additional expla	Manufacturer Environmental Sys Corp Climatronics US Robotics	8816 000163 7.92 70101-X	S/N 2558 1101 unknown none	906 nor nor	645 ne ne 184

F-02058-1500-S7-rev001

Site ID	YOS404		Tec	hnician	Eric Hebert		Site Visit Date	e 05/01/201	3	
Documen	<u>ıtation</u>									
	site have the requir	ed in	ıstrun	ent and	equipment man	uals?				
		Yes	No					Yes	No	N/A
Wind speed	sensor	V			Data	logge	r	V		
Wind direct	ion sensor	✓			Data	logge	r	Ц		✓
Temperatur	e sensor	✓			Strip	chart	recorder			✓
Relative hu	midity sensor	V			Com	puter			✓	
Solar radiat	ion sensor	V		STATE OF STREET	Mode	em			V	
Surface wet	ness sensor			LOCAL DESIGNATION OF THE PARTY	Print	er			V	
Wind sensor	r translator	V			Zero	air pu	ımp		V	
	e translator	✓					pump		✓	
	nsor translator	Щ				e prot	ector			V
Solar radiation translator		V	_	CONTRACTOR OF STREET	UPS				✓	
STATE OF THE PARTY	ket rain gauge	V		0.3 No. 3 No. 3		100	protection device	ce \Box		<u> </u>
Ozone analy		✓				er hea			V	
	flow controller	V			Shelt	er air	conditioner		V	
Filter pack	MFC power supply	V								
Does the	e site have the requi	<u>ired</u>	and m	ost rece	nt QC document	s and	report forms?			
		Pre	sent					Curr	ent	
Station Log			~	DataVie	ew2	100000000000		V	•	
SSRF			✓				10	V		
Site Ops Ma	nual		✓	Jan 200)6		A.	V]	
HASP										
Field Ops M	lanual			2			i i			
Calibration			✓	10/11/2	012					
	Control Charts									
Preventive 1	naintenance schedu	d						145		
							-4i			
1 Is the s	tation log properly	com	pieted	during	every site visit?	V Da	ataview			
2 Amotho	e Site Status Report	For	ma ba	na aam	aloted and	✓ FI	ow section only			
2 Are the		ror	ms bei	ing comp	neteu anu	V 1 1	ow section only			
3 Are the	e chain-of-custody f	arms	s nron	erly used	d to document	✓				
	transfer to and from			orry disc	a to document					
	one z/s/p control cha	arts j	propei	rly comp	leted and	C	ontrol charts not	used		
curren	I.f							entographic land a president		Theresees and the last
	additional explana						regarding cond	itions listed	l above,	or any other
natural or n	nan-made, that may	affe	ect the	monitor	ring parameters:					
		and the second								

Field Systems Data Form F-02058-1500-S8-rev001 Site ID YOS404 Site Visit Date 05/01/2013 Technician Eric Hebert Site operation procedures Has the site operator attended a formal CASTNET training course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? V Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant V** ~ Semiannually **Multipoint Calibrations** ~ ~ Weekly **Visual Inspections V** ~ Weekly **Translator Zero/Span Tests (climatronics) V** ~ Monthly **Manual Rain Gauge Test** V **V** Weekly **Confirm Reasonableness of Current Values** ~ ~ N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **Compliant OC Check Performed** Frequency **Multi-point Calibrations** V **V** Monthly and semiannually ~ ~ Daily **Automatic Zero/Span Tests** ~ Every 2 weeks Manual Zero/Span Tests **V** Daily **Automatic Precision Level Tests Manual Precision Level Test V** Alarm values only **Analyzer Diagnostics Tests** ~ Every 2 weeks **In-line Filter Replacement (at inlet)** ~ N/A In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water **Zero Air Desiccant Check V** Do multi-point calibration gases go through the complete sample train including all filters? ~ Do automatic and manual z/s/p gasses go through the complete sample train including all filters? ~ Dataview Are the automatic and manual z/s/p checks monitored and

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:

reported? If yes, how?

Field Systems Data Form F-02058-1500-S9-rev001 Site ID YOS404 Technician Eric Hebert Site Visit Date 05/01/2013 Site operation procedures Is the filter pack being changed every Tuesday as scheduled? Filter changed mornings Are the Site Status Report Forms being completed and filed Flow section only correctly? No longer required Are data downloads and backups being performed as scheduled? V SSRF, dataview Are general observations being made and recorded? How? V Are site supplies on-hand and replenished in a timely fashion? SSRF Are sample flow rates recorded? How? Are samples sent to the lab on a regular schedule in a timely fashion? Single clean glove used to handle filter Are filters protected from contamination during handling and shipping? How? Are the site conditions reported regularly to the field operations manager or staff? Compliant **QC Check Performed** Frequency ~ ✓ Semiannually **Multi-point MFC Calibrations** V **✓** Weekly Flow System Leak Checks **Filter Pack Inspection** ~ ✓ Weekly **Flow Rate Setting Checks** V ✓ Weekly **Visual Check of Flow Rate Rotometer In-line Filter Inspection/Replacement** Sample Line Check for Dirt/Water Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,

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

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
SEK	430-Eric H	lebert-05/03/2013				
1	5/3/2013	Computer	Gateway	none	Solo	B2500251306
2	5/3/2013	DAS	Environmental Sys Corp	90649	8816	2562
3	5/3/2013	Elevation	Elevation	None	1	None
4	5/3/2013	Filter pack flow pump	Thomas	none	107CAB11A	109500000039
5	5/3/2013	flow rate	Tylan	03384	FC280AV	AW9403014
6	5/3/2013	Infrastructure	Infrastructure	none	none	none
7	5/3/2013	Met tower	Aluma Tower	none	В	none
8	5/3/2013	MFC power supply	Tylan	03679	RO-32	FP9403015
9	5/3/2013	Modem	US Robotics	none	56k	unknown
10	5/3/2013	Ozone	ThermoElectron Inc	90835	49C	0520012327
11	5/3/2013	Ozone Standard	ThermoElectron Inc	90729	49C	49C-90523-366
12	5/3/2013	Precipitation	Novalynx	none	260-2500	0977
13	5/3/2013	Printer	Hewlett Packard	none	842C	unknown
14	5/3/2013	Relative Humidity	Rotronic	none	MP 100	14103
15	5/3/2013	Shelter Temperature	ARS	none	none	none
16	5/3/2013	Shield (10 meter)	RM Young	90810	Aspirated 43408	none
17	5/3/2013	Siting Criteria	Siting Criteria	None	1	None
18	5/3/2013	Solar Radiation	Licor	none	LI-200	PY37610
19	5/3/2013	Solar Radiation Translator	RM Young	none	70101-X	none
20	5/3/2013	Temperature	RM Young	none	41342	8472
21	5/3/2013	Temperature Translator	RM Young	00819	41406-X	063143
22	5/3/2013	Wind Direction	RM Young	90850	AQ05103-5	59339wdr
23	5/3/2013	Wind Speed	RM Young	90850	AQ05103-5	59339wsp
24	5/3/2013	Zero air pump	Werther International	none	PC 70/4	627676

DAS Data Form

DAS Time Max Error:

0.33

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2562	SEK430	Eric Hebert	05/03/2013	DAS	Primary
Das Date: 5 /3 Das Time: 13 Das Day: Low Channel:	Audit D 3:14:45 Audit T 124 Audit D High Ch x Diff: Avg Diff	ate 5 /3 /2013 ime 13:14:25 ay 124	Mfg Serial Number Tfer ID Slope Cert Date Mfg Serial Number Tfer ID	Datel 4000392 01321 1.0000 2/13/201 Fluke 86590148 01310	Parameter Tfer Desc. Intercept CorrCoff Parameter Tfer Desc.	DAS Source generator (D 0.00000 1.00000 DAS DVM
			Slope	1.0000		0.00000
			Cert Date	1/27/201	3 CorrCoff	1.00000

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
2	0.0000	0.0000	0.0000	V	V	0.0000
2	0.1000	0.1000	0.1000	V	V	0.0000
2	0.3000	0.3000	0.3001	V	V	0.0001
2	0.5000	0.5000	0.5002	V	V	0.0002
2	0.7000	0.7000	0.7003	V	V	0.0003
2	0.9000	0.9000	0.9003	V	V	0.0003
2	1.0000	1.0000	1.0004	V	V	0.0004
9	0.0000	0.0000	0.0000	V	V	0.0000
9	0.1000	0.1000	0.1000	V	V	0.0000
9	0.3000	0.3000	0.3001	V	V	0.0001
9	0.5000	0.5000	0.5002	V	V	0.0002
9	0.7000	0.7000	0.7002	V	V	0.0002
9	0.9000	0.9000	0.9003	V	V	0.0003
9	1.0000	1.0001	1.0004	V	V	0.0003

Flow Data Form

Mfg	S	erial Num	ıber Ta	Site	Tec	hnician	Site Visit l	Date Param	eter	Owner ID
Tylan	P	W940301	4	SEK430	Erio	c Hebert	05/03/201	3 flow rat	te	03384
Mfg	Tylan					Mfg	BIOS	P	arameter Flo	w Rate
SN/Owner ID	FP94	03015	03679			Serial Number	122974	Т	fer Desc. BIG	OS 220-H
Parameter	MFC	power sup	pply			Tfer ID	01416			
				1		Slope	1	.00000 Inte	ercept	0.00000
						Cert Date	1/		rCoff	1.00000
DAS 1:			DAS 2:			Cal Factor Z	ero	0.1	3	
A Avg % Diff:	A Ma	x % Di	A Avg %	Dif A Max	x % Di	Cal Factor F	ull Scale	5.5	66	
0.20%		0.31%				Rotometer R	eading:	3.0	5	
UseDescription	: Te	st type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference
primary	pump	· ·	0.000	0.000	-0.08	-0.0570	0.07	l/m	1/m	
primary	leak o	check	0.000	0.000	-0.08	-0.0570	0.07	l/m	l/m	
primary	test p	t 1	0.000	2.999	2.45	2.6370	2.99	1/m	l/m	-0.31%
primary	test p	t 2	0.000	2.996	2.45	2.6370	2.99	l/m	l/m	-0.20%
primary	test p	t 3	0.000	2.987	2.45	2.6370	2.99	l/m	l/m	0.09%
Sensor Comp	onent	Leak Tes	t		Condition	n		Status	pass	
Sensor Comp	onent	Filter Azir	muth		Condition	360 deg		Status	pass	
Sensor Comp	onent	Filter Dep	oth		Condition	ndition - 0.5 cm			Fail	
Sensor Comp	onent	Filter Pos	sition		Condition	Poor		Status	Fail	
Sensor Comp	onent	Filter Dist	tance		Condition	5.0 cm		Status	pass	
Sensor Comp	onent	Tubing Co	ondition		Condition	Good		Status	pass	
Sensor Comp	onent	Rotomete	er Condition	1	Condition	Clean and dry		Status	pass	
Sensor Comp	onent	Moisture	Present		Condition	No moisture p	resent	Status	pass	
Sensor Comp	onent	System M	1emo		Condition	See comments	3	Status	pass	

Ozone Data Form

Note	Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	t Date I	Parame	eter	Owner I	D
Intercept	ThermoElectron Inc	520012327	SEK430	Er	ic Hebert		05/03/20	13	Ozone		90835	
Intercept	Slone: 0.9	98730 Slope:	0.00000		Mfg		ThermoE	lectron Ir	nc Pa	rameter 0	zone	
DAS 1: DAS 2: Slope 0.99720 Intercept 0.18428		-		Ϊ Ι	Serial N	umber	51711217	75	Tfe	er Desc.	zone primary	/ stan
DAS 1: DAS 2: Slope 0.99720 Intercept 0.18428	CorrCoff 1.0	00000 CorrCoff	0.00000)			01111				· ·	
A vg % Diff: A Max % Di	DAS 1.	DAS 2.						0.00700	.	. [0.40	400
UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PctDifference: primary 1 0.38 -0.56 0.16 ppb 2.38% primary 2 24.51 24.39 24.97 ppb 0.37% primary 3 54.75 54.71 54.91 ppb 0.37% primary 4 83.46 83.50 83.33 ppb -0.20% primary 5 109.66 109.78 109.10 ppb -0.62%			6Dif A Max %	% Di	•					· .		
primary	0.9%	2.4%			Cert Da	te		1/2/2013	Corr	·Coff	1.00	000
Primary 2 24.51 24.39 24.97 ppb 2.38% primary 3 54.75 54.71 54.91 ppb 0.37% primary 4 83.46 83.50 83.33 ppb 0.20% primary 5 109.66 109.78 109.10 ppb 0.62%	UseDescription:	ConcGroup:							Unit:	PctDi	fference:	
primary 3 54.75 54.71 54.91 ppb 0.37% primary 4 83.46 83.50 83.33 ppb 0.0.20% primary 5 109.66 109.78 109.10 ppb 0.0.62% Sensor Component Cell B Noise Condition 1.1 ppb Status pass Sensor Component Tullscale Voltage Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.0 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 97.0 kHz Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Pressure Condition 99.7 C Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Pressure Condition 99.7 C Status pass Sensor Component Cell B Pressure Condition 99.7 C Status pass Sensor Component Cell B Pressure Condition 1.048 pass Sensor Component Cell A Tmp. Condition 1.048 pass Sensor Component Cell A Tmp. Condition 1.048 pass Sensor Component Cell A Tmp. Condition 1.048 pass Sensor Component Cell A Freq. Condition 1.048 pass		1						-			2.200/	
primary 4 83.46 83.50 83.33 ppb -0.20% primary 5 109.66 109.78 109.10 ppb -0.62% -0.62								-				
Sensor Component Cell B Noise Condition Clean Status pass		-										
Sensor Component Cell B Noise Sensor Component Cell B Tmp. Condition Status pass Sensor Component Fullscale Voltage Condition Condition Condition Status pass Sensor Component Fullscale Voltage Condition Condition Condition Clean Status pass Sensor Component Line Loss Condition Condition Condition Condition Status pass Sensor Component Sensor Component Span Condition Sensor Component Cell B Freq. Condition Condition Status pass Sensor Component System Memo Condition Status pass Sensor Component System Memo Condition Sensor Component Sample Train Condition Sensor Component Cell B Pressure Condition Sensor Component Cell B Flow Condition Sensor Component Cell A Tmp. Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Freq. Condition Condition Sensor Component Cell A Freq. Condition Condition Sensor Component Cell A Freq. Condition Condition Condition Condition Sensor Component Cell A Freq. Condition Condition Condition Condition Sensor Component Cell A Freq. Condition Condition Condition Condition Condition Status Sensor Component Cell A Flow Condition C	•							•				
Sensor Component Cell B Tmp. Sensor Component Fullscale Voltage Condition C			109.00				.10			<u> </u>	-0.02%	
Sensor Component Fullscale Voltage Condition 0.9994 Status pass Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.0 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition O.68 lpm Status pass Sensor Component Cell A Tmp. Condition O.68 lpm Status pass Sensor Component Cell A Pressure Condition O.9 ppb Status pass Sensor Component Cell A Noise Condition O.9 ppb Status pass Sensor Component Cell A Freq. Condition O.9 ppb Status pass Sensor Component Cell A Freq. Condition O.9 ppb Status pass Sensor Component Cell A Freq. Condition O.9 ppb Status pass Sensor Component Cell A Freq. Condition O.9 ppb Status pass Sensor Component Cell A Freq. Condition O.97 lpm Status pass Sensor Component Cell A Freq. Condition O.97 lpm Status pass	Sensor Component	Cell B Noise		Conditio	n 1.1 pp	D			Status	pass		
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Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.0 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition O.68 lpm Status pass Sensor Component Cell A Tmp. Condition O.68 lpm Status pass Sensor Component Cell A Pressure Condition O.99 pb Status pass Sensor Component Cell A Freq. Condition O.97 pb Status pass Sensor Component Cell A Flow Condition N/A Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Fullscale Voltage		Conditio	0.9994	1			Status	pass		
Sensor Component Offset Condition 0.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition O.68 lpm Status pass Sensor Component Cell A Tmp. Condition 39.7 C Status pass Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 113.4 kHz Status pass Sensor Component Cell A Freq. Condition N/A Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Inlet Filter Condition	on	Conditio	Clean				Status	pass		
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Sensor Component Cell B Freq. Condition 97.0 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.68 lpm Status pass Sensor Component Cell A Tmp. Condition 39.7 C Status pass Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition N/A Status pass	Sensor Component	Offset		Conditio	on 0.2				Status	pass		
Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 39.7 C Status pass Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Conditio	1.016				Status	pass		
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.68 lpm Status pass Sensor Component Cell A Tmp. Condition 39.7 C Status pass Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Conditio	97.0 k	Hz			Status	pass		
Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.68 lpm Status pass Sensor Component Cell A Tmp. Condition 39.7 C Status pass Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	System Memo		Conditio	on				Status	pass		
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Sensor Component Cell A Tmp. Condition 39.7 C Status pass Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component Cell A Pressure Condition 698 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Flow		Conditio	0.68 lp	om			Status	pass		
Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Conditio	39.7 C	;			Status	pass		
Sensor Component Cell A Freq. Condition 113.4 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Conditio	on 698 m	mHg			Status	pass		
Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Conditio	0.9 pp	b			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.						,	Status	pass		
	Sensor Component	Cell A Flow		Conditio	0.67 lp	om		,	Status	pass		
Sensor Component Zero Voltage Condition -0.0006 Status pass	Sensor Component	Battery Backup		Conditio	N/A				Status	pass		
	Sensor Component	Zero Voltage		Conditio	on -0.000	6			Status	pass		

Wind Speed Data Form Mfg Serial Number Ta Site **Technician** Site Visit Date Parameter Owner ID Wind Speed 90850 RM Young 59339wsp SEK430 Eric Hebert 05/03/2013 Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (h Serial Number 01262 Tfer ID 0.00000 1.00000 **Slope Intercept** 62005 Prop or Cups SN 0.4 **to** 0.4 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** 0.0512 Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (I **Serial Number** 01261 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/13/2010 1.00000 **Cert Date** CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 0.07 0.25% Abs Avg Err 0.19 0.49% Abs Max Er UseDescription: InputDevice: Input RPM: Output V: Diff/ % Diff: Difference: Input m/s: DAS m/s: none 0 0.20 0.0000 0.0 -0.19primary 01262 200 1.02 0.0000 1.0 0.02 primary primary 01262 400 2.05 0.0000 2.1 0.04 4.10 4.1 0.03 01262 800 0.0000 primary 6.2 primary 01262 1200 6.14 0.0000 0.49% 12.29 0.0000 12.3 primary 01262 2400 0.24% 01262 4000 20.48 0.0000 20.5 0.20% primary primary 01262 9400 48.13 0.0000 48.2 0.06% Sensor Component | System Memo Status pass **Condition** Sensor Component | Sensor Plumb Condition Plumb **Status** pass Sensor Component | Sensor Heater **Condition** N/A Status pass Sensor Component Prop or Cups Condition **Condition** Good Status pass Sensor Component | Condition **Condition** Good Status pass

Condition Fair

Status pass

Sensor Component | Torque

Wind Direction Data Form

Sensor Component Vane Condition

Sensor Component System Memo

Mfg	Serial Nur	nber Ta Site		Technician	Site Visit	Date Param	ieter	Owner ID
RM Young	59339wdr	SEK430		Eric Hebert	05/03/20	13 Wind D	Direction	90850
				Mfg Serial Nur Tfer ID	Ushikata 190037 01265		arameter 'fer Desc. [t	wind direction transit
Vane SN:	V/A	C. A. Align. de	eg. true:	Slope		1.00000 Inte	ercept	0.00000
VaneTorque _	14 to	14	1	Cert Date		1/4/2011 Cor	rrCoff	1.00000
				Mfg	RM Youn	g P	arameter	wind direction
				Serial Nur	nber	Т	fer Desc.	wind direction wheel
				Tfer ID	01266			
	DAC 1.	D.	A G 2.					
	DAS 1:		AS 2:	T				
Abs Avg Err	Orientation 2.8	Linearity: On	rientation	Linearity:				
Abs Max Er	5	3						
UseDescriptio		Input Raw:	Linearity	Output V:	Output Deg.:	Difference:	Change:	Error:
primary	01266	0	∠ Linearity	0.0000	356	Difference.	42	-3
primary	01266	45	✓	0.0000	44	1	48	3
primary	01266	90	✓	0.0000	88	2	44	-1
primary	01266	135	✓	0.0000	132	3	44	-1
primary	01266	180	✓	0.0000	180	0	48	3
primary	01266	225	'	0.0000	223	2	43	-2
primary	01266	270	V	0.0000	269	1	46	
primary	01266	315	✓	0.0000	314	1	45	0
primary	01265	1		0.0000	356	5		5
primary	01265	91		0.0000	88	3		3
primary	01265 01265	181 271		0.0000	180 269	1 2		1 2
primary Sensor Comp		271	Cond	ition Good	209	Status	nass	
Sensor Comp	ponent						1	
Sensor Comp	ponent Condition	n	Cond	ition Good		Status	pass	
Sensor Comp	ponent Sensor H	Heater	Cond	ition N/A		Status	pass	
Sensor Comp	ponent Sensor F	Plumb	Cond	ition Plumb		Status	pass	
Sensor Comp	ponent Torque		Cond	ition Good		Status	pass	

Condition Good

Condition

Status pass

Status pass

Temperature Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site SEK430 Eric Hebert Temperature RM Young 8472 05/03/2013 none Mfg Extech Parameter Temperature RM Young Mfg Tfer Desc. RTD H232679 **Serial Number** 063143 00819 **SN/Owner ID** 01228 Tfer ID **Parameter** Temperature Translator **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 **Cert Date** CorrCoff Abs Avg Err **Abs Max Er Abs Avg Err Abs Max Er** 0.13 0.21 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: | UseDesc.: Test type: primary Temp Low Range 0.14 0.26 0.00000.1 \mathbf{C} -0.21 C Temp Mid Range 19.46 19.44 0.0000 19.3 -0.11 primary Temp High Range C -0.08 primary 44.08 43.88 0.000043.8 Condition Moderately clean Sensor Component | Shield **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Condition** Not functioning **Sensor Component** Blower **Status** Fail Condition See comments Sensor Component | System Memo Status pass

Humidity Data Form Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Mfg Site 14103 SEK430 Eric Hebert 05/03/2013 Relative Humidity Rotronic none Mfg Rotronic **Parameter** Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 1.00000 0.00000 Slope **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** Abs Avg Err 2.0 2.0 2.9 2.0 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: -1.0 RH Low Range Hygroclip 32.8 33.8 0.3178 31.8 primary 32.8 -2.9 RH Low Range 52.9 51.4 primary Hygroclip 52.9 0.4995 50.0 -2.0 primary RH High Range Hygroclip 93.6 89.9 93.6 0.9163 91.6 Status pass Sensor Component | System Memo **Condition** Condition Functioning Sensor Component Blower Status pass Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Condition Clean **Status** pass Sensor Component | Shield **Condition** Clean Status pass

Solar Radiation Data Form Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Mfg PY37610 Solar Radiation Licor SEK430 Eric Hebert 05/03/2013 none Mfg **Eppley** Parameter solar radiation RM Young Mfg Tfer Desc. SR transfer translat 10765 **Serial Number SN/Owner ID** none none 01246 Tfer ID Solar Radiation Translator **Parameter Slope** 1.00000 **Intercept** 0.00000 **DAS 1: DAS 2:** 1/6/2010 1.00000 % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max **Cert Date** CorrCoff Parameter solar radiation Mfg **Eppley** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 Tfer ID 01245 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 1.7% 0.0% 0.0% 2.2% UseDescription: Measure Date MeasureTime Tfer Corr: PctDifference: DAS w/m2: 11.2% primary 5/3/2013 16:00 349 388 2.1% 5/4/2013 9:00 757 773 primary 5/4/2013 10:00 913 893 -2.2% primary Sensor Component | Sensor Level **Condition** Not tested **Status** pass Sensor Component | Sensor Clean Condition Clean Status pass Sensor Component | Properly Sited **Condition** Properly sited **Status** pass **Sensor Component** System Memo Status pass Condition

Precipitation Data Form

Mfg	Seri	al Number Ta	Site	Te	echnician		Site	Visit Date	Parame	eter	Owner ID
Novalynx	097	7	SEK430	E	ric Hebert		05/0	03/2013	Precipita	ation	none
DAS 1: DAS 2:					Mfg Serial Nu	I	PMP	06134-50			recipitation 50ml graduate
A Avg % Diff 4.7%		% Di A Avg % 5.5%	6Dif A I	Max % Di	Tfer ID		0125	50			
4.770		5.5%			Slope Cert Date			1.0000 9/5/200			0.00000
UseDesc.	Test type	: TferVolume:	Iteration:	TimePerTip:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Un	it: TferUni	ts:PctDifference
primary	tip check	10 manual	1	3 sec	2.50	2.5		mm	mm	ml	
primary	test 1	231.5	1	10 sec	7.14	6.8	6	mm	mm	ml	-3.9%
primary	test 2	563	1	10 sec	14.28	13.4	49	mm	mm	ml	-5.5%
Sensor Com	ponent Sy	stem Memo		Conditi	on See com	ments			Status	pass	
Sensor Com	ponent Se	ensor Heater		Conditi	on Not func	tioning			Status	Fail	
Sensor Com	ponent Pr	operly Sited		Conditi	on See com	ments			Status	pass	
Sensor Com	ponent Ga	auge Drain Scree	en	Conditi	on Installed				Status	pass	
Sensor Com	ponent Le	vel		Conditi	on Level				Status	pass	
Sensor Com	ponent Ga	auge Clean		Conditi	on Clean				Status	pass	
Sensor Com	ponent Fu	innel Clean		Conditi	on Clean				Status	pass	
Sensor Com	ponent Co	ondition		Conditi	on Good				Status	pass	
Sensor Com	ponent Ga	auge Screen		Conditi	on Installed				Status	pass	

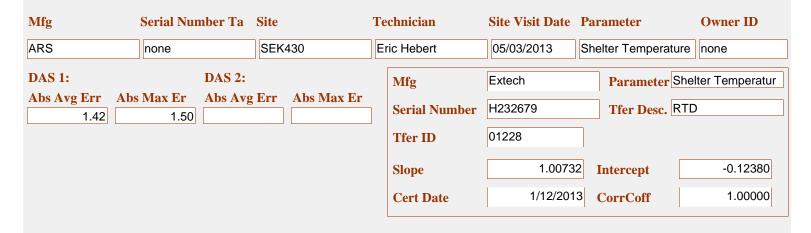
Infrastructure Data For

Site ID SEK430 Technician Eric Hebert Site Visit Date 05/03/2013

Shelter Make	Shelter Model	Shelter Size	
Alan pre-fab	s/n 861166 1808	512 cuft	
			B.77 (a) 2 (

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

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	23.06	23.02	0.000	24.4	C	1.37
primary	Temp Mid Range	22.97	22.93	0.000	24.4	С	1.5
primary	Temp Mid Range	23.10	23.06	0.000	24.5	C	1.39

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	l Problem
Flow Rate	SEK430	Eric Hebert	05/03/2013	Filter Position	Tylan	1414		✓
The filter attachment pla orientation.	ite is mounted to	o low in the enclos	ure resulting in t	the filter being expo	osed to wind-drive	en rain and in the	standard ge	
Precipitation	SEK430	Eric Hebert	05/03/2013	Sensor Heater	Novalynx	1409		✓
The tipping bucket rain	gauge heater is n	not functioning.						
Precipitation	SEK430	Eric Hebert	05/03/2013	Properly Sited	Novalynx	1409		✓
Objects violate the 45 de	egree rule for the	tipping bucket rain	n gage.					
Temperature	SEK430	Eric Hebert	05/03/2013	Blower	RM Young	1405		✓
The forced-air blower for	or the shield is no	ot functioning.						

Field Systems Comments

1 Parameter: SitingCriteriaCom

The site is a wooded area with spaced trees on three sides and a steep drop in elevation on the west side. Although not strictly conforming to siting criteria it is elevated in a wide valley and representative of the area. Some trees have been trimmed since the previous site audit. Trees are still within 5 meters, however none are higher than the CASTNET sample inlets.

2 Parameter: ShelterCleanNotes

The shelter is aging but is in fair condition and kept clean, neat, and well organized.

3 Parameter: MetSensorComme

The rain gauge is mounted near the tower.

4 Parameter: MetOpMaintCom

The temperature sensor aspirated shield blower is not functioning which will impact temperature data accuracy.

Field Systems Data Form

F-02058-1500-S1-rev001

Site ID SEK430	Technician Eric Hebert	Site Visit Date 05/0	3/2013
Site Sponsor (agency)	NPS	USGS Map	Case Mountain
Operating Group	NPS	Map Scale	
AQS#	06-107-0009	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone, IMPROVE, BAM	QAPP Latitude	
Deposition Measurement	dry	QAPP Longitude	
Land Use	woodland - mixed	QAPP Elevation Meters	
Terrain	complex	QAPP Declination	
Conforms to MLM	Marginally	QAPP Declination Date	
Site Telephone		Audit Latitude	36.489469
Site Address 1	Southern Sierra Research Center	Audit Longitude	-118.829153
Site Address 2	Highway 198	Audit Elevation	510
County	Tulare	Audit Declination	13.1
City, State	Sequoia National Park, CA	Present	
Zip Code	93262	Fire Extinguisher	Inspected May 2012
Time Zone	Pacific	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Alan pre-fab Me	odel s/n 861166 1808	Shelter Size 512 cuft
Shelter Clean	Notes The shelter is aging but is in fa	ir condition and kept clean, nea	at, and well organized.
Site OK	Notes	the second secon	
Natio _l	highway 99 take 198 east through Three I nal Park. Less than one mile past the Fee arch Center. The site is on the hill behind	both, take the first paved road	

Field Systems Data Form

F-02058-1500-S2-rev001

Site ID SEK430 Technician Eric Hebert Site Visit Date 05/03/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		✓
Major highway, airport or rail yard	2 km		✓
Secondary road, heavily traveled	500 m		✓
Secondary road, lightly traveled	200 m		✓
Feedlot operations	500 m	K	✓
Intensive agricultural ops (including aerial spraying)	500 m		✓
Limited agricultural operations	200 m		
Large parking lot	200 m		✓
Small parking lot	100 m	40 m	
Tree line	50 m	5 m	
Obstacles to wind	10 times obstacle height		V

Siting Distances OK

Siting Criteria Comment

The site is a wooded area with spaced trees on three sides and a steep drop in elevation on the west side. Although not strictly conforming to siting criteria it is elevated in a wide valley and representative of the area. Some trees have been trimmed since the previous site audit. Trees are still within 5 meters, however none are higher than the CASTNET sample inlets.

Field S	ystems	Data	Form

F-02058-1500-S3-rev001

Site	ID	SEK430	Tec	chnician	Eric Hebert		Site Visit Date 05/03/2013	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
1		ind speed and influenced by	direction sensor obstructions?	rs sited so	as to avoid	V		
2	(i.e. w	ind sensors sh	ounted so as to nould be mounted boom >2x the alling wind)	l atop the	tower or on a	>		
3	Are th	ne tower and so	ensors plumb?			✓	30 (20) (20) (30) (30) (30) (30) (30) (30) (30) (3	
4			e shields pointed sources such as			✓		
5	condit surfac	tions? (i.e. grou	d RH sensors sit und below senso ply sloped. Ridg ıld be avoided)	rs should	be natural	>		
6	Is the	solar radiatio	n sensor plumb?			V		
7	Is it si light?	ted to avoid sh	nading, or any a	rtificial oı	reflected	✓		
8	Is the	rain gauge plu	ımb?			V		
9	Is it si towers		neltering effects	from buil	dings, trees,	✓		
10		surface wetnes	ss sensor sited w	ith the gr	id surface	✓	N/A	
11	Is it i	nclined approx	ximately 30 degr	ees?		✓	N/A	
			explanation (phonat may affect th				y) regarding conditions listed above, or	any other features,
The	rain ga	auge is mounted	d near the tower.					
						1		

Field Systems Data Form F-02058-1500-S4-rev001 SEK430 Technician Eric Hebert Site Visit Date 05/03/2013 Site ID **V** Do all the meterological sensors appear to be intact, in good condition, and well maintained? **V** Are all the meteorological sensors operational online, and reporting data? **V** Are the shields for the temperature and RH sensors clean? 3 Are the aspirated motors working? **V** Is the solar radiation sensor's lens clean and free of scratches? ✓ N/A Is the surface wetness sensor grid clean and undamaged? Signs of wear Are the sensor signal and power cables intact, in good condition, and well maintained? V Are the sensor signal and power cable connections protected from the elements and well maintained? Model S/N **Client ID Parameter** Manufacturer В Met tower Aluma Tower none none Solar Radiation LI-200 Licor PY37610 none Precipitation Novalynx 260-2500 0977 none Temperature RM Young 41342 8472 none Shield (10 meter) Aspirated 43408 RM Young none 90810 Wind Direction RM Young AQ05103-5 59339wdr 90850 Wind Speed RM Young AQ05103-5 59339wsp 90850 Relative Humidity Rotronic MP 100 14103 none Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters: The temperature sensor aspirated shield blower is not functioning which will impact temperature data accuracy.

Field Systems Data Form F-02058-1500-S5-rev001 Site ID SEK430 Technician Eric Hebert Site Visit Date 05/03/2013 Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E **V** Do the sample inlets have at least a 270 degree arc of unrestricted airflow? ~ Are the sample inlets 3 - 15 meters above the ground? Trees within 10 meters Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? Pollutant analyzers and deposition equipment operations and maintenance ~ Do the analyzers and equipment appear to be in good condition and well maintained? ~ Are the analyzers and monitors operational, on-line, and reporting data? Describe ozone sample tube. 1/4 teflon by 16 meters Describe dry dep sample tube. 3/8 teflon by 15 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) ~ Are sample lines clean, free of kinks, moisture, and obstructions? **V** Is the zero air supply desiccant unsaturated? Flow line only Are there moisture traps in the sample lines? ✓ Clean and dry Is there a rotometer in the dry deposition filter line, and is it clean?

Parameter	Manufacturer	Model	S/N	Client ID	
Ozone	ThermoElectron Inc	49C	0520012327	90835	
Filter pack flow pump	Thomas	107CAB11A	109500000039	none	
MFC power supply	Tylan	RO-32	FP9403015	03679	
Zero air pump	Werther International	PC 70/4	627676	none	

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-rev001

Site	ID	SEK430	Technician	Eric Hebert	M.T. 1860	Site Visit Date	05/03/2013			
	DAS, se	nsor translators	, and peripheral equip	oment operatio	ns ai	nd maintenance				
1			s appear to be in good							
	well ma	intained?								
2		the components (backup, etc)	of the DAS operations	al? (printers,	✓					
3		nnalyzer and sen g protection circ	sor signal leads pass t cuitry?	hrough	✓					
4		signal connectio intained?	ns protected from the	weather and	✓					
5	Are the	signal leads con	nected to the correct l	DAS channel?	✓					
6	Are the ground		nslators, and shelter p	properly		The shelter ground	may not be	adequate		
7	Does the	e instrument she	lter have a stable pow	ver source?	✓					
8	Is the in	strument shelter	r temperature control	led?	✓					
									NEW TORSE OF BUILDING	
9	Is the m	et tower stable a	and grounded?			Stable		Grounded		
						~		✓		
10	Is the sa	imple tower stab	le and grounded?							
11	Tower o	comments?				The met sensors are	e mounted o	n the samp	le tower.	
							ALUM BUSINESS		no. residence	
Par	ameter		Manufacturer	Model		S/N		Clie	ent ID	
Con	nputer		Gateway	Solo		B250025130	6	non	е	
DAS	3		Environmental Sys	Corp 8816		2562		906	49	
Mod	lem		US Robotics	56k	ancesus	unknown		non	е	
Prin	ter		Hewlett Packard	842C	NO NEW YORK	unknown		non	е	
Sola	ar Radiati	on Translator	RM Young	70101-X		none	00-00-00-00-00-00-00-00-00-00-00-00-00-	non	е	
Tem	perature	Translator	RM Young	41406-X		063143		008	19	
			nnation (photograph on a saffect the monitor			y) regarding condi	tions listed	above, or a	any other fea	atures,

Field Systems Data Form

F-02058-1500-S7-rev001

Site ID SEK430		Tecl	nician	Eric Hebert		Site Visit Dat	e 05/03/20	013		
<u>Documentation</u>										
Does the site have the requir					uals'				,	****
Wind speed sensor	Yes	No 🗸	N/		logg	er.	Yes 🗸	TO STATE OF THE PARTY.	10	N/A
Wind direction sensor	n	✓	-		logg			Ī	7	<u> </u>
Temperature sensor			-			rt recorder				<u> </u>
Relative humidity sensor					pute				/	
Solar radiation sensor		✓		Mod					/	
Surface wetness sensor		V		Prin					/	
Wind sensor translator		✓		Zero	air p	oump			/	
Temperature translator		✓				v pump		Į.	7	
Humidity sensor translator			V			tector		\ <u>-</u>		✓
Solar radiation translator		✓		UPS						V
Tipping bucket rain gauge		✓		Ligh	tning	protection device				V
Ozone analyzer	V			Shelt	ter he	eater			/	
Filter pack flow controller		✓	C	Shelt	ter ai	r conditioner	V			
Filter pack MFC power supply		✓								
Does the site have the requ	ired	and m	ost rece	ent QC documen	ts and	d report forms?				
	Pre	esent					Cu	rrent		
Station Log		~	DataVi	ew2	10000			✓		
SSRF		✓	Data					✓		
Site Ops Manual		~	Jan 20	06		-		✓		
HASP										
Field Ops Manual										
Calibration Reports			Not ava	ailable on-site						
Ozone z/s/p Control Charts										
Preventive maintenance schedu	ıl									
1 Is the station log properly	com	pleted	during	every site visit?	✓ [Dataview				
2 Are the Site Status Report current?	For	ms bei	ng com	pleted and	✓ 5	SSRFs are review	ed before	sendir	ng	
3 Are the chain-of-custody f sample transfer to and fro			erly use	d to document	V					
4 Are ozone z/s/p control che current?	arts	proper	ly comp	pleted and		Control charts not	used			
Provide any additional explana	tion	(nhoto	granh d	or sketch if neces	scory)	regarding cond	itions list	ad aha	We c	or any other f
natural or man-made, that may						regarding collu	itions nsu	a abt	, , , ,	any omer i
	VALUE OF		er der ve		e de la constante de la consta		Mark Control	Carrie		

Field Systems Data Form F-02058-1500-S8-rev001 Site ID SEK430 Technician Eric Hebert Site Visit Date 05/03/2013 Site operation procedures Has the site operator attended a formal CASTNET training _ Trained by previous operator course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET П training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? V Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Compliant Frequency **V** V Semiannually **Multipoint Calibrations V** V Weekly **Visual Inspections V** N/A **Translator Zero/Span Tests (climatronics)** V ~ Monthly **Manual Rain Gauge Test V V** Weekly **Confirm Reasonableness of Current Values V V** Weekly **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **QC Check Performed Compliant** Frequency

Multi-point Calibrations	✓ N	onthly and semiannually	
Automatic Zero/Span Tests	STATES THE STATE OF THE STATE O	aily	
Manual Zero/Span Tests	✓ N	onthly	
Automatic Precision Level Tests		aily	✓
Manual Precision Level Test	✓ A	s needed	✓
Analyzer Diagnostics Tests		arm values only	
In-line Filter Replacement (at inlet)	✓ E	very 2 weeks	
In-line Filter Replacement (at analyze		A	
Sample Line Check for Dirt/Water	V	eekly	✓
Zero Air Desiccant Check	V	eekly	
 Do multi-point calibration gases go thre sample train including all filters? Do automatic and manual z/s/p gasses geomplete sample train including all filters. Are the automatic and manual z/s/p chereported? If yes, how? 	go through ers?	he 🗸	

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-rev001

Site	ID	SEK430 T	echn	ician Eric Hebert		Site Visit Dat	ite	05/03/2013
	Site o	peration procedures						
1	Is the	filter pack being changed ev	ery T	uesday as scheduled?	✓	Filter changed mo	orir	nings
2	Are the	ne Site Status Report Forms etly?	eing	completed and filed	\	Flow and observa	atio	n sections only
3	Are da	ata downloads and backups uled?	eing	performed as		No longer required	ed	
4	Are go	eneral observations being ma	de aı	nd recorded? How?	✓	SSRF		
5	Are si fashio	te supplies on-hand and repl n?	enish	ed in a timely	~			
6	Are sa	ample flow rates recorded? F	ow?		✓	SSRF		
7	Are sa	amples sent to the lab on a re	gular	schedule in a timely	✓			
8		Iters protected from contaminipping? How?	natio	n during handling	✓	Clean gloves on a	anc	d off
9		ne site conditions reported re tions manager or staff?	gular	ly to the field				
QC	Check	Performed		Frequency				Compliant
N	Iulti-po	oint MFC Calibrations	V	Semiannually	201-201			
F	low Sy	stem Leak Checks	✓	Weekly	era chesc			
F	ilter Pa	ack Inspection			enonia			
F	low Ra	ite Setting Checks	10000	Weekly	NICKTUS			
		Check of Flow Rate Rotomete			areto.			
		Filter Inspection/Replacemen	MUSCON	As needed	DEVENTA			
S	ample	Line Check for Dirt/Water	V	Weekly	1623			
		vadditional explanation (pho nan-made, that may affect th				y) regarding condi	litio	ons listed above, or any other features,

Site Inventory by Site Visit

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
LAV4	10-Eric H	lebert-05/07/2013				
1	5/7/2013	Computer	Gateway	0019275982	Solo	B52500251350
2	5/7/2013	DAS	Environmental Sys Corp	90535	8816	2026
3	5/7/2013	Elevation	Elevation	None	1	None
4	5/7/2013	F460 translator	Climatronics	00853	100163	unknown
5	5/7/2013	Filter pack flow pump	Thomas	00253	107CA18	0688001767
6	5/7/2013	flow rate	Tylan	03379	FC280AV	AW9403023
7	5/7/2013	Infrastructure	Infrastructure	none	none	none
8	5/7/2013	Mainframe	Climatronics	none	100081	1377
9	5/7/2013	Mainframe power supply	Climatronics	none	101074	858
10	5/7/2013	Met tower	Rohn	none	unknown	none
11	5/7/2013	MFC power supply	Tylan	03684	RO-32	FP9404003
12	5/7/2013	Modem	US Robotics	none	56k	unknown
13	5/7/2013	Ozone	ThermoElectron Inc	90834	49C	49C-520012-328
14	5/7/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1030745083
15	5/7/2013	Precipitation	Texas Electronics	none	TR-525i-HT	20895-398
16	5/7/2013	Printer	Hewlett Packard	none	842C	unknown
17	5/7/2013	Relative Humidity	Rotronic	none	MP 601A	52062
18	5/7/2013	Sample Tower	Aluma Tower	923314	В	AT-5324-F6-O
19	5/7/2013	Shelter Temperature	ARS	none	none	003
20	5/7/2013	Shield (10 meter)	Climatronics	01199	100325	1290
21	5/7/2013	Siting Criteria	Siting Criteria	None	1	None
22	5/7/2013	Solar Radiation	Licor	none	LI-200	PY49113
23	5/7/2013	Solar Radiation Translator	Climatronics	none	100144	391
24	5/7/2013	Temperature	Climatronics	03794	100093	ARS101
25	5/7/2013	Temperature Translator	Climatronics	03629	100088-2	398
26	5/7/2013	Wind Direction	Climatronics	90831	100076	1494
27	5/7/2013	Wind Speed	Climatronics	90843	100075	4265
28	5/7/2013	Zero air pump	Werther International	none	PC70/4	434533

DAS Data Form

DAS Time Max Error:

0.15

Mfg		Serial Nun	nber	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental	Sys	2026		LAV410	Eric Hebert	05/07/2013	DAS	Primary
Das Date: Das Day:		/2013 09:00 127	Audit Da Audit Ti Audit Da	me 15:09:09	Mfg Serial Number	Datel 4000392	Parameter Tfer Desc.	DAS Source generator (D
Low Channel	:		High Cha	nnnel:	Tfer ID	01321		
Avg Diff: 0.0000		0.0001	Avg Diff:	Max Diff: 0.0002	Slope Cert Date	1.0000 2/13/201		0.00000
					Mfg	Fluke	Parameter	DAS
					Serial Number	86590148	Tfer Desc.	DVM
					Tfer ID	01310		
					Slope	1.0000	0 Intercept	0.00000
					Cert Date	1/27/201	3 CorrCoff	1.00000
Channal	Inni	,t DV	/M Output	DAS Output	InputUnit	OutputUnit	Difforman	

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
2	0.0000	0.0000	0.0000	V	V	0.0000
2	0.1000	0.1000	0.1000	V	V	0.0000
2	0.3000	0.3001	0.3001	V	V	0.0000
2	0.5000	0.5001	0.5001	V	V	0.0000
2	0.7000	0.7002	0.7001	V	V	-0.0001
2	0.9000	0.9002	0.9001	V	V	-0.0001
2	1.0000	1.0003	1.0002	V	V	-0.0001
9	0.0000	0.0000	0.0000	V	V	0.0000
9	0.1000	0.1000	0.1000	V	V	0.0000
9	0.3000	0.3001	0.3000	V	V	-0.0001
9	0.5000	0.5001	0.5000	V	V	-0.0001
9	0.7000	0.7002	0.7001	V	V	-0.0001
9	0.9000	0.9002	0.9000	V	V	-0.0002
9	1.0000	1.0003	1.0003	V	V	0.0000

Flow Data Form

Mfg	S	erial Nun	iber Ta	Site	Tec	hnician	Site Visit l	Date Param	eter	Owner ID	
Tylan	P	W940302	23	LAV410	Eri	c Hebert	05/07/201	3 flow ra	te	03379	
Mfg	Tylan	l				Mfg	P	Parameter Flow Rate			
SN/Owner ID	FP94	04003	03684			Serial Number	122974	Т	fer Desc. BIC	OS 220-H	
Parameter	MFC	power sup	pply			Tfer ID	01416				
				<u>'</u>		Slope	1	.00000 Inte	ercept	0.00000	
						•				1.00000	
						Cert Date	17	0/2013 (0)	rCoff	1.00000	
DAS 1:			DAS 2:			Cal Factor Z	ero	0.3	32		
A Avg % Diff:	A Ma	x % Di	A Avg %l	Dif A Max	: % Di	Cal Factor F	ull Scale	5	.9		
1.13%		1.26%				Rotometer R	eading:	4	.3		
UseDescription	: Te	st type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference	
primary	pump	off	0.000	0.000	-0.34	-0.2790	0.01	l/m	l/m		
primary	leak o	check	0.000	0.000	-0.32	-0.2560	0.03	1/m	l/m		
primary	test p	t 1	0.000	2.963	2.40	2.4030	3.00	l/m	l/m	1.26%	
primary	test p		0.000	2.965	2.40	2.4030	3.00	l/m	l/m	1.18%	
primary	test p	t 3	0.000	2.972	2.40	2.4030	3.00	l/m	l/m	0.95%	
Sensor Comp	onent	Leak Tes	t		Condition	n		Status	pass		
Sensor Comp	onent	Filter Azir	muth		Condition	n 90 deg		Status	Status pass		
Sensor Comp	onent	Filter Dep	oth		Condition	n - 1.0 cm		Status	Fail		
Sensor Comp	onent	Filter Pos	ition		Condition	n Poor		Status	Fail		
Sensor Comp	onent	Moisture	Present		Condition	n No moisture p	resent	Status	pass		
Sensor Comp	onent	Rotomete	er Condition	1	Condition	n Clean and dry		Status	pass		
Sensor Comp	onent	System M	1emo		Condition	n See comments	Status	pass			
Sensor Comp	onent	Tubing C	ondition		Condition	n Good	Status	pass			
Sensor Comp	onent	Filter Dist	ance		Condition	5.0 cm		Status	pass		

Ozone Data Form

Mfg S	erial Number Ta	Site	Teo	chnician		Site Visi	t Date 1	Parame	eter	Owner ID	
ThermoElectron Inc 4	9C-520012-328	LAV410	Eri	ic Hebert		05/07/20	013	Ozone		90834	
•	98219 Slope: 20291 Intercept	0.00000	-	Mfg Serial N	umber	ThermoE 5171121			rameter oz	zone zone primary s	stan
CorrCoff 0.9	Open CorrCoff	0.00000)	Tfer ID		01111					
DAS 1:	DAS 2:			Slope			0.99720	Inter	cent	0.1842	28
A Avg % Diff: A Ma		6Dif A Max 9	% Di	Cert Da	to		1/2/2013			1.0000	
1.0%	2.1%			CCITBa			.,_,_	Corr	Con		
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si		Site	Unit:	PctDit	fference:	
primary primary	2	0.18 29.23	29.		29.		ppb ppb			2.06%	
primary	3	50.74	50.0		51.		ppb			0.81%	
primary	4	82.58	82.0		82.		ppb			-0.69%	
primary	5	115.13	115.		114		ppb ppb			-0.57%	
Sensor Component		110.10	Conditio			.00		Status	pass	0.3770	
Sensor Component	Cell B Tmn		Conditio					Status			
•											
Sensor Component	Fullscale Voltage		Conditio	Not te	sted			Status	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass		
Sensor Component	Line Loss		Conditio	Not te	sted			Status	pass		
Sensor Component	Offset		Conditio	0.000				Status	pass		
Sensor Component	Span		Conditio	1.002				Status	pass		
Sensor Component	Cell B Freq.		Conditio	67 kH	Z			Status	Fail		
Sensor Component	System Memo		Conditio	See co	omments			Status	pass		
Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component	Cell B Flow		Conditio	0.63 lp	om			Status	pass		
Sensor Component	Cell A Tmp.		Conditio	34.4 C	;			Status	pass		
Sensor Component	Cell A Pressure		Conditio	n 608 m	mHg			Status	pass		
Sensor Component	Cell A Noise		Conditio	Not te	sted			Status	pass		
Sensor Component	Cell A Freq.		Conditio	64 kH	Z			Status	Fail		
Sensor Component	Cell A Flow		Conditio	0.63 lp	om			Status	pass		
Sensor Component	Battery Backup		Conditio	n N/A				Status	pass		
Sensor Component	Zero Voltage		Conditio	Not te	sted			Status	pass		

Wind Speed Data Form Mfg Serial Number Ta Site **Technician** Site Visit Date Parameter Owner ID LAV410 Wind Speed 90843 4265 Eric Hebert 05/07/2013 Climatronics Parameter wind speed Mfg RM Young Climatronics Mfg Tfer Desc. wind speed motor (h Serial Number 00853 **SN/Owner ID** unknown 01262 Tfer ID F460 translator **Parameter** 0.00000 1.00000 Slope **Intercept** 573 Prop or Cups SN 0.3 to 0.3 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** N/A Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (I **Serial Number** 01261 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/13/2010 1.00000 **Cert Date** CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 0.01 0.10% Abs Avg Err 0.03 0.25% Abs Max Er UseDescription: InputDevice: Input RPM: Diff/ % Diff: Difference: Input m/s: Output V: DAS m/s: none 0 0.20 0.0000 0.2 0.00 primary 01261 50 1.40 1.4 0.00 primary 0.0000 primary 01261 100 2.57 0.0000 2.6 0.03 4.22 4.2 -0.02 01261 170 0.0000 primary primary 01261 250 6.10 0.0000 6.1 0.00% 11.97 12.0 0.25% primary 01262 500 0.0000 01262 800 19.02 0.0000 19.0 -0.11% primary primary 01262 2000 47.22 0.0000 47.2 -0.04% Sensor Component | System Memo Status pass **Condition** See comments Sensor Component | Sensor Plumb Condition Plumb Status pass Sensor Component | Sensor Heater **Condition** Functioning Status pass Sensor Component | Prop or Cups Condition **Condition** Poor Status Fail Sensor Component | Condition **Condition** Fair Status pass Sensor Component | Torque **Condition** Good **Status** pass

Wind Direction Data Form

Mfg	Serial Nu	ımber Ta	Site	,	Technician	S	ite Visit D	ate Paran	neter	Owner ID	
Climatronics	1494		LAV410		Eric Hebert	(05/07/2013	Wind [Direction	90831	
Mfg SN/Owner ID Parameter	Climatronics				Mfg Serial Nur Tfer ID Slope Cert Date Mfg Serial Nur Tfer ID	nber 1	shikata 90037 1265 1.0	00000 Into	ercept erameter varameter	vind direction	
	DAS 1: Orientation 3.3	Linearit		AS 2: rientation	Linearity:						
UseDescriptio	n: TferID	. In	put Raw:	Linearity	Output V:	Output	Dog : D	oifference:	Change:	Error:	
primary	01266		0	∠ Linearity	0.0000	Output 2		2	41	-4	
primary	01266		45	V	0.0000	4		1	44	-1	
primary	01266		90	✓	0.0000	9		2	46	1	
primary	01266		135	✓	0.0000	13		3	46	1	
primary	01266		180	V	0.0000	18		4	46	1	
primary	01266		225	V	0.0000	22		1	42	-3	
primary	01266		270	V	0.0000	27		5	49	4	
primary	01266		315	✓	0.0000	32		6	46	1	
primary	01265		0		0.0000	2		2		2	
primary	01265		90		0.0000	9	2	2		2	
primary	01265		180		0.0000	18	34	4		4	
primary	01265		270		0.0000	27	'5	5		5	
Sensor Comp	onent Mast			Condi	Good			Status	pass		
Sensor Component Condition			Condi	Condition Poor			Status Fail				
Sensor Comp	onent Sensor	Heater		Condi	Condition Functioning			Status	Status pass		
Sensor Component Sensor Plumb			Condi	Condition Plumb			Status pass				
Sensor Comp	onent Torque			Condi	ition Good		Status	Status pass			
Sensor Comp	onent Vane C	ondition		Condi	Ition Good			Status	pass		
Sensor Comp	onent System	Memo		Condi	See com	ments		Status	pass		

Temperature Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site LAV410 Eric Hebert Temperature 03794 Climatronics ARS101 05/07/2013 Mfg Extech Parameter Temperature Climatronics Mfg Tfer Desc. RTD H232679 **Serial Number** 03629 **SN/Owner ID** 01228 Tfer ID **Parameter** Temperature Translator **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 **Cert Date** CorrCoff Abs Avg Err **Abs Max Er Abs Avg Err Abs Max Er** 0.15 0.34 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: | UseDesc.: Test type: 0.04 primary Temp Low Range 0.05 0.17 0.00000.2 \mathbf{C} C Temp Mid Range 20.25 20.23 0.0000 20.2 -0.08 primary Temp High Range C -0.34 primary 47.91 47.68 0.000047.3 Sensor Component | Shield **Status** pass Condition Clean Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Humidity Data Form Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Mfg Site LAV410 Eric Hebert Relative Humidity Rotronic 52062 05/07/2013 none Mfg Rotronic **Parameter** Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 1.00000 0.00000 Slope **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 1.0 Abs Avg Err 8.0 11.4 1.0 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 39.3 0.3735 37.4 primary 32.8 4.6 RH Low Range 11.4 primary Hygroclip 52.9 58.7 52.9 0.6427 64.3 primary RH High Range Hygroclip 93.6 89.4 93.6 0.9464 94.6 1.0 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Condition Functioning Status pass Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Condition Clean **Status** pass Sensor Component Shield **Condition** Clean Status pass

Solar Radiation Data Form Serial Number Ta **Technician** Owner ID Mfg Site Visit Date Parameter Eric Hebert Solar Radiation Licor PY49113 LAV410 05/07/2013 none Mfg **Eppley** Parameter solar radiation Climatronics Mfg Tfer Desc. SR transfer translat 10765 **Serial Number SN/Owner ID** none 01246 Tfer ID **Parameter** Solar Radiation Translator **Slope** 1.00000 **Intercept** 0.00000 **DAS 1: DAS 2:** 1/6/2010 1.00000 **Cert Date** CorrCoff % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max Parameter solar radiation Mfg **Eppley** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 Tfer ID 01245 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 9.7% 0.0% 0.0% 11.4% Measure Date MeasureTime Tfer Corr: DAS w/m2: PctDifference: UseDescription: 359 primary 5/7/2013 11:00 400 11.4% 10.2% 5/7/2013 12:00 157 173 primary primary 5/7/2013 13:00 100 108 8.0% 80 8.8% primary 5/7/2013 14:00 87 5/7/2013 15:00 75 81 8.0% primary primary 5/7/2013 16:00 73 77 5.5% Sensor Component | Sensor Level Condition 1/2 bubble off level Status pass Sensor Component | Sensor Clean **Condition** Clean **Status** pass Sensor Component | Properly Sited **Condition** Properly sited Status pass Sensor Component | System Memo Condition Status pass

Precipitation Data Form

Mfg	;	Serial N	Number Ta	Site	Т	Гесl	hnician		Site	Visit Date	Paramo	eter		Owner ID
Texas Electror	nics	20895-	398	LAV410		Eric	Hebert		05/0	07/2013	Precipit	atior	1	none
							Mfg		PMF					ecipitation
DAS 1: A Avg % Diff 3.0%		ax % D		Dif A	Max % Di		Serial Nur Ffer ID	nber	012	06134-50	Ti	er D	esc. [25]	0ml graduate
	-					5	Slope			1.0000	0 Inte	rcep	ot	0.00000
						(Cert Date			9/5/200	05 Cor	rCof	ff	1.00000
UseDesc.	Test	type:	TferVolume:	Iteration:	TimePerTip	o:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Un	it: T	ΓferUnit	s:PctDifference
primary	tip che		10 manual	1	2 sec		1.00	1.0		mm	mm		ml	
primary	test 1		231.5	1	8 sec		5.00	4.9	90	mm	mm		ml	-2.0%
primary	test 2		231.5	2	10 sec		5.00	4.8	30	mm	mm		ml	-4.0%
Sensor Com	ponen	Syste	m Memo		Condi	tion	See com	ments			Status	pas	s	
Sensor Com	ponen	Senso	or Heater		Condi	tion	Function	ing			Status	pas	S	
Sensor Com	ponen	Prope	erly Sited		Condi	tion	See com	ments			Status	pas	S	
Sensor Com	ponen	Gaug	e Drain Scree	n	Condi	tion	Installed				Status	pas	s	
Sensor Com	ponen	Level			Condi	tion	1/2 bubb	le off le	evel		Status	pas	s	
Sensor Com	Sensor Component Gauge Clean			Condi	tion	on Clean				Status	pas	s		
Sensor Com	ponen	t Funne	el Clean		Condi	tion	Moderate	ely clea	an		Status	pas	S	
Sensor Com	ponen	Cond	ition		Condi	tion	Good				Status	pas	s	
Sensor Com	ponen	Gaug	e Screen		Condi	tion	Installed				Status	pas	S	

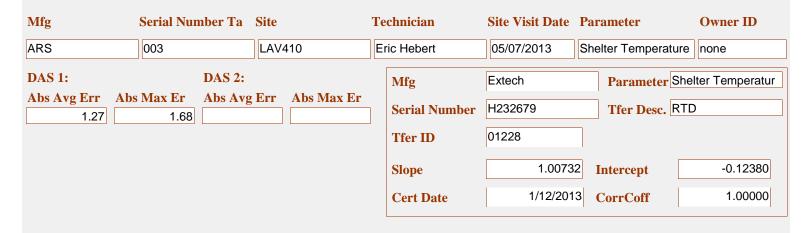
Infrastructure Data For LAV410 Site Visit Date 05/07/2013 Technician Eric Hebert Site ID **Shelter Make Shelter Model Shelter Size** 1150 cuft Sensor Component Shelter Roof Condition Good Status pass Sensor Component | Sample Tower Type Status pass **Condition** Type B **Condition** Good Status pass **Sensor Component** Met Tower Sensor Component | Moisture Trap **Condition** Installed **Status** pass Sensor Component Power Cables Status pass **Condition** Good Sensor Component Rotometer Condition Installed Status pass Sensor Component | Conduit **Condition** N/A Status pass Sensor Component | Sample Tower **Condition** Good Status pass Sensor Component | Shelter Condition **Condition** Good Status pass **Condition** Good Sensor Component | Shelter Floor Status pass Status pass Sensor Component | Shelter Temp Control **Condition** Functioning Sensor Component | Signal Cable **Condition** Fair Status pass Condition 3/8 teflon Sensor Component | Tubing Type Status pass Sensor Component | Shelter Door **Condition** Good Status pass

Condition Good

Sensor Component | Sample Train

Status pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	21.48	21.45	0.000	22.7	C	1.2
primary	Temp Mid Range	21.61	21.58	0.000	22.5	С	0.93
primary	Temp Mid Range	20.90	20.87	0.000	22.6	С	1.68

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	l Problem
Flow Rate	LAV410	Eric Hebert	05/07/2013	Filter Position	Tylan	1345		✓
The filter attachment pla orientation.	ate is mounted to	o low in the enclosi	ure resulting in t	he filter being expos	sed to wind-driven	rain and in the	standard ge	eometric
Ozone	LAV410	Eric Hebert	05/07/2013	Cell B Freq.	ThermoElectron	1344		✓
This analyzer diagnostic	check is outside	the manufacturer's	recommended	value.				
Ozone	LAV410	Eric Hebert	05/07/2013	Cell A Freq.	ThermoElectron	1344		✓
This analyzer diagnostic	check is outside	the manufacturer's	recommended	value.				
Precipitation	LAV410	Eric Hebert	05/07/2013	System Memo	Texas Electronic	1339		✓
The edge of the tipping	bucket funnel res	its on the pipe that s	supports the rain	gauge. This causes	the funnel to be o	out of level.		
Precipitation	LAV410	Eric Hebert	05/07/2013	Properly Sited	Texas Electronic	1339		✓
Objects violate the 45 de	egree rule for the	tipping bucket rain	ı gage.					
Wind Direction	LAV410	Eric Hebert	05/07/2013	Condition	Climatronics	3135		✓
The upper and lower sec	ctions of the wind	l sensor body are lo	oose. This condi	tion will cause prem	nature failure of th	e sensor and car	affect data	a accuracy.
Wind Speed Both set screws are strip	LAV410	Eric Hebert	05/07/2013	Prop or Cups Con	Climatronics	2759		✓

Field Systems Comments

1 Parameter: SiteOpsProcedures

The ozone inlet filter is changed and the sample line conditioned every two weeks.

2 Parameter: DocumentationCo

The most recent calibration and verification results are not available on-site.

3 Parameter: SitingCriteriaCom

The site is located at the end of a park service facility parking lot, in a fire station. The tree line is near the building, but the prevailing wind direction is from the clearing. Tree height above the sample inlet is not twice as far away as it is high above the inlet.

4 Parameter: ShelterCleanNotes

The inside equipment is located in room within the fire station, clean, neat, and organized.

5 Parameter: MetSensorComme

The rain gauge funnel is contacting the tipping bucket mounting post causing it to be 1/2 bubble off level. Objects violate the 45 degree rule.

6 Parameter: MetOpMaintCom

The signal cables are showing signs of wear.

F-02058-1500-S1-rev001

Site ID LAV410	Technician Eric Hebert	Site Visit Date 05/0	7/2013
			The Later will be the Author
Site Sponsor (agency)	NPS	USGS Map	Manzanita Lake
Operating Group	NPS	Map Scale	
AQS#		Map Date	
Meteorological Type	Climatronics		
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	40.5403
Deposition Measurement	dry, wet	QAPP Longitude	-121.5764
Land Use	woodland - evergreen	QAPP Elevation Meters	1756
Terrain	complex	QAPP Declination	
Conforms to MLM	Marginally	QAPP Declination Date	
Site Telephone	(530) 335-7214	Audit Latitude	40.539991
Site Address 1	38050 Hwy 36E	Audit Longitude	-121.576462
Site Address 2		Audit Elevation	1755
County	Shasta	Audit Declination	14.5
City, State	Mineral, CA	Present	
Zip Code	96063	Fire Extinguisher	Out for service
Time Zone	Pacific	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Mo	odel	Shelter Size 1150 cuft
	Notes The inside equipment is located	d in room within the fire station	, clean, neat, and organized.
	Notes		
onto re	Redding take route 44 east for approxima oute 89. Turn right at the first road into the the fire station at the end of the parking ment.	e fire station and maintenance	area. Take the first left, the site is

F-02058-1500-S2-rev001

Site ID LAV410 Technician Eric Hebert Site Visit Date 05/07/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km	\$	
City > 50,000 population	40 km		
City 10,000 to 50,000 population	10 km		
City 1,000 to 10,000 population	5 km		
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m	3	
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m		
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		V
Large parking lot	200 m		✓
Small parking lot	100 m	25 m	
Tree line	50 m	10 m	
Obstacles to wind	10 times obstacle height		~

Siting Distances OK

Siting Criteria Comment

The site is located at the end of a park service facility parking lot, in a fire station. The tree line is near the building, but the prevailing wind direction is from the clearing. Tree height above the sample inlet is not twice as far away as it is high above the inlet.

Field Systems Data Form F-02058-1500-S3-rev001 LAV410 Technician Eric Hebert Site ID Site Visit Date 05/07/2013 **V** Are wind speed and direction sensors sited so as to avoid being influenced by obstructions? ~ 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) **V** Are the tower and sensors plumb? **V** Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc? **V** 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) 1/2 bubble off level Is the solar radiation sensor plumb? ~ 7 Is it sited to avoid shading, or any artificial or reflected light? 1/2 bubble off level (pic) Is the rain gauge plumb? 45 degree rule violation Is it sited to avoid sheltering effects from buildings, trees, towers, etc? ✓ N/A 10 Is the surface wetness sensor sited with the grid surface facing north? ✓ N/A 11 Is it inclined approximately 30 degrees?

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 rain gauge funnel is contacting the tipping bucket mounting post causing it to be 1/2 bubble off level. Objects violate the 45 degree rule.

Field Systems Data Form F-02058-1500-S4-rev001 Site ID LAV410 Technician Eric Hebert Site Visit Date 05/07/2013 **V** Do all the meterological sensors appear to be intact, in good condition, and well maintained? **V** Are all the meteorological sensors operational online, and reporting data? **V** Are the shields for the temperature and RH sensors clean? 3 **V** Are the aspirated motors working? **V** Is the solar radiation sensor's lens clean and free of scratches? ✓ N/A Is the surface wetness sensor grid clean and undamaged? Signs of wear Are the sensor signal and power cables intact, in good condition, and well maintained? V Are the sensor signal and power cable connections protected from the elements and well maintained? Model S/N **Client ID Parameter** Manufacturer Shield (10 meter) 100325 Climatronics 1290 01199 Wind Speed 90843 Climatronics 100075 4265 Wind Direction Climatronics 100076 1494 90831 Solar Radiation Licor LI-200 PY49113 none Met tower Rohn unknown none none Relative Humidity Rotronic MP 601A 52062 none Precipitation Texas Electronics TR-525i-HT 20895-398 none Temperature Climatronics 100093 ARS101 03794 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 signal cables are showing signs of wear.

Field Systems Data Form F-02058-1500-S5-rev001 LAV410 Site Visit Date 05/07/2013 Site ID Technician Eric Hebert Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E **V** Do the sample inlets have at least a 270 degree arc of unrestricted airflow? ~ Are the sample inlets 3 - 15 meters above the ground? < 10 meters Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? Pollutant analyzers and deposition equipment operations and maintenance **V** Do the analyzers and equipment appear to be in good condition and well maintained? **V** Are the analyzers and monitors operational, on-line, and reporting data? Describe ozone sample tube. 1/4 teflon by 10 meters Describe dry dep sample tube. 3/8 teflon by 10 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) ~ Are sample lines clean, free of kinks, moisture, and obstructions? **V** 7 Is the zero air supply desiccant unsaturated? Flow line only Are there moisture traps in the sample lines? Clean and dry Is there a rotometer in the dry deposition filter line, and is it clean? **Parameter** Manufacturer S/N Client ID Model Sample Tower Aluma Tower В AT-5324-F6-O 923314 Ozone ThermoElectron Inc 49C 49C-520012-328 90834 Thomas 107CA18 0688001767 00253 Filter pack flow pump FP9404003 MFC power supply Tylan RO-32 03684

Zero air pump Werther International PC70/4 434533 none

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

F-02058-1500-S6-rev001

Site ID	LAV410	Technician Eric I	Hebert	Si	te Visi	t Date 05/07/	2013			
DAS, se	ensor translators, a	ınd peripheral equipmen	t operations	and ma	intena	nce				
1 Do the	DAS instruments a	appear to be in good cond	<u> </u>							
2 Are all		the DAS operational? (p	rinters,							
3 Do the	a, backup, etc) analyzer and sensor ng protection circuit	or signal leads pass throu itry?	gh 🔽							
	signal connections aintained?	s protected from the weat	ther and							
5 Are the	signal leads conne	ected to the correct DAS	channel?							
6 Are the ground	e DAS, sensor transed?	erly _								
7 Does th	e instrument shelt	er have a stable power so	urce?							
8 Is the in	nstrument shelter t	emperature controlled?	V							
9 Is the n	net tower stable an	d grounded?			able		Grou			
10 Is the s	ample tower stable	and grounded?			7		<u> </u>			
11 Tower	comments?						<u>-</u>			
Parameter	The second	Manufacturer	Model		S/N			Clie	nt ID	
Computer		Gateway	Solo		B525	00251350		0019	9275982	
DAS		Environmental Sys Corp	8816	en e	2026			9053	35	
F460 transla	itor	Climatronics	100163		unkno	own		0085	53	
Mainframe		Climatronics	100081	SOROSSIS S	1377			none		
CONTRACTOR OF THE	ower supply	Climatronics	101074	X30393355	858			none		
Modem		US Robotics	56k	TO SERVEY	unkno	own		none	•	
Printer		Hewlett Packard	842C	02/05/2005	unkno	own		none	9	
NEW YORKS	tion Translator	Climatronics	100144		391		1994-1995-1995	none	The second second	
Temperature	e Translator	Climatronics	100088-2		398			0362	29	
		ation (photograph or ske ay affect the monitoring p		ary) reg	arding	g conditions li	isted above	e, or a	ny other features) ,

F-02058-1500-S7-rev001

Documentation Does the site have the required instrument and equipment manuals? Ves No N/A Wind speed sensor	Site ID LAV410		Tecl	nnician	Eric Hebert	Site Visit Date	05/07/201	3	
Does the slite have the required instrument and equipment manuals? Yes No N/A Yes No N/A Wind speed sensor V									
Ves No N/A Wind speed sensor Wind direction sensor Wind direction sensor Wind direction sensor Wind direction sensor Wind sensor Wind sensor Wind sensor Wind sensor translator Wind sensor									
Wind speed sensor						<u>''</u>	• 7		NT/A
Wind direction sensor						yer		A SECTION AND ADDRESS.	N/A
Temperature sensor									<u></u>
Relative humidity sensor		V							✓
Surface wetness sensor			V					V	
Wind sensor translator	Solar radiation sensor	V			Modem		✓		
Temperature translator	Surface wetness sensor		V	Ē	Printer			V	
Humidity sensor translator	Wind sensor translator				Zero air	pump			
Solar radiation translator	Temperature translator		V-10			w pump			
Tipping bucket rain gauge					CONTRACTOR OF THE PARTY OF THE	otector			
Ozone analyzer									
Filter pack flow controller									
Filter pack MFC power supply				100					
Does the site have the required and most recent QC documents and report forms? Present Current Station Log DataView2 SSRF July 2012 HASP Field Ops Manual Calibration Reports Not current Ozone z/s/p Control Charts Preventive maintenance schedul 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 fearantural or man-made, that may affect the monitoring parameters:		<u> </u>				ir conditioner		V	
Station Log SSRF V July 2012 HASP Field Ops Manual Calibration Reports Not current Ozone z/s/p Control Charts Preventive maintenance schedul 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 featural or man-made, that may affect the monitoring parameters:									
Station Log	Does the site have the requi	ired a	and m	ost reco	ent QC documents an	d report forms?			
SSRF Site Ops Manual W July 2012 W HASP Field Ops Manual Calibration Reports Not current Ozone z/s/p Control Charts Preventive maintenance schedul I Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other featural or man-made, that may affect the monitoring parameters:									
Site Ops Manual HASP Field Ops Manual Calibration Reports Not current Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other fearatural or man-made, that may affect the monitoring parameters:				DataVi	iew2	14			
HASP Field Ops Manual									
Field Ops Manual Calibration Reports Not current Ozone z/s/p Control Charts Preventive maintenance schedul 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 featural or man-made, that may affect the monitoring parameters:				July 20	012		✓		
Calibration Reports									
Ozone z/s/p Control Charts									
Preventive maintenance schedul 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 featural or man-made, that may affect the monitoring parameters:				Not cu	rrent				
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 current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feat natural or man-made, that may affect the monitoring parameters:									
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 current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feat natural or man-made, that may affect the monitoring parameters:	Treventive mannenance senedo				F1827EAVEC (91918A				
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 current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feat natural or man-made, that may affect the monitoring parameters:	1 Is the station log properly	com	pleted	during	every site visit? 🔽			HISTORY OF	
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 fea natural or man-made, that may affect the monitoring parameters:									
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 current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other fea natural or man-made, that may affect the monitoring parameters:		For	ms bei	ng com	pleted and				
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 fea natural or man-made, that may affect the monitoring parameters:									
Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other fea natural or man-made, that may affect the monitoring parameters:				erly use	ed to document				
natural or man-made, that may affect the monitoring parameters:	4 Are ozone z/s/p control cha	arts p	oroper	ly com	pleted and	Control charts not us	ed		
The most recent calibration and verification results are not available on-site.								STATE OF STATE	
	current? Provide any additional explana) regarding condition	ons listed	above, o	or any other fe
	current? Provide any additional explana natural or man-made, that may	y affe	ct the	monito	oring parameters:		ons listed	above, o	or any other fe

Field Systems Data Form F-02058-1500-S8-rev001 Site ID LAV410 Site Visit Date 05/07/2013 Technician Eric Hebert Site operation procedures Informal training provided by ARS during maintenance visits Has the site operator attended a formal CASTNET training course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET П training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? V Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant** V **V** Semiannually **Multipoint Calibrations** V ~ Weekly **Visual Inspections V** ~ Weekly **Translator Zero/Span Tests (climatronics) V** ~ Monthly **Manual Rain Gauge Test V V** Weekly **Confirm Reasonableness of Current Values V** ~ N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer?

QC Check Performed	Frequency		Compliant
Multi-point Calibrations	✓ Monthly an	d semiannually	✓
Automatic Zero/Span Tests	✓ Daily	A CARLO CONTROL OF THE CONTROL OF TH	✓
Manual Zero/Span Tests	✓ Every 2 we	eks	
Automatic Precision Level Tests	✓ Daily		
Manual Precision Level Test	✓ As needed		
Analyzer Diagnostics Tests	✓ Alarm value	es only	
In-line Filter Replacement (at inlet)	✓ Every 2 we	eks	
In-line Filter Replacement (at analyze			
Sample Line Check for Dirt/Water			
Zero Air Desiccant Check			
 Do multi-point calibration gases go throug sample train including all filters? Do automatic and manual z/s/p gasses go t complete sample train including all filters? Are the automatic and manual z/s/p check reported? If yes, how? 	hrough the	✓ Dataview	

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

The ozone inlet filter is changed and the sample line conditioned every two weeks.

Field Systems Data Form F-02058-1500-S9-rev001 Site ID LAV410 Technician Eric Hebert Site Visit Date 05/07/2013 Site operation procedures Is the filter pack being changed every Tuesday as scheduled? Filter changed 80% in morining Are the Site Status Report Forms being completed and filed correctly? No longer required Are data downloads and backups being performed as scheduled? V SSRF, dataview Are general observations being made and recorded? How? V Are site supplies on-hand and replenished in a timely fashion? SSRF Are sample flow rates recorded? How? Are samples sent to the lab on a regular schedule in a timely fashion? Clean gloves on and off Are filters protected from contamination during handling and shipping? How? Are the site conditions reported regularly to the field operations manager or staff? Compliant **QC Check Performed** Frequency ~ ✓ Semiannually **Multi-point MFC Calibrations** V Weekly Flow System Leak Checks **Filter Pack Inspection** ~ ✓ Weekly **Flow Rate Setting Checks** V ✓ Weekly **Visual Check of Flow Rate Rotometer** ✓ As needed V **In-line Filter Inspection/Replacement** Sample Line Check for Dirt/Water Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,

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

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
OX.	F122-Sandy	Grenville-05/08/2013				
1	5/8/2013	Computer	Dell	000246	D520	unknown
2	5/8/2013	DAS	Campbell	000425	CR3000	2528
3	5/8/2013	Elevation	Elevation	None	1	None
4	5/8/2013	Filter pack flow pump	Thomas	04924	107CAB18	100300020817
5	5/8/2013	Flow Rate	Apex	000547	AXMC105LPMDPCV	50743
6	5/8/2013	Infrastructure	Infrastructure	none	none	none
7	5/8/2013	Modem	Raven	06468	H4222-C	0808310523
8	5/8/2013	Ozone	ThermoElectron Inc	000693	49i A1NAA	1030244806
9	5/8/2013	Ozone Standard	ThermoElectron Inc	000199	49i A3NAA	0607315737
10	5/8/2013	Sample Tower	Aluma Tower	000018	В	AT-61152-A-H8-E
11	5/8/2013	Shelter Temperature	Campbell	none	107-L	10755-148
12	5/8/2013	Siting Criteria	Siting Criteria	None	1	None
13	5/8/2013	Temperature	RM Young	02823	41342	illegible
14	5/8/2013	UPS	APC	05072	RS800	unknown
15	5/8/2013	Zero air pump	Werther International	06911	PC70/4	000829167

DAS Data Form 0.02 **DAS Time Max Error:** Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2528 OXF122 Sandy Grenville 05/08/2013 DAS Primary Das Date: 5 /8 /2013 **Audit Date** 5 /8 /2013 Datel Parameter DAS Mfg 11:10:01 11:10:00 Das Time: **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 128 **Audit Day** 128 Tfer ID 01320 **Low Channel: High Channel: Max Diff: Avg Diff: Avg Diff: Max Diff:** 1.00000 0.00000 Slope **Intercept** 0.0000 0.0001 0.0000 0.0001 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 95740135 Tfer Desc. DVM 01311 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/26/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0000 0.0000 V V 7 0.1000 0.0999 0.1000 0.0001 7 0.3000 0.2998 0.2999 V V 0.0001 7 0.5000 0.4997 0.4997 V V 0.00007 0.7000 V V 0.0000 0.6996 0.6996 V V 7 0.9000 0.8995 0.8995 0.00007 0.9994 V V -0.0001 1.0000 0.9995

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Tec	chnician	Site Visit I	Date Param	eter	Owner ID
Apex	50743		OXF122	Sa	andy Grenville	05/08/2013	3 Flow R	ate	000547
					Mfg	BIOS	P	arameter Fl	ow Rate
					Serial Number	103471	Т	fer Desc. ne	exus
					Tfer ID	01420			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	6/13		rCoff	1.00000
					Mfg	BIOS	,	arameter Fl	ow Rate
					Serial Number	103424		fer Desc. Bl	
						01410	1	iei Desc.	OO CCII
					Tfer ID	01410			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	1/2	7/2012 Cor	rCoff	1.00000
DAS 1:		DAS 2:		L	Cal Factor Z	ero	-0.03	32	
A Avg % Diff:	A Max % Di	A Avg %	6Dif A Max	w % Di	Cal Factor F	ull Scale	0.96	66	
0.12%	0.20%				Rotometer R	leading:	1	.5	
UseDescription	: Test type:	Input 1/m	n: Input STP:	MfcDisp.:	: OutputSignal:	Output S E:	InputUnit:	OutputSigna	ll PctDifference
primary	pump off	0.000	0.000	0.01	0.013	-0.02	1/m	1/m	
primary	leak check	0.000	0.000	0.01	0.005	-0.03	1/m	1/m	
primary	test pt 1	1.539	1.499	1.54	1.533	1.50	1/m	1/m	-0.08%
primary	test pt 2	1.544	1.500	1.54	1.532	1.50	1/m	1/m	-0.20%
primary	test pt 3	1.543	1.499	1.54	1.535	1.50	l/m	1/m	0.07%
Sensor Comp	onent Leak Tes	st		Conditio	on		Status	pass	
Sensor Comp	onent Filter Azi	muth		Conditio	360 deg		Status	pass	
Sensor Comp	onent Filter De	pth		Conditio	6.4 cm		Status	pass	
Sensor Comp	onent Filter Pos	sition		Conditio	Good		Status	pass	
	onent Moisture			_	No moisture p	resent	Status		
	onent Rotomete		n .		Clean and dry		Status		
				_					
	onent System N			Conditio			Status		
Sensor Comp	onent Tubing C	Condition		Conditio	Good		Status	pass	

Ozone Data Form

Mfg S	erial Number Ta	Site	Te	chnician		Site Visi	t Date F	Parame	eter	Owner II)
ThermoElectron Inc 1	030244806	OXF122	Sa	andy Grer	nville	05/08/20)13 C	Dzone		000693	
Slope: 0.9	99852 Slope:	0.00000		Mfg		ThermoE	lectron In	c Pa	rameter	zone	
_	14735 Intercept	0.00000		Serial N	lumber	49C-7310	04-373	Tfo	er Desc. C	zone transfer	
CorrCoff 0.9	99992 CorrCoff	0.00000)		diliber				er Beset _		
				Tfer ID		01100					
DAS 1:	DAS 2:			Slope			1.00308	Inter	cept	-0.179) 61
A Avg % Diff: A Ma	x % Di A Avg %	6Dif A Max %	% Di	Cert Da	te		4/2/2013	Corr	Coff	1.000)00
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site U	Jnit:	PctDi	fference:	
primary	1	-0.50	-0.:		0		ppb		10021		
primary	2	30.57	30.	.65	30		ppb			-1.73%	
primary	3	49.19	49.	.21	49	.02	ppb			-0.39%	
primary	4	80.49	80.	.42	81	.00	ppb			0.72%	
primary	5	100.76	100	.62	100	0.50	ppb			-0.12%	
Sensor Component	Cell B Noise		Conditio	2.9 pp	b			Status	pass		
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass		
Sensor Component	Fullscale Voltage		Conditio	on N/A				Status	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass		
Sensor Component	Line Loss		Conditio	on < 1 %				Status	pass]
Sensor Component	Offset		Conditio	on 0.10				Status	pass		
Sensor Component	Span		Conditio	on 1.023				Status	pass		
Sensor Component	Cell B Freq.		Conditio	on 126.9	kHz			Status	fail		
Sensor Component	System Memo		Conditio	See c	omments	1		Status	pass		
Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component	Cell B Flow		Conditio	0.72 lj	om			Status	pass		
Sensor Component	Cell A Tmp.		Conditio	33.4 C				Status	pass		
Sensor Component	Cell A Pressure		Conditio	713 m	ımHg			Status	pass		
Sensor Component	Cell A Noise		Conditio	2.9 pp	b			Status	pass		
Sensor Component	Cell A Freq.		Conditio	98.3 k	Hz			Status	pass		
Sensor Component	Cell A Flow		Conditio	0.72 l	om			Status	pass		
Sensor Component	Battery Backup		Conditio	Funct	oning			Status	pass		
Sensor Component	Zero Voltage		Conditio	on N/A				Status	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young OXF122 05/08/2013 Temperature 02823 illegible Mfg Extech Parameter Temperature Tfer Desc. RTD H232734 **Serial Number** 01227 Tfer ID -0.08480 **Slope** 1.00435 **Intercept DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.44 0.97 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: 0.90 0.98 0.000 -0.97 primary Temp Low Range 0.0 \mathbf{C} C Temp Mid Range 24.50 24.48 0.000 24.6 0.12 primary C primary Temp High Range 48.70 48.57 0.000 48.8 0.23 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Sensor Component** Blower **Condition** N/A **Status** pass Sensor Component | System Memo Condition Status pass

Infrastructure Data For

Site ID	OXF122	Technician S	Sandy Grenville	Site Visit Date	05/08/2013	
Shelter	Make	Shelter Model	Shel	ter Size		
Ekto		8810 (s/n 2107-4)	640	cuft		

Sensor Component	Shelter Roof	Condition	Poor	Status	Fail
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Fair	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For

Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
10755-148	OXF122	Sandy Grenville	05/08/2013	Shelter Temperature	none
DAS 2:		Mfg	Extech	Parameter She	elter Temperatur
Max Er Abs Avg 0.52	Err Abs Max Er	Serial Number	H232734	Tfer Desc. RT	D
		Tfer ID	01227		
		Slope	1.0043	5 Intercept	-0.08480
		Cert Date	1/12/201	3 CorrCoff	1.00000
	DAS 2: S Max Er Abs Avg	DAS 2: S Max Er Abs Avg Err Abs Max Er	DAS 2: S Max Er 0.52 OXF122 Sandy Grenville Mfg Serial Number Tfer ID Slope	10755-148 OXF122 Sandy Grenville 05/08/2013	DAS 2: S Max Er 0.52 Mfg Extech Parameter She Serial Number H232734 Tfer ID 01227 Slope 1.00435 Intercept

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	23.20	23.18	0.000	23.7	C	0.52
primary	Temp Mid Range	23.10	23.08	0.000	23.5	С	0.42
primary	Temp Mid Range	23.40	23.38	0.000	23.8	С	0.42

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	l Problem
Ozone	OXF122	Sandy Grenville	05/08/2013	Cell B Freq.	ThermoElectron	3365		✓

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

Field Systems Comments

1 Parameter: SiteOpsProcComm

Due to the high operator turn-over rate, the operators are unfamiliar with some minor aspects of site operation.

2 Parameter: DasComments

The met tower is operated by the university and the temperature sensor has been moved to the sample tower in a naturally aspirated shield.

3 Parameter: SitingCriteriaCom

The site is located in university agriculture research facility.

4 Parameter: ShelterCleanNotes

The shelter roof is in poor condition with several leaks.

F-02058-1500-S1-rev001

Site ID OXF122	Technician Sandy Grenville	Site Visit Date 05/0	8/2013
Site Sponsor (agency)	EPA	USGS Map	Oxford
Operating Group	Miami University	Map Scale	
AQS#	39-017-9991	Map Date	
Meteorological Type	Climatronics		
Air Pollutant Analyzer	Ozone	QAPP Latitude	39.5314
Deposition Measurement	dry, wet	QAPP Longitude	-84.7231
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	284
Terrain	gently rolling	QAPP Declination	5.2
Conforms to MLM	Yes	OAPP Declination Date	2/23/2007
Site Telephone	(513) 523-6912	Audit Latitude	39.531115
Site Address 1	Ecological Research Center	Audit Longitude	-84.723547
Site Address 2	Somerville Rd.	Audit Elevation	284
County	Butler	Audit Declination	-5.6
City, State	Oxford, OH	Present	
Zip Code	45056	Fire Extinguisher	Inspected Nov 1992
Time Zone	Eastern	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room $\overline{\checkmark}$	Make Ekto Mo	8810 (s/n 2107-4)	Shelter Size 640 cuft
Shelter Clean	Notes The shelter roof is in poor cond	lition with several leaks.	
Site OK	Notes		
appro	Oxford proceed north on route 732. Just ximately 1/2 mile and turn right at the sign	for the Ecological Research C	center. Stay on the dirt road past the
buildir	ngs. The road will turn to the right along th	ne tree line. The site is in the f	ield on the right.

F-02058-1500-S2-rev001

Site ID OXF122 Technician Sandy Grenville Site Visit Date 05/08/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		✓ -
Major highway, airport or rail yard	2 km		✓
Secondary road, heavily traveled	500 m		✓
Secondary road, lightly traveled	200 m		~
Feedlot operations	500 m		✓
Intensive agricultural ops (including aerial spraying)	500 m		✓
Limited agricultural operations	200 m	25 m	
Large parking lot	200 m		✓
Small parking lot	100 m		✓
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		✓

Siting Distances OK

Siting Criteria Comment

The site is located in university agriculture research facility.

F-02058-1500-S3-rev001

Site	ID	OXF122	Technician [Sandy Grenville		Site Visit Date 05/08/2013
1		nd speed and dire	ection sensors sited so	as to avoid	✓	N/A
2	Are win	nd sensors mount and sensors should	ed so as to minimize t be mounted atop the oom >2x the max dian	tower or on a	~	N/A
3		tower and sensor			✓	N/A
4			elds pointed north or ces such as buildings,	STREET, STREET	✓	
5	condition surface	ons? (i.e. ground	I sensors sited to avoi below sensors should loped. Ridges, hollow e avoided)	be natural	✓	
6	Is the so	olar radiation sen	sor plumb?		✓	N/A
7	Is it site light?	ed to avoid shadir	ng, or any artificial or	reflected	✓	N/A
8	Is the ra	ain gauge plumb	?		✓	N/A
9	Is it site towers,		ring effects from build	lings, trees,	✓	N/A
10	Is the si		nsor sited with the gr	id surface	✓	N/A
11	Is it inc	clined approxima	tely 30 degrees?		✓	N/A
	THE RESERVE OF THE PARTY OF THE		nation (photograph on ay affect the monitor			y) regarding conditions listed above, or any other features,

condition, and v Are all the metoreporting data? Are the shields Are the aspirator	rological sensors appear to lively maintained?	nal online, and	✓	Site Visit Date 05/08/2013	3	
condition, and v Are all the metoreporting data? Are the shields Are the aspirator	well maintained? corological sensors operation for the temperature and RI	nal online, and		The state of the s		
Are all the meter reporting data? Are the shields Are the aspirate	eorological sensors operation for the temperature and RI		✓			
Are the aspirate		H sensors clean?				
	ed motors working?		V			
Is the solar radi			V	N/A		
scratches?	ation sensor's lens clean an	d free of	✓	N/A		
Is the surface w	etness sensor grid clean and	d undamaged?	✓	N/A		
	signal and power cables inta	act, in good	✓			
	signal and power cable conr nts and well maintained?	nections protected	~			
Parameter	Manufacturer	Model		S/N	Cl	ient ID
Temperature	RM Young	41342	E 10.4	illegible	02	823
	, that may affect the monito	5 I				

F-02058-1500-S5-rev001

Site	e ID	OXF122	Technician	Sandy Grenville		Site Visit Date	05/08/2013			
	Siting (Sriteria: Are the no	llutant analyzere ar	nd denosition ed	uuini	nent sited in accord	lance with 40 CI	FR 58, Appendix E		
1	Do the		at least a 270 degree		✓	nent sitet in accord	ance with 40 Cl	N.30, Appendix E		
2	Are the	sample inlets 3 - 1	5 meters above the	ground?	✓					
3		e sample inlets > 1 meters from trees?	neter from any maj	or obstruction,	✓					
	Polluta	nt analyzers and de	eposition equipment	operations and	ma	<u>intenance</u>				
1		analyzers and equipon and well maintai	pment appear to be ined?	in good	✓					
2		analyzers and mor	nitors operational, o	on-line, and	✓					
3	NEW YORK THE PARTY OF THE PARTY	oe ozone sample tub	e.			1/4 teflon by 15 met	ers			
4	Describ	oe dry dep sample t	ube.			3/8 teflon by 15 meters				
5		line filters used in t e location)	he ozone sample lin	e? (if yes	~	At inlet only				
6	Are sar		e of kinks, moisture	e, and	~					
7	Is the z	ero air supply desid	cant unsaturated?		V					
8	Are the	ere moisture traps i	n the sample lines?		V					
9	Is there clean?	a rotometer in the	dry deposition filte	r line, and is it	✓					
Par	ameter		Manufacturer	Model		S/N		Client ID		
Sar	nple Tow	er	Aluma Tower	В	Marini Marini	AT-61152-A-H	18-E	000018		
Ozo	one		ThermoElectron Inc	49i A1NAA	1819 A. F	1030244806		000693		
Filte	er pack fl	ow pump	Thomas	107CAB18	MARKET	10030002081	7	04924		
Zer	o air pum	ip	Werther Internation	PC70/4		000829167		06911		
			ion (photograph or affect the monitori		sary)	regarding condition	ns listed above,	or any other features,		

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Site	ID	OXF122	Technician	Sandy Grenville	75.54094	Site Vi	sit Date	05/08/2013			
	DAS, se	ensor translators, an	d peripheral equi	pment operatio	ns an	d mainten	ance				
1	Do the well ma	DAS instruments ap intained?	pear to be in good	l condition and	✓					The State of	
2		the components of th , backup, etc)	ne DAS operation	al? (printers,	>						
3		analyzer and sensor ng protection circuits		through	>	Met sensoi	s only				
4		signal connections paintained?	protected from the	e weather and	✓						
5	Are the	signal leads connect	ed to the correct	DAS channel?	>						
6	Are the ground	DAS, sensor transla	tors, and shelter j	properly	>						
7	Does th	e instrument shelter	ver source?	>							
8	Is the in	nstrument shelter ter	nperature control	lled?	✓						
9	Is the n	net tower stable and	grounded?			Stable		Gro	unded		
10	Is the sa	ample tower stable a	nd grounded?			✓		[
11	Tower	comments?						nerve a para e sante en sant e manor de sante e		The Male I of August August Male I and August Ma	
Par	ameter		Manufacturer	Model		S/N			Clie	ent ID	
Cor	nputer		Dell	D520		unkı	nown		000	246	
DAS			Campbell	CR3000	nesens	252			000	425	
Mod	dem		Raven	H4222-C	and a second		3310523		064		
UPS	3		APC	RS800	ula su	unkı	nown		050	72	
		additional explanat				y) regardii	ng condit	ions listed abov	ve, or a	nny other featu	ires,
		er is operated by the u				s heen mov	red to the	sample tower in	n a nati	ırally aspirated	shield

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Site ID OXF122		Tech	nician	Sandy Grenville)	Site Visit Da	ate 05	/08/2013	3	
Documentation										
Does the site have the requir					nuals	<u>s?</u>				
Wind speed songer	Yes	No	N/.		a laa			Yes	No 🗸	N/A
Wind speed sensor Wind direction sensor	H		∨		a log			H		∠
	✓		_		a log	A STATE OF THE STA				
Temperature sensor			∠			art recorder		✓		
Relative humidity sensor Solar radiation sensor			∨	Con Mod	nputo	er			✓	Ä
Surface wetness sensor			✓	Prir						
Wind sensor translator			✓			pump			✓	
Temperature translator			✓			ow pump			✓	
Humidity sensor translator			✓			otector				✓
Solar radiation translator			✓	UPS		0.00001				
Fipping bucket rain gauge			✓			g protection dev	vice			✓
Ozone analyzer						neater				
Filter pack flow controller		✓	F			ir conditioner			~	
Filter pack MFC power supply		✓								
Does the site have the requ		nd ma	nst rece	nt OC documer	ite ar	nd report forms	9			
Does the site have the requ			JST Teec.	nt Ve uoeumei	165 (41	id Teport Torms	•	C		
totion I or	Pres	ent Z					1	Curr		
tation Log SRF		<u>/</u>						✓		
ite Ops Manual			0-4-000	\ <u></u>						
IASP			Oct 200 Nov 200					✓		
ield Ops Manual		7	July 199							
alibration Reports		_	July 13.							
Dzone z/s/p Control Charts								30		
reventive maintenance schedu	ıl [
1 Is the station log properly	comp	leted	during	every site visit?	✓					
2 Are the Site Status Report	Form	ıs beir	ng comp	oleted and	✓					
current?										
3 Are the chain-of-custody f sample transfer to and fro			rly used	d to document	✓					
4 Are ozone z/s/p control che current?	arts p	roper	ly comp	leted and		Control charts no	ot used	l		
Provide any additional explana natural or man-made, that may						y) regarding con	ndition	s listed	above,	or any
iaturai or man-made, that may	arrec	t the	momtol	ing parameters						

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Site ID	OXF122	Technician	Sandy Grenville	Site Visit Date 05/08/2013	
1 Has th	eration procedures e site operator attended a		TNET training [Trained onsite by previous site operator	
	? If yes, when and who ins			0000 2 NOV 18 PORT AND CONTROL PRINCIPLY STORES AND STORES AND THE REPORT OF THE PRINCIPLY AND ADDRESS.	
	e backup operator attende g course? If yes, when and		BASE PROTECTION STORY AND STRUCTURE AND		
3 Is the si schedul	ite visited regularly on the le?	required Tu			
flollowe	standard CASTNET opered by the site operator?				
5 Is the si	ite operator(s) knowledgea uired site activities? (inclu	ible of, and a	able to perform <a> <a> <a> <a> <a> <a> <a> <a> <a> <a>	Ostrongs was trained and house some standards of the stan	
Are reg	ular operational QA/QC o	checks perfo	rmed on meteorolog	ical instruments?	
QC Check l	Performed		Frequency	Compliant	
Multipoint	Calibrations	✓	N/A	✓	
Visual Insp	ections	✓	N/A	✓	
Translator	Zero/Span Tests (climatro		N/A	V	
Manual Ra	in Gauge Test	✓	N/A		
Confirm Re	easonableness of Current V		N/A	V	
Test Surfac	e Wetness Response	✓	N/A	V	
Are reg	gular operational QA/QC o	checks perfo	rmed on the ozone a	nalyzer?	
QC Check l	Performed		Frequency	Compliant	
Multi-point	Calibrations	✓	Semiannually	✓	
	Zaro/Span Tasts	~	Daily	✓	
Automatic 2	dero/Span resis				
	o/Span Tests				
Manual Zer		✓	Daily		
Manual Zer Automatic	ro/Span Tests				
Manual Zer Automatic I Manual Pre	o/Span Tests Precision Level Tests	□✓			
Manual Zer Automatic I Manual Pre Analyzer D	co/Span Tests Precision Level Tests ecision Level Test	✓✓			
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests		Weekly		
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet)		Weekly Every 2 weeks		
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte Sample Lin	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze		Weekly Every 2 weeks N/A		
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g	y y go through t	Weekly Every 2 weeks N/A Weekly Weekly		
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases a train including all filters?	y y go through the	Weekly Every 2 weeks N/A Weekly Weekly		
Manual Zer Automatic I Manual Pro Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do 1 Do mul sample 2 Do auto comple	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g train including all filters? omatic and manual z/s/p ga te sample train including a	go through the asses go through filters?	Weekly Every 2 weeks N/A Weekly Weekly he complete		
Manual Zer Automatic I Manual Pro Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do 1 Do mul sample 2 Do auto comple 3 Are the	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g train including all filters? omatic and manual z/s/p gs	go through the asses go through filters?	Weekly Every 2 weeks N/A Weekly Weekly he complete		
Manual Zer Automatic I Manual Pro Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do 1 Do mul sample 2 Do auto comple 3 Are the reporte	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g train including all filters? omatic and manual z/s/p ga te sample train including a a automatic and manual z/s d? If yes, how?	go through the asses go through filters?	Weekly Every 2 weeks N/A Weekly Weekly he complete ugh the onitored and	SSRF, call-in	any other features
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do 1 Do mul sample 2 Do auto comple 3 Are the reporte	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g train including all filters? omatic and manual z/s/p ga te sample train including a a automatic and manual z/s d? If yes, how?	go through the asses go through filters? s/p checks me	Weekly Every 2 weeks N/A Weekly Weekly he complete ough the onitored and		any other features,
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do 1 Do mul sample 2 Do auto comple 3 Are the reporte	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g train including all filters? omatic and manual z/s/p ga te sample train including a a automatic and manual z/s d? If yes, how?	go through the asses go through filters? s/p checks me	Weekly Every 2 weeks N/A Weekly Weekly he complete ough the onitored and	SSRF, call-in	any other features,
Manual Zer Automatic I Manual Pre Analyzer D In-line Filte In-line Filte Sample Lin Zero Air Do 1 Do mul sample 2 Do auto comple 3 Are the reporte	ro/Span Tests Precision Level Tests ecision Level Test iagnostics Tests or Replacement (at inlet) or Replacement (at analyze e Check for Dirt/Water esiccant Check ti-point calibration gases g train including all filters? omatic and manual z/s/p ga te sample train including a a automatic and manual z/s d? If yes, how?	go through the asses go through filters? s/p checks me	Weekly Every 2 weeks N/A Weekly Weekly he complete ough the onitored and	SSRF, call-in	any other features,

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Site	· ID	OXF122	Tech	nician	Sandy Grenville		Site Visit Date	e 05/08/2013	
	Site op	eration procedures							
1		ilter pack being changed	d everv	Tuesd	av as scheduled?	V	Filter changed mo	rinings	
								3 -	
2	Are the	e Site Status Report For ly?	ms beii	ng com	pleted and filed	✓			
3	Are da schedu	ta downloads and backu led?	ıps beiı	ng perf	ormed as		No longer required	d	
4	Are ger	neral observations being	g made	and re	corded? How?	✓	SSRF, logbook		
5	Are site	e supplies on-hand and a	repleni	shed in	a timely	✓			
6	Are sai	mple flow rates recorded	l? How	?		✓	SSRF, logbook, ca	all-in	
7	Are sar	mples sent to the lab on	a regul	ar sche	dule in a timely	✓			
8	Are filt	ers protected from cont	aminat	ion du	ring handling	~	One set of gloves	only	
9	Are the	e site conditions reported ons manager or staff?	d regul	arly to	the field	✓			
QC	Check I	Performed		Fre	quency			Compliant	
N	Iulti-po	int MFC Calibrations		ACCUPANCE.	niannually			✓	
F	low Sys	tem Leak Checks		Wee	ekly	apo estace o			
		ck Inspection				1991123			
		e Setting Checks		Wee	COLUMN TO SERVICE STREET, AND A COURT OF PARTY		WASHINGTON AND A DESCRIPTION OF THE PARTY OF	V	
		neck of Flow Rate Rotor		Wee	THE RESIDENCE OF THE PARTY OF T	200000		✓	
		lter Inspection/Replace		✓ Sem	niannually	DENGA TAB			
		ine Check for Dirt/Wat							
	CENTRAL STATE OF THE SEC.	additional explanation (an-made, that may affe		AND DESCRIPTION OF THE PERSON		\$0.0000A4564	y) regarding condi	tions listed above, or a	ay other features,
Due 1	to the hig	h operator turn-over rate,	the op	erators	are unfamiliar with	า รด	me minor aspects o	of site operation.	

Site Inventory by Site Visit

Site \	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
QAK	172-Sandy	Grenville-05/09/2013				
1	5/9/2013	Computer	Dell	000456	D530	unknown
2	5/9/2013	DAS	Campbell	000418	CR3000	2518
3	5/9/2013	Elevation	Elevation	None	1	None
4	5/9/2013	Filter pack flow pump	Thomas	02357	107CAB18	1089005314
5	5/9/2013	flow rate	Tylan	05094	FC280V	AW801210
6	5/9/2013	Infrastructure	Infrastructure	none	none	none
7	5/9/2013	MFC power supply	MACTEC	05037	none	none
8	5/9/2013	Modem	Raven	06467	V4221-V	0808338316
9	5/9/2013	Ozone	ThermoElectron Inc	000739	49i A1NAA	1105347318
10	5/9/2013	Ozone Standard	ThermoElectron Inc	000511	49i A3NAA	0922236888
11	5/9/2013	Sample Tower	Aluma Tower	666368	В	AT-5107-E-4-8
12	5/9/2013	Shelter Temperature	Campbell	60712	107-L	230826
13	5/9/2013	Siting Criteria	Siting Criteria	None	1	None
14	5/9/2013	Temperature	RM Young	06540	41342	14801
15	5/9/2013	UPS	APC	06798	RS900	unknown
16	5/9/2013	Zero air pump	Werther International	06870	PC70/4	000814278

DAS Data Form DAS Time Max Error: 0 Mfg **Serial Number** Site **Technician** Site Visit Date Parameter Use Desc. Campbell 2518 QAK172 Sandy Grenville 05/09/2013 DAS Primary Das Date: 5 /9 /2013 **Audit Date** 5 /9 /2013 Datel **Parameter** DAS Mfg 13:34:03 Das Time: 13:34:03 **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 129 **Audit Day** 129 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 **Slope Intercept** 0.0001 0.0001 0.0001 0.0001 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg Tfer Desc. DVM **Serial Number** 95740135 01311 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/26/2013 1.00000 **Cert Date** CorrCoff

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	0.0000	0.0001	V	V	0.0001	
7	0.1000	0.0999	0.1000	V	V	0.0001	
7	0.3000	0.2998	0.2998	V	V	0.0000	
7	0.5000	0.4997	0.4998	V	V	0.0001	
7	0.7000	0.6997	0.6997	V	V	0.0000	
7	0.9000	0.8996	0.8996	V	V	0.0000	
7	1.0000	0.9995	0.9996	V	V	0.0001	

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Teo	chnician	Site Visit D	ate Param	eter	Owner ID	
Гуlan	AW801210)	QAK172	Sa	ndy Grenville	05/09/2013	flow rat	е	05094	
Mfg	MACTEC				Mfg	BIOS	P	arameter Fl	ow Rate	
SN/Owner ID	none	05037			Serial Number	103471	T	fer Desc. ne	xus	
Parameter MFC power supply				Tfer ID	01420					
			<u> </u>		Slope	1.0	00000 Inte	ercept	0.00000	
					Cert Date	6/13	/2012 Cor	rCoff	1.00000	
					Mfg	BIOS	P	arameter Flo	ow Rate	
					Serial Number	103424	T	fer Desc. Bl	OS cell	
					Tfer ID	01410				
					Slope	1.0	00000 Inte	ercept	0.00000	
					Cert Date	1/27	7/2012 Cor	rCoff	1.00000	
DAS 1:		DAS 2:		L	Cal Factor Z	ero	0.0	2		
A Avg % Diff:	A Max % Di	A Avg %	6Dif A Max	x % Di	Cal Factor F	ull Scale	0.6	6		
2.43%	2.47%				Rotometer R	eading:	1.	5		
UseDescription:	Test type:	Input 1/n	n: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSigna	IIPctDifference:	
primary	pump off	0.000	0.000	-0.02	-0.001	0.01	1/m	1/m		
primary	leak check	0.000	0.000	-0.01	-0.002	0.02	1/m	1/m		
primary	test pt 1	1.585	1.538	2.32	2.320	1.50	1/m	1/m	-2.47%	
primary	test pt 2	1.585	1.537	2.32	2.323	1.50	1/m	1/m	-2.41%	
primary	test pt 3	1.585	1.537	2.32	2.322	1.50	1/m	1/m	-2.41%	
Sensor Comp	onent Leak Tes	st		Conditio	n		Status	pass		
Sensor Compo	onent Filter Azi	muth		Conditio	n 360 deg		Status	pass		
Sensor Comp	onent Filter Dep	oth		Conditio	5.0 cm		Status	pass		
Sensor Comp	onent Filter Pos	sition		Conditio	n Good		Status	pass		
Sensor Compo	onent Moisture	Present		Conditio	n No moisture p	resent	Status	pass		
	onent Rotomete		on	Conditio	Clean and dry		Status	pass		
	onent System N			Conditio			Status			
	onent Tubing C			Conditio			Status			
	onent Filter Dist			_	1 4.2 cm		Status			
Schsor Comp	onent . mor bio			Condidio	112 0171		Status	7400		

Ozone Data Form

Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	t Date Pa	rame	eter	Owner ID	
ThermoElectron Inc 1	105347318	QAK172	Sa	andy Grer	ville	05/09/20	013 Oz	one		000739	
Slope: 0.9	99551 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	S1213 Intercept	0.00000	Ϊ Ι	Serial N	umber	49C-7310	04-373	Tfe	er Desc. C	zone transfer	
CorrCoff 0.9	99997 CorrCoff	0.00000)			01100					
				Tfer ID		01100					
DAS 1:	DAS 2:	(T) 0 1 3 5 0	v 5 .	Slope			1.00308	Inter	cept	-0.17961	
A Avg % Diff: A Ma	1.3% A Avg %	6Dif A Max %	% Di	Cert Da	te	4	4/2/2013	Corr	Coff	1.00000	
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Ur	nit:	PctDi	fference:	
primary	1	0.00	0.1				ppb				
primary	2	29.94	30.0				ppb			1.27%	
primary	3	50.24	50.				ppb			0.66%	
primary	5	80.13 100.20	80.0 100			-	ppb			-0.17%	
primary	<u> </u>	100.20				.90 [ppb	,		-0.17%	
Sensor Component	Cell B Noise		Conditio	0.9 pp	di di		St	atus	pass		
Sensor Component	Cell B Tmp.		Conditio	on			St	atus	pass		
Sensor Component	Fullscale Voltage		Conditio	n N/A			St	atus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			St	atus	pass		
Sensor Component	Line Loss		Conditio	on < 1 %			St	atus	pass		
Sensor Component	Offset		Conditio	-0.80			St	atus	pass		
Sensor Component	Span		Conditio	1.026			St	atus	pass		
Sensor Component	Cell B Freq.		Conditio	99.2 k	Hz		St	atus	pass		
Sensor Component	System Memo		Conditio	on			St	atus	pass		
Sensor Component	Sample Train		Conditio	Good			St	atus	pass		
Sensor Component	Cell B Pressure		Conditio	on			St	atus	pass		
Sensor Component	Cell B Flow		Conditio	0.71 lp	om		St	atus	pass		
Sensor Component	Cell A Tmp.		Conditio	32.4 C)		St	atus	pass		
Sensor Component	Cell A Pressure		Conditio	701 m	mHg		St	atus	pass		
Sensor Component	Cell A Noise		Conditio	0.6 pp	b		St	atus	pass		
Sensor Component	Cell A Freq.		Conditio	n 113.7	kHz		St	atus	pass		
Sensor Component	Cell A Flow		Conditio	0.68 lp	om		St	atus	pass		
Sensor Component	Battery Backup		Conditio	ition Functioning			St	atus	pass		
Sensor Component	Zero Voltage		Conditio	n N/A			St	atus	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young 14801 QAK172 Temperature 06540 05/09/2013 Mfg Extech Parameter Temperature Tfer Desc. RTD H232734 **Serial Number** 01227 Tfer ID -0.08480 **Slope** 1.00435 **Intercept DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.17 0.22 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: -0.02 0.000 0.22 primary Temp Low Range -0.100.2 \mathbf{C} C Temp Mid Range 24.90 24.88 0.000 24.8 -0.08 primary 47.3 C 0.22 primary Temp High Range 47.20 47.08 0.000 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** Functioning **Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Infrastructure Data For

Site ID	QAK172	Technician	Sandy Grenville	Site Visit Date	05/09/2013	
Shelter M	ake	Shelter Model	She	lter Size		
Ekto		8810 (s/n 2625-	2) 640	cuft		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	230826	QAK172	Sandy Grenville	05/09/2013	Shelter Temperature	60712
DAS 1:	DAS 2:		Mfg	Extech	Parameter She	Iter Temperatur
Abs Avg Err Ab 0.61	S Max Er Abs Avg	Err Abs Max Er	Serial Number	H232734	Tfer Desc. RTD)
			Tfer ID	01227		
			Slope	1.0043	5 Intercept	-0.08480
			Cert Date	1/12/201	3 CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	20.10	20.10	0.000	20.9	С	0.8
primary	Temp Mid Range	21.30	21.29	0.000	22.1	С	0.81
primary	Temp Mid Range	21.20	21.19	0.000	21.4	С	0.21

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is doing an excellent job maintaining the site.

2 Parameter: ShelterCleanNotes

The shelter is in good condition. It is clean, well organized, and well maintained.

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Site ID QAK172	Technician Sandy Grenville	Site Visit Date 05/0	9/2013			
Site Sponsor (agency)	EPA	USGS Map	Quaker City			
Operating Group	Private	Map Scale				
AQS#	39-121-9991	Map Date				
Meteorological Type	R.M. Young					
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude 39.9431				
Deposition Measurement	dry	QAPP Longitude	-81.3378			
Land Use	woodland - mixed, agriculture	QAPP Elevation Meters	372			
Terrain	rolling	QAPP Declination	7.9			
Conforms to MLM	Yes	QAPP Declination Date	2/22/2006			
Site Telephone	(740) 679-3345	Audit Latitude	39.942714			
Site Address 1	58163 St. Johns Road	Audit Longitude	-81.337914			
Site Address 2		Audit Elevation	371			
County	Noble	Audit Declination	-8.2			
City, State	Quaker City, OH	Present				
Zip Code	43773	Fire Extinguisher	Inspected May 1993			
Time Zone	Eastern	First Aid Kit				
Primary Operator		Safety Glasses				
Primary Op. Phone #		Safety Hard Hat				
Primary Op. E-mail		Climbing Belt				
Backup Operator		Security Fence				
Backup Op. Phone #		Secure Shelter	Company of the Compan			
Backup Op. E-mail		Stable Entry Step				
Shelter Working Room ✓	Make Ekto Mo	odel 8810 (s/n 2625-2)	Shelter Size 640 cuft			
Shelter Clean		n. It is clean, well organized, a	nd well maintained.			
	Notes					
miles miles	n I-70 take exit 193, route 513 south to Quass and turn left onto CR943. Continue appross S Road). Continue approximately 1.5 miles site.	oximately 2 miles and turn right	onto Noble County Rd 34 (also St.			

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Site ID QAK172 Technician Sandy Grenville Site Visit Date 05/09/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km		~
City 10,000 to 50,000 population	10 km		V
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m	-	
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		V
Large parking lot	200 m		
Small parking lot	100 m		
Tree line	50 m		
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Comment

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Site	ID	QAK172	Technician Sandy Grenville		Site Visit Date 05/09/2013
1		ind speed and directing influenced by obstr	ction sensors sited so as to avoid cuctions?	✓	N/A
2	Are wi	ind sensors mounte ind sensors should	ed so as to minimize tower effects? be mounted atop the tower or on a om >2x the max diameter of the	✓	N/A
3		e tower and sensor		✓	N/A
4			lds pointed north or positioned to ees such as buildings, walls, etc?	~	
5	condit surfac	ions? (i.e. ground b	sensors sited to avoid unnatural below sensors should be natural oped. Ridges, hollows, and areas of avoided)	V	
6	Is the	solar radiation sens	sor plumb?	~	N/A
7	Is it sit light?	ted to avoid shadin	g, or any artificial or reflected	✓	N/A
8	Is the	rain gauge plumb?		~	N/A
9	Is it sit towers		ing effects from buildings, trees,	V	N/A
10		surface wetness sen	nsor sited with the grid surface	V	N/A
11	Is it in	nclined approximat	ely 30 degrees?	~	N/A
			nation (photograph or sketch if neco ay affect the monitoring parameter		y) regarding conditions listed above, or any other features,

Site ID QAK172 Technician Sandy Grenville Site Visit Date 05/09/2013 1 Do all the meterological sensors appear to be intact, in good condition, and well maintained? 2 Are all the meterological sensors operational online, and reporting data? 3 Are the shields for the temperature and RH sensors clean? 4 Are the aspirated motors working? 5 Is the solar radiation sensor's lens clean and free of scratches? 6 Is the surface wetness sensor grid clean and undamaged? 7 Are the sensor signal and power cables intact, in good	
condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? Are the aspirated motors working? Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? N/A	
condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? Are the aspirated motors working? Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? N/A	
reporting data? Are the shields for the temperature and RH sensors clean? Are the aspirated motors working? Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? N/A	
Are the aspirated motors working? Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? N/A	
Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? N/A N/A	
scratches? Is the surface wetness sensor grid clean and undamaged? N/A	
as the surface wearess sensor grat eleun und unduranged.	
Are the sensor signal and power cables intact, in good condition, and well maintained?	
Are the sensor signal and power cable connections protected from the elements and well maintained?	
nrameter Manufacturer Model S/N Client ID	
emperature RM Young 41342 14801 06540	

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Site	ID	QAK172	Technician Sa	ndy Grenville		Site Visit Date	05/09/2013			
	Siting C	riteria: Arc	e the pollutant analyzers and	deposition eq	uipı	ment sited in accord	lance with 40 CFR	58, Appendix E		
1		ample inlet	s have at least a 270 degree at v?	rc of	✓					
2	Are the	sample inle	ets 3 - 15 meters above the gro	ound?	✓					
		sample inle neters from	ets > 1 meter from any major a trees?	obstruction,	✓					
	Pollutar	nt analyzers	and deposition equipment of	perations and	ma	<u>intenance</u>				
			nd equipment appear to be in maintained?	good	✓					
	Are the reportin		nd monitors operational, on-	line, and	✓					
		e ozone san	ple tube.			1/4 teflon by 15 meters				
4	Describ	e dry dep sa	ample tube.			3/8 teflon by 12 met	ers			
		ine filters u location)	sed in the ozone sample line?	(if yes	✓	At inlet only				
	Are sam		ean, free of kinks, moisture, a	and	✓					
7	Is the ze	ero air supp	ly desiccant unsaturated?		✓					
8	Are the	re moisture	traps in the sample lines?		✓					
	Is there clean?	a rotomete	r in the dry deposition filter li	ine, and is it	✓	clean and dry				
Para	ameter		Manufacturer	Model		S/N	Cl	ient ID		
Sam	ple Towe	er	Aluma Tower	В		AT-5107-E-4-	8 66	6368		
MFC	power s	supply	MACTEC	none	1204000	none	05	037		
Ozo	ne		ThermoElectron Inc	49i A1NAA		1105347318	00	0739		
Filte	r pack flo	w pump	Thomas	107CAB18		1089005314	02	357		
Zero	air pum	p	Werther International	PC70/4		000814278	06	870		
			xplanation (photograph or sk at may affect the monitoring		ary)	regarding condition	ons listed above, or a	nny other features,		
	5.50									

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Site	e ID	QAK172	Technician	Sandy Grenville		Site Visit l	O5/09/20)13	
	DAS, ser	nsor translators, and p	peripheral equi	pment operation	s and	l maintenanc	<u>e</u>		
1		OAS instruments appentained?	ar to be in good	d condition and	V				
2		he components of the backup, etc)	DAS operation	al? (printers,	V				
3		nalyzer and sensor sig g protection circuitry		through	✓ N	Met sensors or	nly		
4		signal connections pro ntained?	e weather and	✓					
5	Are the	signal leads connected	DAS channel?	~					
6	Are the l	DAS, sensor translato d?	properly	✓					
7	Does the	instrument shelter h	wer source?	~					
8	Is the ins	strument shelter temp	erature contro	lled?	✓				
9	Is the mo	et tower stable and gr	ounded?			Stable		Grounded	i]
						✓		V	
10	Is the sa	mple tower stable and	l grounded?						
10 11		mple tower stable and omments?	I grounded?						
11		omments?	l grounded? anufacturer	Model				V	ient ID
11 Pai	Tower co	omments?	anufacturer	Model D530		✓	n	Cli	ient ID
11 Pai	Tower co	omments? M. De	anufacturer			S/N		Cli	
Par Cor	Tower co	omments? M De	anufacturer	D530		S/N unknow		Cli	0456 0418
Pan Cor	Tower co	omments? M De	anufacturer ell umpbell uven	D530 CR3000		S/N unknow 2518	3316	Cli	0456 0418 467
Pan Corr DAA Moo UP:	Tower co	omments? M. De	anufacturer III Impbell Iven PC In (photograph	D530 CR3000 V4221-V RS900 or sketch if neces		S/N unknow 2518 0808333 unknow	3316 n	Cli 000 006 066	0456 0418 467 798

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Site ID QAK172		Techn	ician	Sandy Grenville	S	ite Visit Date	05/09/2013	3	
<u>Documentation</u>									
Does the site have the requir					als?		• •		****
Wind speed sensor	Yes	No	N/A	A Data l	noger		Yes	No 🗸	N/A
Wind direction sensor			✓	Data l					✓
Temperature sensor	✓				chart re	corder			
Relative humidity sensor				Comp			✓		
Solar radiation sensor				Mode				✓	
Surface wetness sensor				Printe					V
Wind sensor translator			✓	Zero :	ir pump)		<u></u>	
Temperature translator					flow pu			V	
Humidity sensor translator			✓		protecto				~
Solar radiation translator			~	UPS				✓	
Tipping bucket rain gauge			✓	Light	ning pro	tection device			✓
Ozone analyzer	✓			Shelte	r heater			✓	
Filter pack flow controller		✓		Shelte	r air coi	nditioner	✓		
Filter pack MFC power supply		✓							
Does the site have the required and most recent QC documents and report forms?									
	Prese	nt					Curre	ent	
Station Log	V						✓		
SSRF	V						✓		
Site Ops Manual	✓	O	ct 200)1					
HASP	V	O	ct 201	1		1.50	✓		
Field Ops Manual]							
Calibration Reports	V						✓		
Ozone z/s/p Control Charts]							
Preventive maintenance schedu	ıl 🗀]							
1 Is the station log properly	compl	eted dı	ıring (every site visit?					
2 Are the Site Status Report current?	Form	s being	comp	pleted and					
3 Are the chain-of-custody f sample transfer to and fro			y used	d to document					
4 Are ozone z/s/p control che current?	arts pr	operly	comp	leted and [Contr	ol charts not u	sed		
Provide any additional explana natural or man-made, that may					ary) reg	arding condit	ions listed	above,	or any o

Site ID	QAK172	Technician	Sandy Grenville	Site Visit D	ate 05/09/2013				
a.									
1 Has t	peration procedures the site operator attended a se? If yes, when and who in		TNET training	Site operator ref	resher training July 2006				
2 Has t	he backup operator attending course? If yes, when an	led a formal C		Site operator ref	resher training July 2006				
	site visited regularly on the								
	ne standard CASTNET opewed by the site operator?	erational proc	edures being		nesson etilentriga 6.44 q. d. etil 18. etilen				
5 Is the the re	site operator(s) knowledge quired site activities? (inclu	able of, and a	ble to perform entation)						
Are re	egular operational QA/QC	checks perfor	rmed on meteor	ological instrument	s?				
QC Check	x Performed		Frequency		Compliant				
Multipoin	t Calibrations	✓	N/A		<u> </u>				
Visual Ins	pections	✓	N/A		V				
Translator	r Zero/Span Tests (climatro		N/A		<u> </u>				
Manual R	ain Gauge Test	✓	N/A		<u> </u>				
Confirm F	Reasonableness of Current		N/A		<u> </u>				
Test Surfa	nce Wetness Response	✓	N/A		V				
Are regular operational QA/QC checks performed on the ozone analyzer?									
A Company of									
QC Check	x Performed		Frequency		Compliant				
	x Performed nt Calibrations	V		v	Compliant				
Multi-poir	nt Calibrations	▽	Semiannuall	y					
Multi-poir Automatic	nt Calibrations : Zero/Span Tests		Semiannuall Daily	y	V				
Multi-poir Automatic Manual Z	nt Calibrations 2 Zero/Span Tests ero/Span Tests	✓	Semiannuall Daily As needed	y	✓ ✓				
Multi-poir Automatic Manual Z	nt Calibrations E Zero/Span Tests ero/Span Tests E Precision Level Tests	▽	Semiannuall Daily	у					
Multi-point Automatic Manual Z Automatic Manual P	nt Calibrations 2 Zero/Span Tests ero/Span Tests 2 Precision Level Tests recision Level Test	✓✓✓	Semiannualli Daily As needed Daily As needed	y					
Multi-poin Automatic Manual Ze Automatic Manual Pr Analyzer I	nt Calibrations E Zero/Span Tests ero/Span Tests E Precision Level Tests recision Level Test Diagnostics Tests	<!--</th--><th>Semiannuall Daily As needed Daily As needed Weekly</th><th></th><th></th><th></th>	Semiannuall Daily As needed Daily As needed Weekly						
Multi-point Automatic Manual Zo Automatic Manual Pr Analyzer I In-line File	ero/Span Tests ero/Span Tests ero/Span Tests ero/Span Tests erecision Level Tests recision Level Test Diagnostics Tests ter Replacement (at inlet)		Semiannuall Daily As needed Daily As needed Weekly Every 2 wee						
Multi-poin Automatic Manual Ze Automatic Manual Pr Analyzer I In-line File In-line File	nt Calibrations : Zero/Span Tests ero/Span Tests : Precision Level Tests recision Level Test Diagnostics Tests ter Replacement (at inlet) ter Replacement (at analyz		Semiannuall Daily As needed Daily As needed Weekly Every 2 wee						
Multi-poir Automatic Manual Ze Automatic Manual Pr Analyzer I In-line File In-line File Sample Li	nt Calibrations 2 Zero/Span Tests 2 Precision Level Tests 3 recision Level Test 4 Diagnostics Tests 4 ter Replacement (at inlet) 5 ter Replacement (at analyz 6 ten Check for Dirt/Water	v v v	Semiannuall Daily As needed Daily As needed Weekly Every 2 wee N/A Weekly						
Multi-poir Automatic Manual Ze Automatic Manual Pr Analyzer I In-line File Sample Li Zero Air I 1 Do mu sample	nt Calibrations 2 Zero/Span Tests 2 Precision Level Tests 3 Precision Level Test 4 Diagnostics Tests 5 ter Replacement (at inlet) 6 ter Replacement (at analyz 7 ne Check for Dirt/Water 7 Desiccant Check 8 ulti-point calibration gases 8 terain including all filters	go through the?	Semiannualli Daily As needed Daily As needed Weekly Every 2 wee N/A Weekly Weekly Weekly	ks .					
Multi-poir Automatic Manual Ze Automatic Manual Pr Analyzer I In-line File Sample Li Zero Air I 1 Do mu sample 2 Do au	nt Calibrations 2 Zero/Span Tests 2 Precision Level Tests 2 Precision Level Test Diagnostics Tests ter Replacement (at inlet) ter Replacement (at analyz me Check for Dirt/Water Desiccant Check ulti-point calibration gases e train including all filters tomatic and manual z/s/p g	go through the control of the contro	Semiannualli Daily As needed Daily As needed Weekly Every 2 wee N/A Weekly Weekly Weekly	KS					
Multi-poir Automatic Manual Ze Automatic Manual Pr Analyzer I In-line File Sample Li Zero Air I 1 Do mu sample 2 Do au comple 3 Are the	nt Calibrations 2 Zero/Span Tests 2 Precision Level Tests 3 Precision Level Test 4 Diagnostics Tests 5 ter Replacement (at inlet) 6 ter Replacement (at analyz 7 ne Check for Dirt/Water 7 Desiccant Check 8 ulti-point calibration gases 8 terain including all filters	go through th?	Semiannuall Daily As needed Daily As needed Weekly Every 2 wee N/A Weekly Weekly weekly weekly	ks .					
Multi-poir Automatic Manual Ze Automatic Manual Pr Analyzer I In-line File Sample Li Zero Air I 1 Do mu sampl 2 Do au compl 3 Are th report	nt Calibrations 2 Zero/Span Tests 2 Precision Level Tests 2 Precision Level Test 3 Diagnostics Tests 4 ter Replacement (at inlet) 5 ter Replacement (at analyz 6 ten Check for Dirt/Water 7 Desiccant Check 8 ulti-point calibration gases 8 te train including all filters 8 tomatic and manual z/s/p g 8 tet sample train including 8 ne automatic and manual z/s/p	go through the gasses go through filters? /s/p checks mo	Semiannuall Daily As needed Daily As needed Weekly Every 2 wee N/A Weekly Weekly weekly the complete ugh the onitored and	SSRF, logbook,	call-in	y other features,			

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Site	e ID	QAK172	Tech	nician	Sandy Grenville		Site Visit Date 05/09/2013				
	Site op	eration procedures									
1	Is the f	ilter pack being changed	every	Tuesd	ay as scheduled	V	Filter changed morinings				
2	Are the	e Site Status Report Form tly?	s bein	g com	pleted and filed	✓	records MFC display as DAS flow value				
3		Are data downloads and backups being performed as scheduled?						No longer required			
4	Are ge	neral observations being 1	nade a	nd re	corded? How?	SSRF, logbook					
5	Are sit	e supplies on-hand and re	plenis	hed in	a timely	V					
6	Are sa	mple flow rates recorded?	How'			✓	SSRF, logbook, ca	all-in			
7	Are samples sent to the lab on a regular schedule in a timely fashion?										
8		ters protected from contain ipping? How?	minati	on du	ring handling	~	Clean gloves on and off				
9											
QC	Check l	Performed		Fre	equency			Compliant			
N	Aulti-po	int MFC Calibrations	•	Ser	niannually	00k_01					
F	low Sys	tem Leak Checks	5	We	ekly			✓			
F	ilter Pa	ck Inspection				0.900 H.ZX					
		te Setting Checks		We	AND PRODUCED ON STREET TO AND A TOWN AND A PARTY	State Control					
		heck of Flow Rate Rotom		We	THE RESIDENCE OF THE PARTY OF T	25730					
		ilter Inspection/Replacem		N. Parketter Street, Square, or other parkets.	niannually 	Device Profit					
S	Sample I	Line Check for Dirt/Water		We	ekly	✓					
		additional explanation (p nan-made, that may affect					y) regarding condi	tions listed above, or an	y other features,		
The	site oper	ator is doing an excellent jo	b main	taining	the site.	SERVE.	PARTICIPATE PROPERTY.				
er (ove Spars						ì					

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
PNL	0165-Eric H	Hebert-05/12/2013				
1	5/12/2013	Computer	Dell	000258	D520	unknown
2	5/12/2013	DAS	Campbell	000403	CR3000	2516
3	5/12/2013	Elevation	Elevation	None	1	None
4	5/12/2013	Filter pack flow pump	Thomas	03631	107CAB18	049400004449
5	5/12/2013	flow rate	Tylan	02135	FC280V	AW901290
6	5/12/2013	Infrastructure	Infrastructure	none	none	none
7	5/12/2013	MFC power supply	Tylan	01695	RO-32	FP902019
8	5/12/2013	Modem	Raven	06474	H4222-C	0808311240
9	5/12/2013	Ozone	ThermoElectron Inc	000627	49i A1NAA	1009241772
10	5/12/2013	Ozone Standard	ThermoElectron Inc	000208	49i A3NAA	0611416461
11	5/12/2013	Sample Tower	Aluma Tower	000055	В	AT-81213-J12
12	5/12/2013	Shelter Temperature	Campbell	none	107-L	none
13	5/12/2013	Siting Criteria	Siting Criteria	None	1	None
14	5/12/2013	Temperature	RM Young	06539	41342	14800
15	5/12/2013	Zero air pump	Werther International	06926	PC70/4	000836218

DAS Data Form 0.08 **DAS Time Max Error:** Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2516 PND165 Eric Hebert 05/12/2013 DAS Primary Das Date: 5 /13/2013 **Audit Date** 5 /13/2013 Datel **Parameter** DAS Mfg 9:00:00 9:00:05 Das Time: **Audit Time** 4000392 Tfer Desc. Source generator (D **Serial Number** Das Day: 133 **Audit Day** 133 Tfer ID 01321 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff:** Max Diff: 1.00000 0.00000 Slope **Intercept** 0.0001 0.0003 0.0001 0.0003 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 86590148 Tfer Desc. DVM 01310 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/27/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0000 0.0000 V V 7 0.1000 0.1000 0.0999 -0.0001 7 0.3000 0.3000 0.2999 V V -0.0001 7 0.5000 0.4999 V V -0.0001 0.5000 7 0.7000 V V -0.0001 0.7000 0.6999 V V 7 0.9000 0.9001 0.8998 -0.0003 7 V V -0.0003 1.0000 1.0001 0.9998

Flow Data Form

Mfg	Ifg Serial Number Ta Site		Tec	hnician	Site Visit Date Par		eter	Owner ID		
Tylan	AW901290)	PND165	Erio	Hebert	05/12/2013 flow		te	02135	
Mfg SN/Owner ID	Tylan Owner ID FP902019 01695				Mfg BIOS Serial Number 122974			Parameter Flow Rate Tfer Desc. BIOS 220-H		
Parameter					Tfer ID 01416					
·					Slope		1.00000 Intercept 0.00			
					Cert Date	1/	8/2013 Cor	rCoff	1.00000	
DAS 1:		DAS 2:			Cal Factor Z	ero	-0.0	9		
A Avg % Diff:	A Max % Di	A Avg %I	Dif A Max	x % Di	Cal Factor F	ull Scale		1		
1.02%	1.36%				Rotometer R	eading:	3.9	15		
UseDescription:	Test type:	Input l/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference:	
primary	pump off	0.000	0.000	0.03	0.000	-0.04	l/m	1/m		
primary	leak check	0.000	0.000	0.03	0.000	-0.04	l/m	1/m		
primary	test pt 1	0.000	2.975	2.82	0.000	0.000 3.00		1/m	0.83%	
primary	test pt 2	0.000	2.975	2.82	0.000	3.00	l/m	1/m	0.86%	
primary	test pt 3	0.000	2.970	2.83	0.000	3.01	l/m	1/m	1.36%	
Sensor Compe	onent Leak Tes	t		Condition	n	Status	pass			
Sensor Compo	onent Filter Azi	muth		Condition	180 deg		Status	pass		
Sensor Compo	onent Filter Dep	oth		Condition	2.0 cm		Status	pass		
Sensor Compo	onent Filter Pos	sition		Condition	Good		Status	pass		
	onent Moisture			Condition	No moisture pr	resent	Status	pass		
Sensor Compo	Rotomete	er Condition	1	Condition	Clean and dry		Status	pass		
Sensor Compo	onent System N	/lemo		Condition	n		Status	pass		
Sensor Compo	onent Tubing C	ondition		Condition	Good		Status			
Sensor Compo	onent Filter Dist	tance		Condition	5.5 cm		Status	Status pass		

Ozone Data Form

Mfg Se	erial Number Ta	Site	Tec	chnician		Site Vis	it Date	Parame	eter	Owner ID
ThermoElectron Inc 1	009241772	PND165	Eri	ic Hebert		05/12/2	.013	Ozone		000627
Intercept 0.0	Slope: 12026 Intercept 19999 CorrCoff	0.00000	0	Mfg Serial No Tfer ID	umber	Thermol			rameter oz er Desc. Oz	one primary stan
DAS 1:	DAS 2:			Slope			0.9972	0 Inter	cept	0.18428
A Avg % Diff: A Ma: 4.1%	x % Di A Avg % 4.4%	A Max	% Di	Cert Dat	te		1/2/201		-	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site	Unit:	PctDif	ference:
primary	1	0.35	0.1		0.		ppb			
primary	2	28.90	28.		27		ppb			-4.17%
primary	3	49.75	49.		47		ppb			-3.96%
primary	5	79.85	79.		76		ppb			-3.89%
primary Sensor Component		109.80	109	.92 n 0.9 ppl	105	0.10	ppb	Status	nass	-4.39%
					<u> </u>					
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	n N/A				Status	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass	
Sensor Component	Line Loss		Conditio	Not tes	sted			Status	pass	
Sensor Component	Offset		Conditio	on -0.10				Status	pass	
Sensor Component	Span		Conditio	1.003				Status	pass	
Sensor Component	Cell B Freq.		Conditio	83.5 kl	Hz			Status	pass	
Sensor Component	System Memo		Conditio	on				Status	pass	
Sensor Component	Sample Train		Conditio	Good				Status	pass	
Sensor Component	Cell B Pressure		Conditio	on				Status	pass	
Sensor Component	Cell B Flow		Conditio	0.63 lp	m			Status	pass	
Sensor Component	Cell A Tmp.		Conditio	37.0 C				Status	pass	
Sensor Component	Cell A Pressure		Conditio	569 mi	mHg			Status	pass	
Sensor Component	Cell A Noise		Conditio	0.6 ppl	b			Status	pass	
Sensor Component	Cell A Freq.		Conditio	84.1 kl	Hz			Status	pass	
Sensor Component	Cell A Flow		Conditio	0.61 lp	m			Status	pass	
Sensor Component	Battery Backup		Conditio	N/A				Status	pass	
Sensor Component	Zero Voltage		Condition	n N/A				Status	pass	

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young 14800 PND165 Eric Hebert Temperature 06539 05/12/2013 Mfg Extech Parameter Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.05 0.14 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.09 0.000 primary Temp Low Range 0.03 0.0 \mathbf{C} 25.99 C 0.02 Temp Mid Range 26.06 0.000 26.0 primary C primary Temp High Range 42.11 41.93 0.000 42.1 0.14 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** Functioning **Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component System Memo Condition Status pass

Infrastructure Data For

Si	te ID	PND165	Technician	Eric Hebert	Site Visit Date	05/12/2013
	Shelter M	ake	Shelter Model	She	elter Size	
	Ekto		8810 (s/n 2149-	22) 640) cuft	
	Name (Name (Na	MESANESAN SAN MARKATAN			NO SAMPLE DE CALLES	

Sensor Component	Shelter Roof	Condition	Fair	Status	pass
Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Fair	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	24.20	24.15	0.000	26.4	C	2.26
primary	Temp Mid Range	25.28	25.22	0.000	26.6	С	1.4
primary	Temp Mid Range	25.74	25.68	0.000	26.3	C	0.63

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator uses the filter bag received with the new filter to send the filter removed from the tower back to the lab. There is no bag for the sample filter on site for storing the filter when it is removed from the tower.

2 Parameter: DasComments

Both the heat and the air conditioner are running simultaneously.

3 Parameter: DocumentationCo

General site observations are not being recorded on the SSRF. The purpose for recording the general observations was discussed with the site operator.

4 Parameter: ShelterCleanNotes

The shelter is well maintained.

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Site ID PND165	Technician Eric Hebert	Site Visit Date 05/12/2013					
Site Sponsor (agency)	EPA	USGS Map	Fremont Lake South				
		Map Scale					
Operating Group	Private / BLM						
AQS#	56-035-9991	Map Date	The second secon				
Meteorological Type	R.M. Young						
Air Pollutant Analyzer	Ozone	QAPP Latitude	42.9214				
Deposition Measurement	dry, wet	QAPP Longitude	-109.7900				
Land Use	range	QAPP Elevation Meters	2388				
Гerrain	complex	QAPP Declination	12.75				
Conforms to MLM	Marginally	QAPP Declination Date	2/22/2006				
Site Telephone	(307) 367-6584	Audit Latitude	42.929031				
Site Address 1	Skyline Drive	Audit Longitude	-109.787796				
Site Address 2	Fremont Lake Rd.	Audit Elevation	2386				
County	Sublette	Audit Declination	11.4				
City, State	Pinedale, WY	Present					
Zip Code	82941	Fire Extinguisher 🔽	No inspection date				
Гime Zone	Mountain	First Aid Kit					
Primary Operator		Safety Glasses					
Primary Op. Phone #		Safety Hard Hat					
Primary Op. E-mail		Climbing Belt					
Backup Operator		Security Fence					
Backup Op. Phone #		Secure Shelter					
Backup Op. E-mail		Stable Entry Step					
Shelter Working Room	Make Ekto M	odel 8810 (s/n 2149-22)	Shelter Size 640 cuft				
Shelter Clean	Notes The shelter is well maintained.						
Site OK	Notes						
Conti	Rock Springs take route 191 north to Pin nue approximately 6.5 miles on the main s visible on a ridge on the right. There is a	road, past Fremont Lake. The	road changes to Skyline Drive. The				

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Site ID PND165 Technician Eric Hebert Site Visit Date 05/12/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km		~
City 10,000 to 50,000 population	10 km		V
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		V
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m	-	
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		V
Large parking lot	200 m		
Small parking lot	100 m		
Tree line	50 m		
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Comment

R	'iel	Ы	ST	zet	em	פו	D	ata	R	orm
		<u>. </u>							97 VA	

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Site	ID	PND165	Technician E	ric Hebert		Site Visit Date 05/12/2013				
1		nd speed and direc nfluenced by obstr	ction sensors sited so a	s to avoid	7	N/A				
2	Are win	nd sensors mounte nd sensors should l	ed so as to minimize to be mounted atop the to om >2x the max diame	ower or on a	✓ N/A					
3		e tower and sensors		<u>.</u>	7	N/A				
4			lds pointed north or po ees such as buildings, v		/					
5	Are temperature and RH sensors sited to avoid unnatural conditions? (i.e. ground below sensors should be natural surface and not steeply sloped. Ridges, hollows, and areas of standing water should be avoided)				/					
6	Is the s	olar radiation sens	sor plumb?		7	N/A				
7	Is it site	Is it sited to avoid shading, or any artificial or reflected light?			7	N/A				
8	Is the r	ain gauge plumb?		<u> </u>	/	N/A				
9	Is it site		ing effects from buildi	ngs, trees,	7	N/A				
10	Is the s		sor sited with the grid	surface	7	N/A				
11	Is it in	clined approximat	ely 30 degrees?	S	7	N/A				
			nation (photograph or ay affect the monitoria		ary	y) regarding conditions listed above, or any other features,				

ondition, and well ma	Technician E	ric Hebert	MARKET R	05/40		
ondition, and well ma	ıl sensors appear to be ir			Site Visit Date 05/12	/2013	
ondition, and well ma	al sensors appear to be in					
re all the meteorolog		ituci, m good	V			
eporting data?	ical sensors operational o	online, and	✓			
re the shields for the	temperature and RH ser	nsors clean?	V			
re the aspirated moto	ors working?		✓			
the solar radiation s ratches?	ensor's lens clean and fr	ee of	✓ N	I/A		
the surface wetness	sensor grid clean and un	damaged?	✓ N	I/A		
re the sensor signal a ondition, and well ma	and power cables intact, i	in good	✓			
re the sensor signal a com the elements and	and power cable connecti well maintained?	ons protected	✓			
neter	Manufacturer	Model		S/N	C	lient ID
erature	RM Young	41342		14800	0	6539
ondition, and well ma re the sensor signal a rom the elements and neter erature	intained? Ind power cable connection Well maintained? Manufacturer	ions protected Model 41342 sketch if necessa		14800	0	6539

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Site ID	PND165	Technician Eric	Hebert		Site Visit Date 05/12/2	2013				
Siting	Criteria: Are the pol	lutant analyzers and d	eposition eq	uipı	ment sited in accordance	with 40 CFR 58	3. Appendix E			
	sample inlets have a ricted airflow?	t least a 270 degree are	e of	✓						
2 Are the	e sample inlets 3 - 15	meters above the grou	ınd?	✓						
	e sample inlets > 1 m meters from trees?	eter from any major o	bstruction,	✓						
Polluta	nt analyzers and de	position equipment ope	erations and	ma	<u>intenance</u>					
	analyzers and equip on and well maintai	oment appear to be in g	good	✓	Section (College College (College (College College (College (Colle		Machine Court, M. H. Bill. (Co.) Charles Annielle (Annielle Con			
	e analyzers and mon ng data?	itors operational, on-li	ne, and	✓]					
3 Descri	oe ozone sample tub	е.			1/4 teflon by 12 meters					
4 Descri	oe dry dep sample tu	ıbe.			3/8 teflon by 12 meters					
	Are in-line filters used in the ozone sample line? (if yes indicate location)				At inlet only					
	Are sample lines clean, free of kinks, moisture, and obstructions?									
7 Is the z	ero air supply desic	cant unsaturated?		✓						
8 Are the	ere moisture traps in	the sample lines?		✓						
9 Is ther clean?	e a rotometer in the	dry deposition filter lir	ne, and is it	✓	Clean and dry					
Parameter	- 7.4	Manufacturer	Model		S/N	Clie	ent ID			
Sample Tov	ver	Aluma Tower	В	25011	AT-81213-J12	000	055			
Ozone		ThermoElectron Inc	49i A1NAA	BEA F	1009241772	000	627			
Filter pack f	low pump	Thomas	107CAB18		049400004449	036	31			
MFC power	supply	Tylan	RO-32	200515	FP902019	016	95			
Zero air pur	np	Werther International	PC70/4		000836218	069	26			
		on (photograph or ske affect the monitoring p		ary)	regarding conditions list	ed above, or an	y other features,			
				14,37318						
					24.7					

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Site	ID	PND165	Technician	Eric Hebert		Site Visit Date	05/12/2013	3		
	DAS, se	ensor translators, a	nd peripheral equi	pment operation	ns ai	nd maintenance				
		DAS instruments a intained?	ppear to be in good	d condition and	✓					
2	Are all	the components of , backup, etc)	the DAS operation	al? (printers,	✓					
		analyzer and senso ag protection circui		through	✓	Met sensors only				
		signal connections intained?	protected from the	e weather and	✓					
5	Are the	signal leads conne	cted to the correct	DAS channel?	✓					
	Are the ground	DAS, sensor trans	lators, and shelter	properly	✓					
7	Does th	e instrument shelte	er have a stable pov	wer source?	✓					
8	8 Is the instrument shelter temperature controlled?					Heat and a/c runnir	ng simultane	ously		
9	9 Is the met tower stable and grounded?					Stable		Grounded		
10	Is the sa	ample tower stable	and grounded?							
11	Tower	comments?				✓		V		
Para	ameter		Manufacturer	Model		S/N		Clie	ent ID	
Com	puter		Dell	D520	27201	unknown		000	258	
DAS	NAME OF TAXABLE PARTY.		Campbell	CR3000	2226163	2516		000		
Mod			Raven	H4222-C	mesan masan	0808311240		064	74	
		additional explana nan-made, that ma				ry) regarding cond	tions listed	above, or a	iny other feati	ires,
Both	the hea	t and the air condition	oner are running sim	ultaneously.						

Field Systems Data Form Site ID PND165 Technician Eric Hebert Site V

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20 PAGE	4 N 7	117.4.488		POT
66 Mar.	T) Z		MOTIVITIES R	7-rev001

Site ID	PND165		Tech	nician	Eric Hebert	Site Visit Date	05/12/2013	3	
<u>Doc</u> ı	umentation								
Does	s the site have the requir	ed ins	<u>trum</u>	ent and	equipment manuals?				
		Yes	No				Yes	No	N/A
	peed sensor			✓					
	lirection sensor			✓					V
	rature sensor	V				t recorder	✓		V
	e humidity sensor	Ц		✓					
	adiation sensor			✓				V	
	e wetness sensor	Ц		✓				V	
	ensor translator			✓		THE RESERVE OF THE PERSON OF T		✓	
	rature translator			<u> </u>				V	
	ity sensor translator			V		tector			
	adiation translator			✓				V	
	g bucket rain gauge			✓		protection device			V
	analyzer	V		_	Shelter he		✓	V	
920764620067	oack flow controller	Ц	✓	_	Shelter ai	r conditioner	_		
Filter p	oack MFC power supply		✓						
<u>Do</u>	es the site have the requi	ired a	nd m	ost rece	nt QC documents and	l report forms?			
		Pres	ent				Curre	nt	
Station	Log	Ī	7				✓		
SSRF		[7				✓		
Site Op	s Manual	5	7	Oct 20)1				
HASP		<u> </u>	7	Nov 20	09		✓		
Field O	ps Manual	_	/	July 19	90				
Calibra	ation Reports								
Ozone	z/s/p Control Charts								
Preven	tive maintenance schedu	d [
1 Is	the station log properly	comp	leted	during	every site visit? 🔽				
	re the Site Status Report rrent?	Form	ıs bei	ng com	pleted and	General observation	s not comp	lete	
	re the chain-of-custody f mple transfer to and fro			erly use	d to document				
	re ozone z/s/p control charrent?	arts pi	roper	ly comp	oleted and	Control charts not us	sed		
	e any additional explana l or man-made, that may					regarding conditi	ons listed :	above, o	or any other features,
Genera site ope	I site observations are not erator.	being	recor	ded on t	he SSRF. The purpose	e for recording the g	eneral obs	ervation	s was discussed with the

Field Systems Data Form F-02058-1500-S8-rev001 PND165 Site Visit Date 05/12/2013 Site ID Technician Eric Hebert Site operation procedures Has the site operator attended a formal CASTNET training course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? V Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant V** ~ N/A **Multipoint Calibrations** ~ ~ N/A **Visual Inspections** ~ N/A **Translator Zero/Span Tests (climatronics) V** ~ **Manual Rain Gauge Test** N/A **V V** N/A **Confirm Reasonableness of Current Values** ~ ~ N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **OC Check Performed Compliant** Frequency **Multi-point Calibrations** ~ **V** Semiannually ~ ~ **Automatic Zero/Span Tests** Daily Manual Zero/Span Tests **V V** Daily **Automatic Precision Level Tests Manual Precision Level Test V** ~ Weekly **Analyzer Diagnostics Tests V** Every 2 weeks **In-line Filter Replacement (at inlet)** In-line Filter Replacement (at analyze V **V** Sample Line Check for Dirt/Water Weekly **V** V Weekly **Zero Air Desiccant Check V** Unknown Do multi-point calibration gases go through the complete sample train including all filters?

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:

Do automatic and manual z/s/p gasses go through the

Are the automatic and manual z/s/p checks monitored and

complete sample train including all filters?

reported? If yes, how?

V

SSRF, call-in

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Site	ID	PND165 Te	chniciar	Eric Hebert	Site Visit	Date 05/12/2013			
	Site ope	ration procedures							
1	Is the fil	ter pack being changed ever	ry Tueso	lay as scheduled?	Filter changed	afternoons approximately	80%		
2	Are the correctly	Site Status Report Forms boy?	eing con	upleted and filed	General obser	vations are not recorded			
3	Are data	a downloads and backups beed?	eing per	formed as	No longer requ	iired			
4	Are gen	eral observations being mad	le and r	ecorded? How?					
5	Are site fashion?	supplies on-hand and reple	nished i	n a timely	~				
6	Are sam	ple flow rates recorded? Ho	w?		SSRF, call-in				
7	Are sam	uples sent to the lab on a reg	ular sch	edule in a timely	<u> </u>				
8									
9		site conditions reported reg ons manager or staff?	ularly to	the field	✓ .				
QC (Check Po	erformed	Fr	equency		Compliant			
M	Iulti-poii	nt MFC Calibrations	STATE STATE OF	miannually		<u> </u>			
100	low Syste	em Leak Checks	✓ We	ekly	NAMES OF STREET	<u> </u>			
	Filter Pack Inspection								
F			Flow Rate Setting Checks			CLERCIA V IN THE COMPANY PROPERTY OF THE PROPE			
Fi	low Rate	Setting Checks	The second second	SECURE OF STREET, STRE					
Fi Fi V	low Rate isual Ch	Setting Checks eck of Flow Rate Rotometer	We	ekly		✓			
Fi Fi V In	low Rate isual Ch 1-line Fil	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement	✓ We	eekly miannually		V			
Fi Fi V In Sa	low Rate isual Ch 1-line Fil ample Li	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water	We Se We	eekly miannually eekly	ary) regarding co		any other features.		
Fi V Ir Sa	low Rate isual Ch 1-line Fil ample Li ide any a	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement	✓ We ✓ Se ✓ We ograph	eekly miannually eekly or sketch if necess	ary) regarding co		any other features,		
Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water additional explanation (phot the part of the company of the co	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			
Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water dditional explanation (phot un-made, that may affect the	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			
Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water additional explanation (phot the part of the company of the co	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			
Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water additional explanation (phot the part of the company of the co	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			
Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water additional explanation (phot the part of the company of the co	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			
Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water additional explanation (phot the part of the company of the co	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			
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Fi V Ir Sa Provinatur	low Rate isual Ch n-line Fil ample Li ide any a ral or ma	Setting Checks eck of Flow Rate Rotometer ter Inspection/Replacement the Check for Dirt/Water additional explanation (phot the part of the company of the co	Se We we we with the	miannually eekly or sketch if necessaring parameters: e new filter to send to	he filter removed fr	v v nditions listed above, or			

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
CN	T169-Eric H	lebert-05/14/2013				
1	5/14/2013	Computer	Dell	000241	D520	unknown
2	5/14/2013	DAS	Campbell	000417	CR3000	2515
3	5/14/2013	Elevation	Elevation	None	1	None
4	5/14/2013	Filter pack flow pump	Thomas	02753	107CAB18	1192001900
5	5/14/2013	flow rate	Tylan	000086	FC280SAV	AW99013049
6	5/14/2013	Infrastructure	Infrastructure	none	none	none
7	5/14/2013	MFC power supply	MACTEC	05031	none	none
8	5/14/2013	Modem	Raven	06600	V4221-V	0844349098
9	5/14/2013	Ozone	ThermoElectron Inc	000682	49i A1NAA	1030244796
10	5/14/2013	Ozone Standard	ThermoElectron Inc	000369	49i A3NAA	0726124690
11	5/14/2013	Sample Tower	Aluma Tower	000179	В	unknown
12	5/14/2013	Shelter Temperature	Campbell	none	107-L	none
13	5/14/2013	Siting Criteria	Siting Criteria	None	1	None
14	5/14/2013	Temperature	RM Young	06559	41342	illegible
15	5/14/2013	Zero air pump	Werther International	06925	P 70/4	000836220

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2515 CNT169 Eric Hebert 05/14/2013 DAS Primary Das Date: 5 /14/2013 **Audit Date** 5 /14/2013 Datel **Parameter** DAS Mfg 10:30:00 10:30:00 Das Time: **Audit Time** 4000392 Tfer Desc. Source generator (D **Serial Number** Das Day: 134 **Audit Day** 134 Tfer ID 01321 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff:** Max Diff: 1.00000 0.00000 Slope **Intercept** 0.0001 0.0002 0.0001 0.0002 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 86590148 Tfer Desc. DVM 01310 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/27/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0000 0.0000 V V 7 0.1000 0.1000 0.1000 0.00007 0.3000 0.3000 0.3000 V V 0.0000 7 0.5000 0.4999 V V -0.0001 0.5000 7 0.7000 V V -0.0001 0.7001 0.7000

0.9000

0.9999

7

7

0.9000

1.0000

0.9001

1.0001

V

V

V

V

-0.0001

-0.0002

Flow Data Form **Technician** Owner ID Mfg Serial Number Ta Site Site Visit Date Parameter Eric Hebert flow rate 000086 Tylan AW99013049 CNT169 05/14/2013 Mfg BIOS **Parameter** Flow Rate MACTEC Mfg Tfer Desc. BIOS 220-H 122974 **Serial Number** 05031 none **SN/Owner ID** 01416 Tfer ID **Parameter** MFC power supply 0.00000 Slope 1.00000 **Intercept** 1/8/2013 1.00000 CorrCoff **Cert Date** 0 **DAS 1: DAS 2: Cal Factor Zero** 0 **Cal Factor Full Scale** A Avg % Diff: A Max % Di A Avg %Dif A Max % Di 5.76% 6.13% 3.5 **Rotometer Reading:** Input 1/m: Input STP: MfcDisp.: OutputSignal: Output S E: InputUnit: OutputSignall PctDifference: UseDescription: Test type: primary pump off 0.000 0.000 -0.02 0.000 0.00 1/m1/m-0.02 1/m leak check 0.000 0.000 0.000 0.01 1/mprimary 1/m primary test pt 1 0.000 2.842 2.58 0.000 3.00 1/m5.56% 0.000 2.841 2.58 0.000 3.00 1/m1/m5.59% primary test pt 2 2.827 2.58 0.000 3.00 1/m 6.13% test pt 3 0.0001/m primary Status pass Sensor Component Leak Test Condition Sensor Component | Filter Azimuth Condition 360 deg Status pass

Condition 1.5 cm

Condition Good

Condition

Condition Good

Condition 5.5 cm

Condition No moisture present

Condition Clean and dry

Status pass

Status pass

Status pass

Status pass

Status pass

Status pass

Status pass

Sensor Component | Filter Depth

Sensor Component | Filter Position

Sensor Component | System Memo

Sensor Component | Filter Distance

Sensor Component | Tubing Condition

Sensor Component | Moisture Present

Sensor Component Rotometer Condition

Ozone Data Form

Note	Mfg S	erial Number Ta	Site	Teo	chnician		Site Visi	t Date	Parame	eter	Owner I	(D
DAS 1:	ThermoElectron Inc 1	030244796	CNT169	Eri	ic Hebert		05/14/20	013	Ozone		000682	
DAS 1: DAS 2: Slope 0.99720 Intercept 0.18428	Slope: 0.9	5862 Slope:	0.00000		Mfg		ThermoE	lectron I	nc Pa	rameter	zone	
DAS 1:				_	Serial N	umber	5171121 ⁻	75	Tf	er Desc.	zone primar	y stan
A Neg % Diff: A Max % Di	CorrCoff 0.9	9999 CorrCoff	0.00000		Tfer ID		01111]			
Sensor Component Fullscale Voltage Condition Status Pass	DAS 1:	DAS 2:			Slone			0.99720	Inter	rcent	0.18	3428
UseDescription: ConcGroup: Tfer Raw: Trer Corr: Site: Site Unit: PetDifference: primary 1 0.41 0.22 0.32 ppb	A Avg % Diff: A Ma	x % Di A Avg %	6Dif A Max %	% Di	•	La.]	-		
primary 1	3.5%	4.1%			Cert Da	ie ———		1/2/2013	Cori	rColl	1.00	7000
primary 2 29,72 29,61 28.66 ppb -3.21% primary 3 50.00 49.95 48.32 pph -3.26% primary 4 80.25 80.29 77.42 ppb -3.57% primary 5 110.20 110.32 105.80 ppb -4.10% Sensor Component Cell B Noise Condition O.9 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Conditio	UseDescription:	ConcGroup:							Unit:	PctDi	fference:	
primary 3 50.00 49.95 48.32 ppb -3.26% primary 4 80.25 80.29 77.42 ppb -3.57% primary 5 110.20 110.32 105.80 ppb -4.10% Sensor Component Cell B Noise Condition 0.9 ppb Sensor Component Cell B Tmp. Condition N/A Status pass Sensor Component Inlet Filter Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition Not tested Status pass Sensor Component Span Condition See comments Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Cell B Freq. Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition See comments Status pass Sensor Component Cell B Flow Condition Not Ippm Status pass Sensor Component Cell A Tmp. Condition See Condition Status pass Sensor Component Cell A Freq. Condition See Condition Status pass Sensor Component Cell A Pressure Condition See Condition Status pass Sensor Component Cell A Pressure Condition See Condition See Condition Status pass Sensor Component Cell A Pressure Condition See Condition See Condition Status pass Sensor Component Cell A Flow Condition See Condit		1									2.210/	
primary 4 80.25 80.29 77.42 ppb -3.57% primary 5 110.20 110.32 105.80 ppb -4.10% -4.10% Sensor Component Cell B Noise	•											
Sensor Component Cell B Noise Condition Condition Status pass	1 1	-										
Sensor Component Cell B Noise Condition O.9 ppb Status pass	•											
Sensor Component Cell B Tmp. Condition Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.012 Status pass Sensor Component Cell B Freq. Condition 99.8 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 1.1 ppb Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 1.52 lpm Status pass Sensor Component Cell A Freq. Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 1.52 lpm Status pass Sensor Component Cell A Freq. Condition 1.52 lpm Status pass Sensor Component Cell A Freq. Condition 1.52 lpm Status pass Sensor Component Cell A Freq. Condition 1.52 lpm Status pass Sensor Component Cell A Freq. Condition 1.52 lpm Status pass			110.20				.00		Status	pass	4.1070	
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Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.012 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell A Frow Condition 0.51 lpm Status pass Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Fullscale Voltage		Conditio	n N/A				Status	pass		
Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.012 Status pass Sensor Component Cell B Freq. Condition 99.8 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Cell A Flow Condition N/A Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass		
Sensor Component Span Condition 1.012 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 98.9 kHz Status pass Sensor Component Cell A Freq. Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Line Loss		Conditio	Not tes	sted			Status	pass		
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Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 502 mmHg Status pass Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Conditio	1.012				Status	pass		
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Conditio	99.8 kl	Нz			Status	pass		
Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	System Memo		Conditio	See co	mments			Status	pass		
Sensor Component Cell B Flow Condition 0.51 lpm Status pass Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component Cell A Tmp. Condition 40.9 C Status Fail Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component Cell A Pressure Condition 502 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Flow		Conditio	0.51 lp	m			Status	pass		
Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Conditio	40.9 C				Status	Fail		
Sensor Component Cell A Freq. Condition 98.9 kHz Status pass Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Conditio	502 m	mHg			Status	pass		
Sensor Component Cell A Flow Condition 0.52 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Conditio	1.1 pp	0			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Conditio	98.9 kl	Нz			Status	pass		
	Sensor Component	Cell A Flow		Conditio	0.52 lp	m			Status	pass		
Sensor Component Zero Voltage Condition N/A Status pass	Sensor Component	Battery Backup		Conditio	n N/A				Status	pass		
	Sensor Component	Zero Voltage		Conditio	N/A				Status	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young CNT169 Eric Hebert 05/14/2013 Temperature 06559 illegible Mfg Extech Parameter Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Abs Max Er Cert Date** CorrCoff Abs Avg Err Abs Max Er 0.10 0.17 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.01 0.000 -0.05 primary Temp Low Range -0.13-0.1 \mathbf{C} C Temp Mid Range 28.44 28.36 0.000 28.4 0.07 primary C primary Temp High Range 44.20 44.00 0.000 44.2 0.17 Sensor Component | Shield **Status** pass **Condition** Clean Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Sensor Component** Blower **Condition** N/A **Status** pass Sensor Component System Memo Condition Status pass

Infrastructure Data For

Si	te ID	CNT169	Technician	Eric Hebert	Site Visit Date	05/14/2013	
	Shelter Ma	ake	Shelter Model	She	lter Size		
	Ekto		8810 (s/n 2149-	19) 640	cuft		
	CHARLES THE RESIDENCE				THE STATE OF THE PARTY OF THE P		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Met Tower	Condition	N/A	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Fair	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Fair	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter Owner ID
Campbell	none	CNT169	Eric Hebert	05/14/2013	Shelter Temperature none
DAS 1:	DAS 2:		Mfg	Extech	Parameter Shelter Temperatur
Abs Avg Err Abs 0.69	s Max Er Abs Avg 0.99	Err Abs Max Er	Serial Number	H232679	Tfer Desc. RTD
			Tfer ID	01228	
			Slope	1.00732	2 Intercept -0.12380
			Cert Date	1/12/2013	3 CorrCoff 1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	23.39	23.34	0.000	24.3	C	0.99
primary	Temp Mid Range	24.35	24.30	0.000	24.9	С	0.55
primary	Temp Mid Range	24.64	24.58	0.000	25.1	С	0.52

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	d Problem
Ozone	CNT169	Eric Hebert	05/14/2013	Cell A Tmp.	ThermoElectron	3483		✓

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

Field Systems Comments

1 Parameter: DasComments

The sample tower has been replaced and the met tower removed since the previous site audit visit.

2 Parameter: SiteOpsProcedures

The ozone inlet filter is changed once each month and the ozone sample line is leak tested every two weeks.

3 Parameter: ShelterCleanNotes

The shelter is dirty. Some floor tiles have been repaired since the previous audit visit.

F-02058-1500-S1-rev001

Site ID CNT169	Technician Eric Hebert	Site Visit Date 05/1	4/2013			
Site Sponsor (agency)	EPA	USGS Map	Centennial			
Operating Group	Forest Service	Map Scale				
AQS#	56-001-9991	Map Date				
Meteorological Type	R.M. Young					
Air Pollutant Analyzer	Ozone	QAPP Latitude	41.3722			
Deposition Measurement	dry, wet	QAPP Longitude	-106.2422			
Land Use	woodland - evergreen	QAPP Elevation Meters	3178			
Terrain	complex	QAPP Declination	10.9			
Conforms to MLM	Marginally	QAPP Declination Date	12/28/2004			
Site Telephone	(307) 742-7229	Audit Latitude	41.364531			
Site Address 1	Brooklyn Lake Guard Station	Audit Longitude	-106.24002			
Site Address 2	Medicine Bow National Forest	Audit Elevation	3175			
County	Albany	Audit Declination	9.5			
City, State	Centennial, WY	Present				
Zip Code	82055	Fire Extinguisher 🔽	No inspection date			
Time Zone	Mountain	First Aid Kit				
Primary Operator		Safety Glasses				
Primary Op. Phone #		Safety Hard Hat				
Primary Op. E-mail		Climbing Belt				
Backup Operator		Security Fence				
Backup Op. Phone #		Secure Shelter				
Backup Op. E-mail		Stable Entry Step				
Shelter Working Room ✓	Make Ekto M	odel 8810 (s/n 2149-19)	Shelter Size 640 cuft			
Shelter Clean		or tiles have been repaired since	e the previous audit visit.			
	Notes					
Turn r miles	Laramie take route 130 west to Centennia right near the summit onto a dirt road at the to Little Brooklyn Lake. There will be a singleters up the hill past the chapel to the site.	ne sign for Brooklyn Lake Camp mall chapel on the right. Park a	oground. Continue approximately 1.5			

F-02058-1500-S2-rev001

Site ID CNT169 Technician Eric Hebert Site Visit Date 05/14/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km		~
City 10,000 to 50,000 population	10 km		V
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		V
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m	-	
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m		V
Large parking lot	200 m		
Small parking lot	100 m		
Tree line	50 m		
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Comment

F-02058-1500-S3-rev001

Site	ID	CNT169	Technician E	ric Hebert		Site Visit Date 05/14/2013
1		ind speed and dire influenced by obst	ection sensors sited so a ructions?	s to avoid	✓	N/A
2	(i.e. wi horizo	ind sensors should	ed so as to minimize to be mounted atop the t oom >2x the max diamo	ower or on a	✓	N/A
3		e tower and sensor			✓	N/A
4			elds pointed north or p		✓	
5						
6	Is the	solar radiation sen	sor plumb?		✓	N/A
7	Is it sited to avoid shading, or any artificial or reflected light?				✓	N/A
8	Is the	rain gauge plumb?	?		✓	N/A
9	Is it sit towers		ring effects from buildi	ings, trees,	✓	N/A
10		surface wetness ser	nsor sited with the grid	l surface	✓	N/A
11	Is it in	nclined approxima	tely 30 degrees?		✓	N/A
			nation (photograph or nay affect the monitori			y) regarding conditions listed above, or any other features,
					1819	

	stems Dat	a Form		F-02058-1500-S4-rev				
ite ID	CNT169	Technician	Eric Hebert	915	Site Visit Date 05/14	/2013		
				✓				
	ne meterological on, and well mair	sensors appear to be stained?	intact, in good	V				
Are all t		al sensors operationa	al online, and	V				
Are the	shields for the te	emperature and RH s	sensors clean?	✓				
Are the	aspirated motor	s working?		✓	N/A			
Is the so	CONTRACTOR OF THE PARTY OF THE	nsor's lens clean and	free of	✓	N/A			
Is the su	ırface wetness se	ensor grid clean and t	undamaged?	✓	N/A			
	sensor signal and	d power cables intact	t, in good	~				
Are the from the	sensor signal and e elements and w	d power cable connected well maintained?	ctions protected	V				
		Manufacturer	Model		S/N	Client ID		
rameter								
arameter		17141141414141						
emperature vide any a	dditional explan	RM Young			illegible regarding conditions lis	06559		
emperature	dditional explan	RM Young	r sketch if neces					
emperature vide any a	dditional explan	RM Young	r sketch if neces					
emperature vide any a	dditional explan	RM Young	r sketch if neces					

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Site ID	CNT169	Technician Eric	Hebert	917	Site Visit	Date 05/14/2013	,		
Siting	Criteria: Are the p	ollutant analyzers and d	leposition eq	uipi	nent sited in a	ccordance with	40 CFR 58	, Appendix E	
	e sample inlets have cricted airflow?	at least a 270 degree ar	c of	✓					
2 Are th	ne sample inlets 3 -	15 meters above the grou	und?	✓					
	e sample inlets > 1) meters from trees	meter from any major o ?	bstruction,	✓					
Pollut	ant analyzers and d	leposition equipment op	erations and	ma	<u>intenance</u>				
	e analyzers and equi ion and well maint	ipment appear to be in gained?	good	✓		HE I THE COLLECTION OF COMPUTE AND THE COLLECTION		Machine (California de California de California de California de California de California de California de Cal	
	e analyzers and mo	onitors operational, on-li	ne, and	✓					
3 Descri	be ozone sample tu	be.			1/4 teflon by 1	2 meters			
4 Descri	be dry dep sample	tube.			3/8 teflon by 1	2 meters			
	-line filters used in te location)	the ozone sample line? (if yes	✓	At inlet only				
	imple lines clean, fractions?	ee of kinks, moisture, a	nd	✓					
7 Is the	zero air supply des	iccant unsaturated?		✓					
8 Are th	ere moisture traps	in the sample lines?		✓					
9 Is their clean?		e dry deposition filter li	ne, and is it	✓	Clean and dry				
Parameter		Manufacturer	Model		S/N		Clie	ent ID	
MFC powe	r supply	MACTEC	none	SST	none		050	31	
Ozone		ThermoElectron Inc	49i A1NAA	SSUE	103024	4796	0000	682	
Filter pack	flow pump	Thomas	107CAB18	lases	119200	1900	027	53	
Zero air pu	mp	Werther International	P 70/4	SEC	000836	220	0692	25	
Sample To	wer	Aluma Tower	В		unknown 000179				
		ntion (photograph or ske y affect the monitoring p		ary)	regarding co	nditions listed a	bove, or an	y other features,	
vog vog gestere vo			进 级设备设备	642300		New York Control of the Control of t	area suureesette		

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Site	ID	CNT169	Technician	Eric Hebert		Site Visit Date	05/14/2013			
	DAS, se	ensor translators, a	and peripheral equi	pment operation	ns ai	nd maintenance				
		DAS instruments a	appear to be in good	l condition and	✓					
2	Are all		the DAS operation	al? (printers,	✓					
		analyzer and sensong protection circu	or signal leads pass itry?	through	✓	Met sensors only				
		signal connection intained?	s protected from the	e weather and	✓					
5	Are the	signal leads conne	ected to the correct	DAS channel?	✓					
	Are the		slators, and shelter	properly	✓					
7	Does th	e instrument shelt	er have a stable pov	ver source?	✓					
8 Is the instrument shelter temperature controlled?										
9	Is the n	iet tower stable an	d grounded?			Stable	(Grounded		
10	Is the sa	ample tower stable	e and grounded?							
11	Tower	comments?								
Para	ameter		Manufacturer	Model		S/N		Clie	nt ID	
Com	nputer		Dell	D520	17204	unknown		000	241	
DAS			Campbell	CR3000		2515		000	417	
Mod			Raven	V4221-V	nean Mar	0844349098		066	00	
	Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,								nny other feat	ures,
nati	CONTRACTOR SERVICES	natural or man-made, that may affect the monitoring parameters: The sample tower has been replaced and the met tower removed since the previous site audit visit.								
<u> 2000</u>	ıral or i			ver removed sinc	e the	e previous site audit	visit.			
1,200	ıral or i			ver removed sinc	e the	e previous site audit	visit.			
1,200	ıral or i			ver removed sind	e the	e previous site audit	visit.			
<u> 2000</u>	ıral or i			ver removed sinc	e the	e previous site audit	visit.			

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Site ID	CNT169		Tech	nician	Eric Hebert		Site Visit Date	05/14/2013		
D										
<u>Documen</u>										
Does the s	site have the requir			100 100 100 100	Chesta Control Control Control	manuals'				
Wind speed		Yes	No	N/.		Data logg	er	Yes	No 🗸	N/A
Wind directi				<u>✓</u>		Data logg				V
Temperatur							rt recorder			<u> </u>
	nidity sensor					Compute		~		
Solar radiati				_ _		Modem			✓	
Surface weti				~		Printer				✓
Wind sensor	translator			✓		Zero air j	oump		✓	
Temperatur	e translator			V		Filter flo	PARTY OF THE STATE OF THE STATE OF		✓	
Humidity se	nsor translator			✓		Surge pro	otector			✓
Solar radiati	on translator			✓		UPS			✓	
Tipping buck	ket rain gauge			✓		Lightning	g protection device	,		✓
Ozone analy	zer		✓			Shelter h	eater		✓	
Filter pack f	low controller		V			Shelter ai	r conditioner		V	
Filter pack N	AFC power supply		✓							
Does the	site have the requi	ired a	nd mo	ost rece	nt QC docu	ments an	d report forms?			
		Pres	ent					Curre	nt	
Station Log			/					✓		
SSRF		5	/					✓		
Site Ops Ma	nual									
HASP		Ĺ								
Field Ops M	anual	•	/	July 19	90					
Calibration 1	Reports									
	Control Charts									
Preventive n	naintenance schedu	d [
1 Is the st	ation log properly	comp	leted (during	everv site vi	sit? ✓				
2 Are the current	Site Status Report?	Forn	ıs beir	ng comp	pleted and	✓				
	chain-of-custody for transfer to and fro			rly use	d to docume	ent 🗸				
4 Are ozo current	ne z/s/p control cha ?	arts p	roper	ly comp	oleted and		Control charts not u	ised		
	additional explana) regarding condit	ions listed a	ibove, o	or any of
natural or m	an-made, that may	arrec	i ine l	110111101	ing parame	ners:				
		100							125.10	

Field Systems Data Form F-02058-1500-S8-rev001 Site ID CNT169 Site Visit Date 05/14/2013 Technician Eric Hebert Site operation procedures Has the site operator attended a formal CASTNET training course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET П training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? V Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant V V** N/A **Multipoint Calibrations** ~ ~ N/A **Visual Inspections** ~ N/A **Translator Zero/Span Tests (climatronics)** V ~ N/A **Manual Rain Gauge Test V V** N/A **Confirm Reasonableness of Current Values** ~ **V** N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **Compliant QC Check Performed** Frequency **Multi-point Calibrations** V **V** Semiannually ~ ~ **Automatic Zero/Span Tests** Daily

Manual Zero/Span Tests ✓ As neede	d 🗹	
Automatic Precision Level Tests Daily	✓	
Manual Precision Level Test ✓ As neede	d 🗸	
Analyzer Diagnostics Tests ✓ Weekly	✓	
In-line Filter Replacement (at inlet) Monthly	✓	
In-line Filter Replacement (at analyze	✓	
Sample Line Check for Dirt/Water ✓ Weekly	✓	
Zero Air Desiccant Check Weekly	✓	
 Do multi-point calibration gases go through the complete sample train including all filters? Do automatic and manual z/s/p gasses go through the complete sample train including all filters? 	SSRE call-in	

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

The ozone inlet filter is changed once each month and the ozone sample line is leak tested every two weeks.

reported? If yes, how?

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Site	ID	CNT169 T	chni	cian Eric Hebert		Site Visit Dat	te 05/14/2013		
	Site o	operation procedures							
1	Is the	e filter pack being changed eve	ry T	uesday as scheduled?	V	filter changed after	ernoons, 80% of the time		
2		the Site Status Report Forms beetly?	eing	completed and filed	>				
3		lata downloads and backups bluled?	eing	performed as		No longer require	ed		
4	Are g	general observations being ma	de ar	nd recorded? How?	✓	SSRF, logbook			
5	Are s	site supplies on-hand and replo on?	nish	ed in a timely	✓				
6	Ares	sample flow rates recorded? H	ow?		✓	SSRF, call-in			
7	Are s	samples sent to the lab on a reg	gular	schedule in a timely	✓				
8		ilters protected from contaminations; How?	natio	n during handling	~	One set of gloves	s only		
9	Are	the site conditions reported regations manager or staff?	ular	ly to the field	✓				
QC	Checl	x Performed		Frequency			Compliant		
N	Iulti-p	point MFC Calibrations	✓	Semiannually			V		
F	low S	ystem Leak Checks	✓	Weekly	aport de la				
		Pack Inspection			1401121				
		ate Setting Checks		Weekly	BHEX.705	W4004000000000000000000000000000000000			
		Check of Flow Rate Rotomete		Weekly	are to				
		Filter Inspection/Replacement		Semiannually Weekly	CENSTAL		▼		
		Line Check for Dirt/Water							
		y additional explanation (pho man-made, that may affect th				y) regarding cond	litions listed above, or a	ny other features,	

Site Inventory by Site Visit

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
YEL4	08-Eric H	ebert-06/06/2013				
1	6/6/2013	Computer	Gateway	none	Solo	2500251339
2	6/6/2013	DAS	Environmental Sys Corp	90647	8816	2560
3	6/6/2013	Elevation	Elevation	None	1	None
4	6/6/2013	F460 translator	Climatronics	none	100163	686
5	6/6/2013	Filter pack flow pump	Thomas	none	107CA18	099800009748
6	6/6/2013	flow rate	Tylan	none	FC280SAV	AW9710138
7	6/6/2013	Infrastructure	Infrastructure	none	none	none
8	6/6/2013	Mainframe	Climatronics	none	100081	1380
9	6/6/2013	Mainframe power supply	Climatronics	none	101074	688
10	6/6/2013	Met tower	Climatronics	01362	14 inch taper	illegible
11	6/6/2013	MFC power supply	Tylan	03687	RO-32	FP9403014
12	6/6/2013	Modem	US Robotics	none	56k fax modem	unknown
13	6/6/2013	Ozone	ThermoElectron Inc	90714	49C	49C-66828-354
14	6/6/2013	Ozone Standard	ThermoElectron Inc	none	49C	0425208056
15	6/6/2013	Precipitation	Climatronics	02531	100508-2	illegible
16	6/6/2013	Printer	Hewlett Packard	none	840C	unknown
17	6/6/2013	Relative Humidity	Rotronic	none	MP 601A	75277
18	6/6/2013	Sample Tower	Aluma Tower	illegible	В	none
19	6/6/2013	Shelter Temperature	ARS	none	none	none
20	6/6/2013	Shield (10 meter)	Climatronics	01050	100325	1235
21	6/6/2013	Siting Criteria	Siting Criteria	None	1	None
22	6/6/2013	Solar Radiation	Licor	none	LI-200	PY18097
23	6/6/2013	Solar Radiation Translator	Climatronics	none	100144	381
24	6/6/2013	Temperature	Climatronics	ARS100	100093	none
25	6/6/2013	Temperature Translator	Climatronics	03626	100088-2	396
26	6/6/2013	Wind Direction	Climatronics	90876	100076	222
27	6/6/2013	Wind Speed	Climatronics	90881	100075	1697
28	6/6/2013	Zero air pump	Werther International	none	PC70/4	531393

DAS Data Form

DAS Time Max Error:

0.52

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2560	YEL408	Eric Hebert	06/06/2013	DAS	Primary
	3/2013 Audit D 0:55:00 Audit T 157 Audit D	ime 9:55:31	Mfg Serial Number	Datel 4000392	Parameter Tfer Desc.	DAS Source generator (D
Low Channel:	High Ch		Tfer ID	01321		
Avg Diff: Ma	Avg Diff: 0.0002 0	Max Diff: 0.0005	Slope	1.0000	0 Intercept	0.00000
0.0001	0.0002	0.0000	Cert Date	2/13/201	2 CorrCoff	1.00000
			Mfg	Fluke	Parameter	DAS
			Serial Number	86590148	Tfer Desc.	DVM
			Tfer ID	01310		
			Slope	1.0000	0 Intercept	0.00000
			Cert Date	1/27/201	3 CorrCoff	1.00000
	DINIO	DAGO	T .TT '.	O ()II '	D:cc	

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
2	0.0000	0.0000	0.0000	V	V	0.0000
2	0.1000	0.1000	0.0999	V	V	-0.0001
2	0.3000	0.3000	0.2998	V	V	-0.0002
2	0.5000	0.5000	0.5000	V	V	0.0000
2	0.7000	0.7001	0.7001	V	V	0.0000
2	0.9000	0.9001	0.9001	V	V	0.0000
2	1.0000	1.0001	1.0000	V	V	-0.0001
16	0.0000	0.0000	0.0000	V	V	0.0000
16	0.1000	0.1000	0.1000	V	V	0.0000
16	0.3000	0.3000	0.3002	V	V	0.0002
16	0.5000	0.5000	0.5003	V	V	0.0003
16	0.7000	0.7000	0.7004	V	V	0.0004
16	0.9000	0.9001	0.9005	V	V	0.0004
16	1.0000	1.0001	1.0006	V	V	0.0005

Flow Data Form

Mfg	Ser	ial Num	ber Ta	Site	Tec	hnician	Site Visit l	Date Param	eter	Owner ID
Tylan	AW	V971013	8	YEL408	Erio	c Hebert	06/06/201	3 flow rat	te	none
Mfg	Tylan					Mfg	BIOS	P	arameter Flo	w Rate
SN/Owner ID	FP9403	3014	03687			Serial Number	122974	Т	fer Desc. BIC)S 220-H
Parameter	MFC po	ower sup	ply			Tfer ID	01416			
	1 .	·		<u> </u>		Slope	1	.00000 Inte	ercept	0.00000
						•				
						Cert Date	1/	8/2013 Cor	rCoff	1.00000
DAS 1:			DAS 2:			Cal Factor Z	ero	0	.4	
A Avg % Diff:	A Max	% Di	A Avg %l	Dif A Max	: % Di	Cal Factor F	ull Scale	5	.8	
0.49%		0.87%				Rotometer R	eading:	3	.6	
UseDescription	: Test	type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference
primary	pump o	off	0.000	0.000	-0.35	-0.3250	0.05	l/m	l/m	
primary	leak che	eck	0.000	0.000	-0.35	-0.3250	0.05	1/m	l/m	
primary	test pt 1	1	0.000	2.999	2.40	2.4130	3.00	l/m	l/m	0.05%
primary	test pt 2		0.000	3.016	2.40	2.4130	3.00	l/m	l/m	-0.54%
primary	test pt 3	3	0.000	3.036	2.40	2.4130	3.01	l/m	l/m	-0.87%
Sensor Comp	onent L	eak Test	t		Condition	n		Status	pass	
Sensor Comp	onent F	ilter Azin	nuth		Condition	90 deg		Status	pass	
Sensor Comp	onent F	ilter Dep	th		Condition	n - 1.0 cm		Status	Fail	
Sensor Comp	onent F	ilter Posi	ition		Condition	Poor		Status	Fail	
Sensor Comp	onent N	loisture l	Present		Condition	No moisture p	resent	Status	pass	
Sensor Comp	onent R	otomete	r Condition	l	Condition	Clean and dry		Status	pass	
Sensor Comp	onent S	System M	lemo		Condition	See comments	3	Status	pass	
Sensor Comp	onent T	ubing Co	ondition		Condition	Good		Status	pass	
Sensor Comp	onent F	ilter Dist	ance		Condition	5.5 cm		Status	pass	

Ozone Data Form

Mfg Se	erial Number Ta	Site	Teo	chnician		Site Visi	it Date	Parame	ter	Owner ID
ThermoElectron Inc 4	9C-66828-354	YEL408	Eri	c Hebert		06/06/20	013	Ozone		90714
Intercept -0.3	Slope: 3928 Intercept 9998 CorrCoff	0.00000	0	Mfg Serial N Tfer ID	lumber	ThermoE 5171121 01111			rameter ozo	ne primary stan
DAS 1: A Avg % Diff: A Ma 2.0%	DAS 2: x % Di	6Dif A Max (Slope Cert Da	te		0.9972		•	0.18428
UseDescription:	ConcGroup:	Tfer Raw:	Tfer C			te:		Unit:	PctDiffe	erence:
primary	1	0.40	0.2		0.		ppb			0.560/
primary	3	30.41 50.00	30.3 49.9		50		ppb			0.56% 1.82%
primary primary	4	79.43	79.4		81		ppb ppb			2.78%
primary	5	110.00	110.		113		ppb			2.62%
Sensor Component	-	110.00	Conditio				PP	Status	nass	2.0270
Sensor Component			Conditio					Status		
Sensor Component			Conditio	n 1.000	3			Status	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	n Clean				Status	pass	
Sensor Component	Line Loss		Conditio	Not te	sted			Status	pass	
Sensor Component	Offset		Conditio	n 1.6				Status	pass	
Sensor Component	Span		Conditio	1.045				Status	pass	
Sensor Component	Cell B Freq.		Conditio	83.0 k	Hz			Status	pass	
Sensor Component	System Memo		Conditio	n				Status	pass	
Sensor Component	Sample Train		Conditio	Good				Status	pass	
Sensor Component	Cell B Pressure		Conditio					Status	pass	
Sensor Component			Conditio					Status		
Sensor Component			Conditio					Status		
Sensor Component			Conditio					Status		
Sensor Component			Conditio					Status		
Sensor Component			Conditio					Status		
Sensor Component			Conditio		om			Status		
Sensor Component			Conditio					Status		
Sensor Component	∠ero Voltage		Conditio	0.000	5			Status	pass	

Wind Speed Data Form Mfg Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Wind Speed 90881 YEL408 Eric Hebert 06/06/2013 Climatronics 1697 Parameter wind speed Mfg RM Young Climatronics Mfg Tfer Desc. wind speed motor (h Serial Number **SN/Owner ID** 686 none 01262 Tfer ID F460 translator **Parameter** 0.00000 1.00000 **Slope Intercept** 1968 Prop or Cups SN 0.3 to 0.3 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** N/A Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (I **Serial Number** 01261 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/13/2010 1.00000 **Cert Date** CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 0.09 1.09% Abs Avg Err 0.13 1.64% Abs Max Er UseDescription: InputDevice: Input RPM: Diff/ % Diff: Difference: Input m/s: Output V: DAS m/s: none 0 0.20 0.0000 0.3 0.13 primary 01261 50 1.40 1.5 0.06 primary 0.0000 primary 01261 100 2.57 0.0000 2.6 0.06 4.22 4.3 0.09 01261 170 0.0000 primary 6.2 primary 01261 250 6.10 0.0000 1.64% 11.97 12.1 1.17% primary 01262 500 0.0000 01262 800 19.02 0.0000 19.2 0.79% primary primary 01262 2000 47.22 0.0000 47.6 0.74% Sensor Component | System Memo Status pass **Condition** See comments Sensor Component | Sensor Plumb Condition Plumb Status pass Sensor Component | Sensor Heater **Condition** Functioning Status pass Sensor Component | Prop or Cups Condition **Condition** Good Status pass Sensor Component | Condition **Condition** Good Status pass Sensor Component | Torque **Condition** Good Status pass

Wind Direction Data Form

Mfg	Serial Nu	nber Ta	Site		Technician		Site Visit	Date Para	meter	Owner ID	
Climatronics	222		YEL408		Eric Hebert		06/06/201	13 Wind	Direction	90876	
7.50					Mfg		Ushikata		Daramatar	wind direction	
Mfg	Climatronics										
SN/Owner ID	686	none			Serial N	umber	190037		Tfer Desc.	transit	
Parameter	F460 translato	r			Tfer ID		01265				
Vane SN: 1	149	C. A	. Align. de	eg. true:	Slope		1	1.00000 In	tercept	0.0000)
VaneTorque _	8 to	8		180	Cert Da	e	1	/4/2011 C	orrCoff	1.0000)
					Mfg		RM Young	9	Parameter	wind direction	
					Serial N	umber			Tfer Desc.	wind direction wh	eel
					Tfer ID		01266				
					TICI ID		01200				
	DAS 1:		D A	AS 2:							
	Orientation	Linearity	y: Oı	rientation	Linearity:						
Abs Avg Err	9.5		1.3								
Abs Max Er	13		5								
UseDescriptio	n: TferID:	Inı	out Raw:	Linearity	Output V:	Out	put Deg.:	Difference:	Change:	Error:	
primary	01266		0	V	0.000		352	8	-	0	
primary	01266		45	✓	0.000	0	36	9	44	-1	
primary	01266		90	✓	0.000	0	80	10	44	-1	
primary	01266		135	✓	0.000	0	125	10	45	0	
primary	01266		180	✓	0.000	0	168	12	43	-2	
primary	01266		225	✓	0.000	0	218	7	50	5	
primary	01266		270	✓	0.000	0	263	7	45	0	
primary	01266		315	✓	0.000	0	307	8	44	-1	
primary	01265		90		0.000	0	80	10		10	
primary	01265		136		0.000	0	123	13		13	
primary	01265		180		0.000	0	173	7		7	
primary	01265		360		0.000	0	352	8		8	
Sensor Comp	onent Mast			Con	dition Good		,	Stati	pass		
Sensor Comp	onent Condition	n		Con	dition Good			Stati	pass		
Sensor Comp	onent Sensor F	Heater		Con	dition Function	ning		Stati	pass		
Sensor Comp	onent Sensor F	Plumb		Con	dition Plumb			Stati	ıs pass		
Sensor Comp	onent Torque			Con	dition Good			Stati	ıs pass		
Sensor Comp	onent Vane Co	ndition		Con	dition Good			Stati	ıs pass		
Sensor Comp	System I	Memo		Con	dition			State	pass		

Temperature Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site YEL408 Eric Hebert Temperature ARS100 Climatronics none 06/06/2013 Mfg Extech Parameter Temperature Climatronics Mfg Tfer Desc. RTD H232679 **Serial Number** 03626 **SN/Owner ID** 396 01228 Tfer ID **Parameter** Temperature Translator **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 **Cert Date** CorrCoff Abs Avg Err **Abs Max Er Abs Avg Err Abs Max Er** 0.05 0.11 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: | UseDesc.: Test type: Temp Low Range primary 0.01 0.13 0.00000.2 \mathbf{C} 0.11 C Temp Mid Range 24.00 23.95 0.0000 23.9 -0.04 primary Temp High Range C -0.01 primary 49.56 49.32 0.000049.3 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Humidity Data Form Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Mfg Site YEL408 Eric Hebert 06/06/2013 Relative Humidity Rotronic 75277 none Mfg Rotronic Parameter Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 1.00000 0.00000 Slope **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 2.2 0.9 Abs Avg Err 2.8 0.9 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 32.8 0.3561 35.6 primary 32.8 2.8 RH Low Range 52.9 52.9 1.6 primary Hygroclip 52.9 0.5450 54.5 primary RH High Range Hygroclip 93.6 93.6 93.6 0.9450 94.5 0.9 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Condition Functioning Status pass Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Condition Clean **Status** pass Sensor Component | Shield **Condition** Clean Status pass

Solar Radiation Data Form Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Mfg PY18097 Eric Hebert Solar Radiation Licor YEL408 06/06/2013 none Mfg **Eppley** Parameter solar radiation Climatronics Mfg Tfer Desc. SR transfer translat 10765 **Serial Number SN/Owner ID** none 01246 Tfer ID **Parameter** Solar Radiation Translator **Slope** 1.00000 **Intercept** 0.00000 **DAS 1: DAS 2:** 1/6/2010 1.00000 **Cert Date** CorrCoff % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max Parameter solar radiation Mfg **Eppley** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 Tfer ID 01245 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 1.3% 0.0% 0.0% 1.4% PctDifference: UseDescription: Measure Date MeasureTime Tfer Corr: DAS w/m2: 753 1.3% primary 6/6/2013 9:00 763 -0.6% 6/6/2013 10:00 680 676 primary primary 6/6/2013 11:00 688 689 0.1% 0.7% 735 740 primary 6/6/2013 12:00 6/6/2013 13:00 338 369 9.2% primary Sensor Component | Sensor Level Condition Level Status pass Sensor Component | Sensor Clean Condition Clean **Status** pass Sensor Component | Properly Sited **Condition** Properly sited **Status** pass Status pass Sensor Component | System Memo Condition

Precipitation Data Form

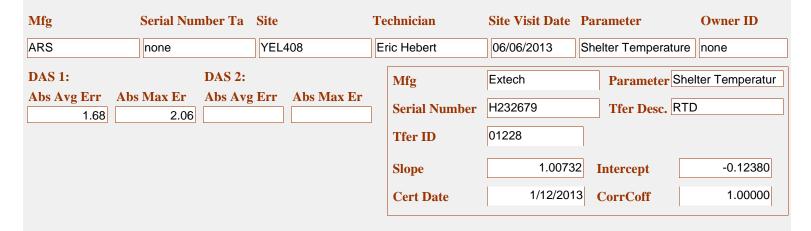
Mfg	\$	Serial N	Number Ta	Site	,	Tec	chnician		Site	Visit Date	Param	eter		Owner ID
Climatronics		illegible)	YEL408		Eri	c Hebert		06/	06/2013	Precipit	ation		02531
							Mfg		PMF	D	Pa	ramet	er Pre	ecipitation
DAS 1:			DAS 2:				Serial Nur	nber	EW-	-06134-50	Tf	er Des	c. 250	Oml graduate
A Avg % Diff		ax % D 4.0		Dif A	Max % Di		Tfer ID		012	50				
3.0%	<u> </u>	4.0	170				Slope			1.0000	0 Inte	rcept		0.00000
							Cert Date			9/5/200	_	rCoff		1.00000
						L					Cor			
UseDesc.	Test	* 1	TferVolume:	Iteration:	TimePerTi	p:	Eq.Ht:			Eq.HtUnit:	OSE Ur	it: Tfe	rUnits	:PctDifference
primary	tip che	ck	10 manual	1	2 sec		1.00	1.0		mm	mm		ml	
primary	test 1		231.5	1	10 sec	_	5.00	5.		mm	mm		ml	4.0%
primary	test 2		231.5	2	10 sec		5.00	5.	10	mm	mm		ml	2.0%
Sensor Com	ponent	Syste	m Memo		Cond	itio	n See com	ments	;		Status	pass		
Sensor Com	ponent	Senso	or Heater		Cond	itio	n Function	ing			Status	pass		
Sensor Com	ponent	Prope	erly Sited		Cond	itio	n See com	ments	;		Status	pass		
Sensor Com	ponent	Gaug	e Drain Scree	en	Cond	itio	n Not insta	lled			Status	Fail		
Sensor Com	ponent	Level			Cond	itio	n Level				Status	pass		
Sensor Com	ponent	Gaug	e Clean		Cond	itio	n Clean				Status	pass		
Sensor Com	ponent	Funne	el Clean		Cond	itio	n Clean				Status	pass		
Sensor Com	ponent	Cond	ition		Cond	itio	n Good				Status	pass		
Sensor Com	ponent	Gaug	e Screen		Cond	itio	n Installed				Status	pass		

Infrastructure Data For

Site ID	YEL408	Technician	Eric Hebert	Site Visit Date	06/06/2013	
Shelter M	ake	Shelter Model	Shel	lter Size		
Ekto	ACCURACION CONTRACTOR	8810 (s/n 2880-	1) 640	cuft		
E CANCEL TANGET OF THE				VESSAROFOLDERSONES B.N		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	Good	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Good	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	23.14	23.09	0.000	24.7	C	1.61
primary	Temp Mid Range	23.44	23.39	0.000	24.8	С	1.36
primary	Temp Mid Range	22.63	22.59	0.000	24.7	С	2.06

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazar	d Problem
Flow Rate	YEL408	Eric Hebert	06/06/2013	Filter Position	Tylan	1647		✓
The filter attachment orientation.	plate is mounted	too low in the enclos	sure resulting in	the filter being expo	osed to wind-drive	en rain and in the	standard g	eometric
Precipitation	YEL408	Eric Hebert	06/06/2013	Properly Sited	Climatronics	3766		✓
Objects violate the 4	5 degree rule for the	ne tipping bucket rai	n gage.					
Wind Speed	YEL408	Eric Hebert	06/06/2013	System Memo	Climatronics	2863		✓
The external heater the condition was correct			I to be impeding	the rotation of the s	sensor shaft. This	condition impac	ts data accı	racy. The

Field Systems Comments

1 Parameter: SiteOpsProcComm

Gloves are no longer used to handle the filter pack.

2 Parameter: SitingCriteriaCom

The site is located at the edge of a tree line. The trees close to the inlet are approximately 5 meters tall. Trees taller than 10 meters are 15 meters from the inlet.

3 Parameter: ShelterCleanNotes

The shelter is organized and well maintained.

4 Parameter: PollAnalyzerCom

The shelter and sample tower are located at the edge of the tree line and mountain slope. Small trees are encroaching on the sample tower. Taller trees are 10 to 15 meters from the sample tower.

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Site ID YEL408	Technician Eric Hebert	Site Visit Date 06/0	6/2013
Site Sponsor (agency)	NPS	USGS Map	Lake
Operating Group	NPS	Map Scale	
AQS#	56-039-1011	Map Date	
Meteorological Type	Climatronics		
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	44.5597
Deposition Measurement	dry	QAPP Longitude	-110.4006
Land Use	woodland - evergreen	QAPP Elevation Meters	2400
Terrain	complex	QAPP Declination	
Conforms to MLM	Marginally	QAPP Declination Date	
Site Telephone	(307) 242-2410	Audit Latitude	44.565356
Site Address 1	Lake Ranger Station	Audit Longitude	-110.400338
Site Address 2	route 14	Audit Elevation	2430
County	Teton	Audit Declination	11.9
City, State	Yellowstone National Park, WY	Present	
Zip Code	82190	Fire Extinguisher	
Time Zone	Mountain	First Aid Kit	
Primary Operator		Safety Glasses	
Primary Op. Phone #		Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator		Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Ekto M	odel 8810 (s/n 2880-1)	Shelter Size 640 cuft
Shelter Clean	Notes The shelter is organized and w	vell maintained.	A STATE OF THE STA
Site OK	Notes		
Yellov Conti	Jackson take route 191 / 89 north to Yell wstone Lake. Turn left just past the Lake houe through the compound past the housi or the compound.	Area (and hotel) into the park r	esidence and office compound.

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Site ID YEL408 Eric Hebert Site Visit Date 06/06/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		
Major highway, airport or rail yard	2 km		✓
Secondary road, heavily traveled	500 m		✓
Secondary road, lightly traveled	200 m		✓
Feedlot operations	500 m	1-	✓
Intensive agricultural ops (including aerial spraying)	500 m		V
Limited agricultural operations	200 m		✓
Large parking lot	200 m		✓
Small parking lot	100 m		✓
Tree line	50 m	15 m	
Obstacles to wind	10 times obstacle height		

Siting Distances OK

Siting Criteria Comment

The site is located at the edge of a tree line. The trees close to the inlet are approximately 5 meters tall. Trees taller than 10 meters are 15 meters from the inlet.

Field Sy	vstems	Data 1	Form
I ICIU D	SCOTIES	Data	OLILI

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Site	ID	YEL408	Technician Eric Hebert	ngorit nache visse.	Site Visit Date 06/06/2013
1		d speed and directly obsti	ction sensors sited so as to avoid ructions?	V	
2	(i.e. win	d sensors should	ed so as to minimize tower effects? be mounted atop the tower or on a om >2x the max diameter of the wind)	\	
3		tower and sensor		✓	
4			elds pointed north or positioned to ces such as buildings, walls, etc?	✓	
5	conditio surface	ons? (i.e. ground b	I sensors sited to avoid unnatural below sensors should be natural loped. Ridges, hollows, and areas of avoided)	✓ f	
6	Is the so	olar radiation sen	sor plumb?	✓	
7	Is it site light?	d to avoid shadin	g, or any artificial or reflected	✓	
8	Is the ra	ain gauge plumb?		✓	
9	Is it site towers,		ring effects from buildings, trees,		45 degree rule
10	Is the su facing n		nsor sited with the grid surface	V	N/A
11	Is it inc	lined approximat	tely 30 degrees?	V	N/A
			nation (photograph or sketch if ne nay affect the monitoring paramete		y) regarding conditions listed above, or any other features,

Field S	ystems Dat	ta Form			F-	02058-15	00-S4-rev00
Site ID	YEL408	Technician Eric	Hebert		Site Visit Date 06/06/2	013	
	the meterologica ion, and well mai	l sensors appear to be inta ntained?	ict, in good	✓			
2 Are all the meteorological sensors operational online, and reporting data?							
3 Are th	e shields for the t	temperature and RH senso	ors clean?	V			
Are th	e aspirated moto	rs working?		•			
5 Is the solar radiation sensor's lens clean and free of scratches?							
Is the	surface wetness s	ensor grid clean and unda	maged?	✓ 1	N/A		
	e sensor signal ar ion, and well mai	nd power cables intact, in ntained?	good	V			
	e sensor signal ar he elements and	nd power cable connection well maintained?	s protected	V			
Parameter		Manufacturer	Model		S/N	Clie	nt ID
let tower		Climatronics	14 inch tar	oer	illegible	0136	52
emperatu	е	Climatronics	100093		none	ARS	100
Shield (10 r	neter)	Climatronics	100325		1235	0108	50
Vind Direct	ion	Climatronics	100076		222	9087	76
Vind Spee		Climatronics	100075		1697	9088	31
Solar Radia	ition	Licor	LI-200	NAMES OF THE OWNERS OF THE OWNER,	PY18097	none	Э
Relative Hu	midity	Rotronic	MP 601A		75277	none	Э
Precipitatio		Climatronics	100508-2		illegible	0253	31

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

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Site	ID	YEL408	Technician	Eric Hebert		Site Visit Date	06/06/2013			
	Siting C	riteria: Are the r	oollutant analyzers an	ıd denosition ea	uinm	ent sited in accord	lance with 40 CF	R 58 Appendix E		
1	Do the s		e at least a 270 degree		V					
2	Are the	sample inlets 3 -	15 meters above the g	ground?	V					
3		sample inlets > 1 neters from trees	meter from any majo s?	or obstruction,	10 to 15 meters from trees					
	Pollutan	t analyzers and o	deposition equipment	operations and	mair	ntenance				
1		nalyzers and equ n and well maint	nipment appear to be ained?	in good	V					
2	Are the reportin		onitors operational, o	n-line, and	V					
3	Describe	e ozone sample tu	ıbe.			1/4 teflon by 12 met	ers			
4	Describe	e dry dep sample	tube.		3	3/8 teflon by 9 meters				
5		ne filters used in location)	the ozone sample line	e? (if yes	v	At inlet only				
6	Are sam		ree of kinks, moisture	, and	V					
7	Is the ze	ro air supply des	siccant unsaturated?		V					
8	Are ther	e moisture traps	in the sample lines?		Flow line only					
9	Is there clean?	a rotometer in th	ne dry deposition filte	r line, and is it	✓ (Clean and dry				
Par	ameter		Manufacturer	Model		S/N		Client ID		
San	nple Towe	er	Aluma Tower	В	SPANS	none		illegible		
Ozc	ne	is the who was the self of the	ThermoElectron Inc	49C	10.765	49C-66828-35	54	90714		
Filte	er pack flo	w pump	Thomas	107CA18		09980000974	099800009748 none			
MF	C power s	upply	Tylan	RO-32		FP9403014		03687		
Zer	o air pump)	Werther Internationa	el PC70/4		531393 none				

The shelter and sample tower are located at the edge of the tree line and mountain slope. Small trees are encroaching on the sample tower. Taller trees are 10 to 15 meters from the sample tower.

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Site ID	YEL408	Technician Eric	Hebert	(ESA)	Site Visit Date 06/0	06/2013	
DAS,	sensor translators.	, and peripheral equipmen	<u>ıt operatio</u>	ns aı	nd maintenance		
	e DAS instruments naintained?	s appear to be in good con	dition and	✓			
	l the components on, backup, etc)	of the DAS operational? (p	orinters,	✓			
	e analyzer and sening protection circ	sor signal leads pass throu cuitry?	gh	✓	Met sensors only		
	e signal connectio naintained?	ns protected from the wea	ther and	✓			
5 Are th	e signal leads com	nected to the correct DAS	channel?	✓			
6 Are th		nslators, and shelter propo	erly	✓			
7 Does t	he instrument she	lter have a stable power so	ource?	✓			
8 Is the	instrument shelter	r temperature controlled?		✓			
9 Is the	met tower stable a	and grounded?			Stable	Grounded	
	sample tower stab	le and grounded?				V	
					8		n. The Service Association
Parameter		Manufacturer	Model		S/N	Clier	nt ID
		Manufacturer Gateway	Model Solo		S/N 2500251339	Clier	nt ID
Computer			Solo			-	
Computer		Gateway	Solo		2500251339	none	
Computer DAS =460 transl		Gateway Environmental Sys Corp	Solo 8816		2500251339 2560	none 9064	
Computer DAS F460 transl Mainframe		Gateway Environmental Sys Corp Climatronics	Solo 8816 100163		2500251339 2560 686	none 9064	
Computer DAS F460 transl Mainframe Mainframe	ator	Gateway Environmental Sys Corp Climatronics Climatronics	Solo 8816 100163 100081	oden	2500251339 2560 686 1380 688	none 9064 none none	
Computer DAS =460 transl Mainframe Mainframe Modem	ator	Gateway Environmental Sys Corp Climatronics Climatronics Climatronics	Solo 8816 100163 100081 101074	oden	2500251339 2560 686 1380 688	none 9064 none none none	
Modem Printer	ator	Gateway Environmental Sys Corp Climatronics Climatronics US Robotics	Solo 8816 100163 100081 101074 56k fax me	oden	2500251339 2560 686 1380 688 unknown	none 9064 none none none	

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Site ID	YEL408		Tech	nician	Eric Hebert		Site Visit Date	06/06/2013	3	
Danner	tation									
Document						1.				
Does the s	ite have the requir					iuais .		Van	Ma	NT/A
Wind speed		Yes 🗸	No	N/2		logg	er	Yes 🗸	No	N/A
Wind directi		V		Ī		logg				✓
Temperature		V		Ä			rt recorder			V
Relative hun			✓		120 5 20 50 10 10 10 10 10 10 10 10 10 10 10 10 10	pute			✓	
Solar radiati		✓			Mod				✓	
Surface wetn					Prin	ter			✓	
Wind sensor	translator	✓			Zero	air p	oump		V	
Temperature	e translator	✓					v pump		V	
Humidity ser	nsor translator			✓	Surg	e pro	otector			✓
Solar radiati	on translator		✓		UPS					✓
Tipping buck	ket rain gauge				Ligh	tning	g protection device	e \square		✓
Ozone analy:	zer		✓		Shel	ter he	eater		✓	
Filter pack fl	low controller	✓			Shel	ter ai	r conditioner	✓		
Filter pack N	AFC power supply	✓								
Does the	site have the requi	ired	and m	ost rece	nt QC documen	ts and	d report forms?			
		Pre	sent					Curre	nt	
Station Log			✓	DataVie	ew2		No. of the last of	✓		
SSRF			✓					V		
Site Ops Ma	nual		✓	Jan 200	06			V		
HASP										
Field Ops M	anual									
Calibration 1	Reports		✓	Not cur	rent					
Ozone z/s/p	Control Charts									
Preventive m	naintenance schedu	ı								
1 Is the st	ation log properly	com	pleted	during	every site visit?	V	Dataview			
	a. a									
2 Are the current	Site Status Report	For	ms beii	ng comp	oleted and	V				
					14-3	_				
	chain-of-custody fo transfer to and from			eriy used	1 to document	✓				
4 Are ozo current	ne z/s/p control cha?	arts j	proper	ly comp	leted and		Control charts not ι	ısed		
Provide any	additional explana	tion	(photo	graph o	or sketch if nece	ssary) regarding condi	tions listed a	above,	or any
natural or m	an-made, that may	affe	ect the	monitor	ring parameters					
		ann an	The least the	220000000000000000000000000000000000000						

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Site II	D YEL408 Techn	ician [Eric Hebert	Site Visit Date	6/06/2013	
	Site operation procedures			Tribadh ABO ann		
	Has the site operator attended a forma course? If yes, when and who instructe		I'NE'I' training	Trained by ARS on si	te	
	Has the backup operator attended a fo		CASTNET			
	training course? If yes, when and who					
	s the site visited regularly on the requichedule?	red Tu	esday			
	are the standard CASTNET operation lollowed by the site operator?	al proc	edures being	✓		
5 Is	s the site operator(s) knowledgeable of he required site activities? (including o	, and a locume	ble to perform entation)			
<u>A</u>	re regular operational QA/QC checks	perfo	rmed on meteo	rological instruments?		
QC C	Check Performed		Frequency		Compliant	
Multi	point Calibrations	✓	Semiannuall	у		
Visua	l Inspections	✓	Weekly			
Trans	slator Zero/Span Tests (climatronics)	V	Weekly		<u> </u>	
Manu	ıal Rain Gauge Test	✓	Monthly		✓	
Confi	irm Reasonableness of Current Values		Weekly		V	
Test S	Surface Wetness Response	✓	Weekly	685 SECURIO (1910) S	V	
<u>A</u>	are regular operational QA/QC checks	<u>perfo</u>	rmed on the oz	one analyzer?		
QC C	Check Performed		Frequency		Compliant	
Multi	i-point Calibrations	✓	Monthly and	semiannually	✓	
Autor	matic Zero/Span Tests	✓	Daily		✓	
			T CALL	l-a		
Manu	ıal Zero/Span Tests	✓	Every 2 wee	KS		
	ual Zero/Span Tests matic Precision Level Tests	✓✓	Every 2 wee Daily	KS	✓	
Autor		✓✓	AND THE RESERVE THE PARTY.	KS		
Autor Manu	matic Precision Level Tests	<!--</th--><th>AND THE RESERVE THE PARTY.</th><th></th><th></th><th></th>	AND THE RESERVE THE PARTY.			
Autor Manu Analy	matic Precision Level Tests ual Precision Level Test	✓✓	Daily	s only		
Autor Manu Analy In-lin	matic Precision Level Tests all Precision Level Test yzer Diagnostics Tests	<!--</th--><th>Daily Alarm values</th><th>s only</th><th></th><th></th>	Daily Alarm values	s only		
Autor Manu Analy In-lin	matic Precision Level Tests nal Precision Level Test yzer Diagnostics Tests ne Filter Replacement (at inlet)	> > > > = = = = = = = = = = = = = = = =	Daily Alarm values Every 2 wee	s only		
Autor Manu Analy In-lin In-lin Samp	matic Precision Level Tests pal Precision Level Test yzer Diagnostics Tests the Filter Replacement (at inlet) the Filter Replacement (at analyze	> > >	Daily Alarm values Every 2 wee	s only		
Autor Manu Analy In-lin In-lin Samp Zero	matic Precision Level Tests pal Precision Level Test page Diagnostics Tests page Filter Replacement (at inlet) page Filter Replacement (at analyze page Line Check for Dirt/Water Air Desiccant Check po multi-point calibration gases go three	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Daily Alarm values Every 2 wee N/A Weekly	s only		
Autor Manu Analy In-lin In-lin Samp Zero	matic Precision Level Tests all Precision Level Test yzer Diagnostics Tests the Filter Replacement (at inlet) the Filter Replacement (at analyze the Line Check for Dirt/Water Air Desiccant Check On multi-point calibration gases go threample train including all filters?	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	Daily Alarm values Every 2 wee N/A Weekly	s only ks		
Autor Manu Analy In-lin In-lin Samp Zero	matic Precision Level Tests pal Precision Level Test page Diagnostics Tests page Filter Replacement (at inlet) page Filter Replacement (at analyze page Line Check for Dirt/Water Air Desiccant Check po multi-point calibration gases go three	✓ ✓ ✓ ✓ ✓ ough the	Daily Alarm values Every 2 wee N/A Weekly	s only ks		
Autor Manu Analy In-lin In-lin Samp Zero	matic Precision Level Tests pal Precision Level Test page Diagnostics Tests page Filter Replacement (at inlet) page Filter Replacement (at analyze page Line Check for Dirt/Water Air Desiccant Check po multi-point calibration gases go through train including all filters? page automatic and manual z/s/p gasses go	✓ ✓ ✓ ✓ ough the	Daily Alarm values Every 2 wee N/A Weekly ne complete ugh the	s only ks		
Autor Manu Analy In-lin In-lin Samp Zero 1 D sa 2 D co 3 A	matic Precision Level Tests pal Precision Level Test page Diagnostics Tests page Filter Replacement (at inlet) page Filter Replacement (at analyze page Line Check for Dirt/Water Air Desiccant Check page on multi-point calibration gases go through the page of	ough the certs?	Alarm values Every 2 wee N/A Weekly ne complete ugh the onitored and	s only ks Dataview sary) regarding condition		
Autor Manu Analy In-lin In-lin Samp Zero 1 D sa 2 D co 3 A	matic Precision Level Tests pal Precision Level Test page Tilder Replacement (at inlet) page Filter Replacement (at analyze page Line Check for Dirt/Water Air Desiccant Check Do multi-point calibration gases go through the page of the	ough the certs?	Alarm values Every 2 wee N/A Weekly ne complete ugh the onitored and	s only ks Dataview sary) regarding condition		

Field Systems Data Form F-02058-1500-S9-rev001 Site ID YEL408 Technician Eric Hebert Site Visit Date 06/06/2013 Site operation procedures Is the filter pack being changed every Tuesday as scheduled? ✓ Filter changed morinings Are the Site Status Report Forms being completed and filed correctly? No longer required Are data downloads and backups being performed as scheduled? V Dataview, SSRF Are general observations being made and recorded? How? V Are site supplies on-hand and replenished in a timely fashion? SSRF Are sample flow rates recorded? How? Are samples sent to the lab on a regular schedule in a timely lacksquarefashion? Are filters protected from contamination during handling and shipping? How? Are the site conditions reported regularly to the field operations manager or staff? Compliant **QC Check Performed** Frequency ~ ✓ Semiannually **Multi-point MFC Calibrations** V **✓** Weekly Flow System Leak Checks **Filter Pack Inspection** ~ ✓ Weekly **Flow Rate Setting Checks** V ✓ Weekly **Visual Check of Flow Rate Rotometer In-line Filter Inspection/Replacement** Sample Line Check for Dirt/Water Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters: Gloves are no longer used to handle the filter pack.

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
RO	1206-Eric I	Hebert-06/10/2013				
1	6/10/2013	Computer	Dell	000454	D530	unknown
2	6/10/2013	DAS	Campbell	000415	CR3000	2510
3	6/10/2013	Elevation	Elevation	None	1	None
4	6/10/2013	Filter pack flow pump	Thomas	04986	107CA18	040400022185
5	6/10/2013	Flow Rate	Apex	000598	AXMC105LPMDPCV	unknown
6	6/10/2013	Infrastructure	Infrastructure	none	none	none
7	6/10/2013	Modem	Raven	06473	V4221-V	0808311135
8	6/10/2013	Ozone	ThermoElectron Inc	000734	49i A1NAA	1105347317
9	6/10/2013	Ozone Standard	ThermoElectron Inc	000437	49i A3NAA	CM08200013
10	6/10/2013	Sample Tower	Aluma Tower	666369	В	illegible
11	6/10/2013	Shelter Temperature	Campbell	none	107-L	none
12	6/10/2013	Siting Criteria	Siting Criteria	None	1	None
13	6/10/2013	Temperature	RM Young	02679	41342	none
14	6/10/2013	Zero air pump	Werther International	06900	PC70/4	000821894

DAS Data Form 0.02 **DAS Time Max Error:** Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2510 ROM206 Eric Hebert 06/10/2013 DAS Primary Das Date: 6 /10/2013 **Audit Date** 6 /10/2013 Datel **Parameter** DAS Mfg 12:32:00 Das Time: 12:31:59 **Audit Time** 4000392 Tfer Desc. Source generator (D **Serial Number** Das Day: 161 **Audit Day** 161 Tfer ID 01321 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff:** Max Diff: 1.00000 0.00000 Slope **Intercept** 0.0001 0.0003 0.0001 0.0003 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 86590148 Tfer Desc. DVM 01310 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/27/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0000 0.0000 V V 7 0.1000 0.1000 0.1000 0.00007 0.3000 0.3000 0.2999 V V -0.0001 7 0.5000 0.4999 V V -0.0001 0.5000 7 0.7000 V V -0.0002 0.7001 0.6999 V V 7 0.9000 0.9001 0.8998 -0.0003 7 V V -0.0003 1.0000 1.0001 0.9998

Flow Data Form

Mfg	Serial I	Number Ta	Site	Teo	chnician	Site Visit I	Date Paran	ieter	Owner ID
Apex	unknov	/n	ROM206	Eri	c Hebert	06/10/2013	Flow R	ate	000598
					Mfg	BIOS	P	arameter Fl	ow Rate
					Serial Number	122974	T	fer Desc. Bl	OS 220-H
					Tfer ID	01416			
							-	Г	2 2222
					Slope	1.	00000 Int	ercept	0.0000
					Cert Date	1/8	8/2013 Co	rCoff	1.0000
DAS 1:		DAS 2:		L	Cal Factor Z	ero	-0.0	06	
A Avg % Diff:	A Max % I	i A Avg %	Dif A Max	x % Di	Cal Factor F	ull Scale	0.9	95	
0.78%	0.94	%			Rotometer R	teading:	3.7	7 5	
UseDescription:	Test type	: Input l/m	: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSigna	IIPctDifference
primary	pump off	0.000	0.000	0.01	0.000	-0.03	l/m	l/m	
primary	leak check	0.000	0.000	0.01	0.000	-0.03	l/m	1/m	
primary	test pt 1	0.000	2.976	3.00	0.000	3.00	l/m	1/m	0.81%
primary	test pt 2	0.000	2.982	3.00	0.000	3.00	l/m	1/m	0.60%
primary	test pt 3	0.000	2.972	3.00	0.000	3.00	l/m	l/m	0.94%
Sensor Compo	nent Leak	Test		Conditio	n		Status	pass	
Sensor Compo	nent Filter	Azimuth		Conditio	n 90 deg		Status	pass	
Sensor Compo	nent Filter	Depth		Conditio	1.0 cm		Status	pass	
Sensor Compo	nent Filter	Position		Conditio	n Good		Status	pass	
Sensor Compo	nent Moist	ure Present		Conditio	No moisture p	resent	Status	pass	
Sensor Compo	nent Rotor	neter Conditio	n	Conditio	Clean and dry		Status	pass	
Sensor Compo	onent Syste	m Memo		Conditio	n		Status	pass	_
Sensor Compo	nent Tubir	g Condition		Conditio	n Good			pass	
Sensor Compo	nent Filter	Distance		Conditio	n 5.0 cm		Status	pass	

Ozone Data Form

ThermoElectron Inc 1108347317 ROM208 Eric Hebert D6/10/2013 Ozono D000734	Mfg Serial Number Ta Site			Technician		Site Visit Date Param		Parame	eter	Owner I	D	
DAS 1:	ThermoElectron Inc 1	105347317	ROM206	Eri	ic Hebert		06/10/20	013	Ozone		000734	
Intercept	Slone: 0.9	99603 Slope:	0.00000		Mfg		ThermoE	Electron I	nc Pa	rameter 0	zone	
DAS 1:	•	-		-	Serial N	umber	5171121	75	Tfe	er Desc. C	zone primary	stan
DAS 1: DAS 2:	CorrCoff 0.9	9998 CorrCoff	0.00000		Tfer ID		01111]			
A vg % Diff: A Max % Di	DAS 1:	DAS 2:						0.00720	 	4	0.10	120
UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PetDifference: primary 1 0.59 0.40 0.82 ppb			6Dif A Max %		•				J II	- !		
primary	0.5%	0.8%			Cert Da	te 		1/2/2013	Corr	:Coff	1.00	000
Primary 2 30.46 30.36 30.15 ppb -0.69%	UseDescription:	ConcGroup:							Unit:	PctDi	fference:	
primary 3 50.29 50.24 50.64 ppb 0.80% primary 4 79.97 80.00 80.10 ppb 0.12% primary 5 110.40 110.52 110.30 ppb 0.12% 5 110.40 ppb 0.12% 5 110.30 pps 0.12% 5		1									0.600/	
primary 4 79.97 80.00 80.10 ppb 0.12% primary 5 110.40 110.52 110.30 ppb -0.20% Sensor Component Cell B Noise Condition 0.9 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Line Filter Condition Condition N/A Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.30 Status pass Sensor Component Span Condition 1.036 Status pass Sensor Component Span Condition 1.036 Status pass Sensor Component System Memo Condition 1.05.5 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Good Status pass Sensor Component Cell B Pressure Condition 1.034 lpm Status pass Sensor Component Cell A Tmp. Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Flow Condition 1.3 ppb Status pass Sensor Component Cell A Flow Condition 1.3 ppb Status pass	•											
Sensor Component Cell B Noise Condition Condition Status pass	1 1	-										
Sensor Component Cell B Noise Condition Sensor Component Fullscale Voltage Condition Sensor Component Fullscale Voltage Condition Condition Status pass Sensor Component Inlet Filter Condition Condition Condition Condition Condition Status pass Sensor Component Condition Sensor Component Condition Condition Condition Condition Sensor Component Sensor Component Condition Sensor Component Condition Condition Condition Sensor Component Sensor Component System Memo Condition Condition Condition Condition Sensor Component Sensor Component Sample Train Condition Condition Condition Condition Sensor Component Sensor Component Cell B Pressure Condition Condition Sensor Component Cell B Flow Condition Condition Sensor Component Cell A Tmp. Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Flow Condition Sensor Component Cell A Flow Condition Condition Condition Sensor Component Cell A Flow Condition Condition Condition Condition Sensor Component Cell A Flow Condition Condition Condition Condition Sensor Component Cell A Flow Condition Condition Condition Condition Condition Condition Sensor Component Cell A Flow Condition Condition	•											
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Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Not tested Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition Not tested Status pass Sensor Component Span Condition Not tested Status pass Sensor Component Cell B Freq. Condition Not tested Status pass Sensor Component Span Condition Not tested Status pass Sensor Component Span Condition Not tested Status pass Sensor Component Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component Cell B Flow Condition Not tested Status pass Sensor Component Cell B Flow Condition Not tested Status pass Sensor Component Cell A Freq. Condition Not tested Status pass Sensor Component Cell A Noise Condition Not tested Status pass Sensor Component Cell A Noise Condition Not tested Status pass Sensor Component Cell A Freq. Condition Not tested Status pass Sensor Component Cell A Freq. Condition Not tested Status pass Sensor Component Cell A Freq. Condition Not Status Pass Sensor Component Cell A Freq. Condition Not Status Pass Sensor Component Dell A Freq. Condition Not Status Pass	Sensor Component	Cell B Noise		Conditio	n o.s pp	D .						
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Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition -0.30 Status pass Sensor Component Span Condition 1.036 Status pass Sensor Component Cell B Freq. Condition Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.34 lpm Status Fail Sensor Component Cell A Tmp. Condition 542 mmHg Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status pass Sensor Component Cell A Flow Condition N/A Status pass	Sensor Component	Fullscale Voltage		Conditio	n N/A				Status	pass		
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Sensor Component Span Condition 1.036 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.34 lpm Status Fail Sensor Component Cell A Tmp. Condition 37.8 C Status pass Sensor Component Cell A Pressure Condition 542 mmHg Status pass Sensor Component Cell A Noise Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status Fail Sensor Component Cell A Flow Condition N/A Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Line Loss		Condition Not tested				Status	pass			
Sensor Component Cell B Freq. Condition 105.5 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 37.8 C Status pass Sensor Component Cell A Tmp. Condition 542 mmHg Status pass Sensor Component Cell A Pressure Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status Fail Sensor Component Cell A Flow Condition N/A Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Offset		Condition -0.30				Status	pass			
Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 37.8 C Status pass Sensor Component Cell A Pressure Condition 542 mmHg Status pass Sensor Component Cell A Noise Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status Fail Sensor Component Cell A Flow Condition 0.36 lpm Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Condition 1.036				Status	pass			
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.34 lpm Status Fail Sensor Component Cell A Tmp. Condition 37.8 C Status pass Sensor Component Cell A Pressure Condition 542 mmHg Status pass Sensor Component Cell A Noise Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status pass Sensor Component Cell A Flow Condition 0.36 lpm Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Condition 105.5 kHz				Status	pass			
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Sensor ComponentCell B FlowCondition0.34 lpmStatusFailSensor ComponentCell A Tmp.Condition37.8 CStatuspassSensor ComponentCell A PressureCondition542 mmHgStatuspassSensor ComponentCell A NoiseCondition1.3 ppbStatuspassSensor ComponentCell A Freq.Condition92.1 kHzStatuspassSensor ComponentCell A FlowCondition0.36 lpmStatusFailSensor ComponentBattery BackupConditionN/AStatuspass	Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component Cell A Tmp. Condition 37.8 C Status pass Sensor Component Cell A Pressure Condition 542 mmHg Status pass Sensor Component Cell A Noise Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status pass Sensor Component Cell A Flow Condition 0.36 lpm Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
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Sensor Component Cell A Noise Condition 1.3 ppb Status pass Sensor Component Cell A Freq. Condition 92.1 kHz Status pass Sensor Component Cell A Flow Condition 0.36 lpm Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Conditio	37.8 C	;			Status	pass		
Sensor Component Cell A Freq. Condition 92.1 kHz Status pass Sensor Component Cell A Flow Condition 0.36 lpm Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Conditio	5 42 m	mHg			Status	pass		
Sensor Component Cell A Flow Condition 0.36 lpm Status Fail Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Conditio	1.3 pp	b			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Condition 92.1 kHz				Status	pass			
	Sensor Component	Cell A Flow		Conditio	ondition 0.36 lpm				Status	Fail		
Sensor Component Zero Voltage Condition N/A Status pass	Sensor Component	Battery Backup		Conditio	ondition N/A				Status	pass		
	Sensor Component	Zero Voltage		Conditio	N/A				Status	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young ROM206 Eric Hebert 06/10/2013 Temperature 02679 none Mfg Extech **Parameter** Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.08 0.12 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.08 0.04 0.000 primary Temp Low Range -0.1 \mathbf{C} -0.1 C Temp Mid Range 24.80 24.74 0.000 24.7 -0.01 primary C primary Temp High Range 45.68 45.47 0.000 45.6 0.12 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Sensor Component** Blower **Condition** N/A **Status** pass Sensor Component | System Memo Condition Status pass

Infrastructure Data For

Si	te ID	ROM206	Technician	Eric Hebert	Site Visit Date	06/10/2013	
	Shelter Ma	ake	Shelter Model	She	Iter Size		
	Ekto	AND AND LOCATION CONTROL OF THE CONT	8810 (s/n 2182-	1) 640	cuft		
	CHARLES WATER STATE	TREADERS IN HUMBLANDS	National Property of the Control of	NAMED TO A STREET OF THE PARTY	NECESTAL PROPERTY OF THE PROPE		

Sensor Component	Shelter Roof	Condition	Fair	Status	pass
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	N/A	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Poor	Status	Fail
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	ROM206	Eric Hebert	06/10/2013	Shelter Temperature	none
DAS 1:	DAS 2:		Mfg	Extech	Parameter She	Iter Temperatur
Abs Avg Err Abs	Max Er Abs Avg 0.54	g Err Abs Max Er	Serial Number	H232679	Tfer Desc. RTD	
			Tfer ID	01228		
			Slope	1.00732	2 Intercept	-0.12380
			Cert Date	1/12/2013	B CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	24.83	24.77	0.000	25.3	С	0.48
primary	Temp Mid Range	23.78	23.73	0.000	24.3	С	0.54
primary	Temp Mid Range	26.34	26.27	0.000	25.7	С	-0.54

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	l Problem
Ozone This analyzer diagnostic	ROM206	Eric Hebert ethe manufacturer's	06/10/2013 s recommended	Cell B Flow value.	ThermoElectron	3593		✓
Ozone This analyzer diagnostic	ROM206	Eric Hebert	06/10/2013 s recommended	Cell A Flow value.	ThermoElectron	3593		✓

Field Systems Comments

1 Parameter: ShelterCleanNotes

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

2 Parameter: MetSensorComme

The temperature sensor has been removed from the met tower and mounted in a naturally aspirated shield on the sample tower.

F-02058-1500-S1-rev001

Site ID ROM206	Technician Eric Hebert	Site Visit Date 06/1	0/2013	
Site Sponsor (agency)	EPA	USGS Map	Longs Peak	
Operating Group	private	Map Scale		
AQS#	08-069-9991	Map Date		
Meteorological Type	R.M. Young			
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	40.2778	
Deposition Measurement	dry	QAPP Longitude	-105.5453	
Land Use	woodland - mixed	QAPP Elevation Meters	2743	
Terrain	complex	QAPP Declination	10.3	
Conforms to MLM	Marginally	QAPP Declination Date	2/22/2006	
Site Telephone	(970) 586-2598	Audit Latitude	40.278129	
Site Address 1	High Peak Camp	Audit Longitude	-105.545635	
Site Address 2	Route 7	Audit Elevation	2742	
County	Larimer	Audit Declination	9.0	
City, State	Estes Park, CO	Present		
Zip Code	80517	Fire Extinguisher	Inspected April 2001	
Time Zone	Mountain	First Aid Kit		
Primary Operator		Safety Glasses		
Primary Op. Phone #		Safety Hard Hat		
Primary Op. E-mail		Climbing Belt		
Backup Operator		Security Fence		
Backup Op. Phone #		Secure Shelter		
Backup Op. E-mail		Stable Entry Step		
Shelter Working Room <a>✓	Make Ekto M	odel 8810 (s/n 2182-1)	Shelter Size 640 cuft	
Shelter Clean	Notes The shelter is clean, neat, and been repaired. The floor and o		ns of previous roof leaks, but they have	
Site OK	Notes Notes	The second of th		
	Estes Park take route 7 south approximator High Peak Camp operated by the Salva			
	The second secon	and the second s		

F-02058-1500-S2-rev001

Site ID ROM206 Technician Eric Hebert Site Visit Date 06/10/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		~
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m		✓
Secondary road, lightly traveled	200 m		✓
Feedlot operations	500 m		✓
Intensive agricultural ops (including aerial spraying)	500 m		✓
Limited agricultural operations	200 m		
Large parking lot	200 m		✓
Small parking lot	100 m		
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Comment

F-02058-1500-S3-rev001

Site	· ID	ROM206	Technician	Eric Hebert	22454	Site Visit Date 06/10/2013	
1		d speed and direction fluenced by obstructi		as to avoid	✓	N/A	
2	(i.e. wind horizont	d sensors mounted so d sensors should be n ally extended boom : to the prevailing win	nounted atop the >2x the max dian	tower or on a	✓	N/A	
3	Are the	tower and sensors pl	umb?		✓	N/A	
4		temperature shields diated heat sources s			✓		
5	Are temperature and RH sensors sited to avoid unnatural conditions? (i.e. ground below sensors should be natural surface and not steeply sloped. Ridges, hollows, and areas of standing water should be avoided)				✓		
6	Is the so	lar radiation sensor j	olumb?		✓	N/A	
7	Is it sited light?	d to avoid shading, o	r any artificial or	reflected	✓	N/A	
8	Is the ra	in gauge plumb?			✓	N/A	
9	Is it sited towers, o	d to avoid sheltering etc?	effects from buil	dings, trees,	✓	N/A	
10	Is the su facing n	rface wetness sensor orth?	sited with the gr	id surface	✓	N/A	
11	Is it inc	lined approximately	30 degrees?		✓	N/A	
	A TOTAL CONTRACTOR OF THE PARTY	additional explanation				y) regarding conditions listed above, or	any other features,

The temperature sensor has been removed from the met tower and mounted in a naturally aspirated shield on the sample tower.

Do all the meterological sensors appear to be intact, in good condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? Are the aspirated motors working? Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? RM Young 41342 none 02679 wide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, and or man-made, that may affect the monitoring parameters:		ystems Data	a Form			F-02058-1500-S4-rev00				
Are the shields for the temperature and RH sensors clean? Are the aspirated motors working? Are the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Tameter Manufacturer Model S/N Client ID The properature RM Young 41342 none 102679 The properature sensor signal conditions listed above, or any other features, or	te ID	ROM206	Technician E	Fric Hebert		Site Visit Date 06/10	0/2013			
Are the shields for the temperature and RH sensors clean? Are the aspirated motors working? Are the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Tameter Manufacturer Model S/N Client ID The properature RM Young 41342 none 102679 The properature sensor signal conditions listed above, or any other features, or										
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Is the solar radiation sensor's lens clean and free of scratches? Is the surface wetness sensor grid clean and undamaged? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Trameter Manufacturer Model S/N Client ID Manufacture RM Young Manufacturer Model S/N	Are th	ne shields for the te	emperature and RH ser	nsors clean?	✓					
Is the surface wetness sensor grid clean and undamaged? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? The sensor signal and power cable connections protected from the elements and well maintained? The sensor signal and power cable connections protected from the elements and well maintained? The sensor signal and power cable connections protected from the elements and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and well maintained? The sensor signal and power cables intact, in good condition, and the sensor signal and power cables intact, in good condition, and the sensor signal and power cables in	Are th	ne aspirated motor	s working?		✓	N/A				
Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Trameter Manufacturer Model S/N Client ID Imperature RM Young 41342 none 02679 Wide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,			isor's lens clean and fr	ee of	✓	N/A				
condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? rameter Manufacturer Model S/N Client ID mperature RM Young 41342 none 02679 wide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Is the	surface wetness se	nsor grid clean and un	damaged?	✓	N/A				
rameter Manufacturer Model S/N Client ID mperature RM Young 41342 none 02679 wide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	condition, and well maintained? Are the sensor signal and power cable connections protected									
mperature RM Young 41342 none 02679 vide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,										
vide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	arametei		Manufacturer	Model		S/N	Client ID			
	mperatu	re	RM Young	41342	SEC. OF	none	02679			
	inperatu	Property Commence	ation (photograph or s	sketch if necessa	ary)	reading researched	ASSESSMENT REPORTS	atures,		
			ay affect the monitorin	g parameters:						
			ay affect the monitorin	g parameters:						
			ay affect the monitorin	g parameters:						
			ay affect the monitorin	g parameters:						
			ay affect the monitorin	g parameters:						

F-02058-1500-S5-rev001

Site	ID	ROM206	Technician E	ric Hebert		Site Visit Date	06/10/2013	errich A		
	Siting (Critorios Arotho	pollutant analyzers an	d danasitian oa	uinma	nt cited in accord	longo with 10 CFI	2 58 Appendix E		
			ve at least a 270 degree		<u> </u>	nt siteu iii accort	iance with 40 CFF	X 30, Appendix E		
		ricted airflow?	ve at least a 270 degree	arc or						
2	Are the	e sample inlets 3	- 15 meters above the g	round?	✓					
		e sample inlets > meters from tre	1 meter from any majo es?	r obstruction,	✓					
	Polluta	nt analyzers and	deposition equipment	operations and	main	enance				
		analyzers and ed on and well main	quipment appear to be intained?	n good	V					
		analyzers and r	nonitors operational, or	ı-line, and	V					
3	Describ	oe ozone sample	tube.		1/	1/4 teflon by 12 meters				
4	Describ	oe dry dep sampl	le tube.		3/	3/8 teflon by 12 meters				
	Are in-line filters used in the ozone sample line? (if yes indicate location)				A	t inlet only				
	Are sample lines clean, free of kinks, moisture, and obstructions?				✓					
7	Is the z	ero air supply d	esiccant unsaturated?		V					
8	Are the	ere moisture trap	os in the sample lines?		V					
	Is there clean?	e a rotometer in	the dry deposition filter	line, and is it	C	lean and dry				
Para	ameter		Manufacturer	Model		S/N		Client ID		
Sam	ple Tow	ver	Aluma Tower	В	25000000	illegible	[666369		
Ozo	ne		ThermoElectron Inc	49i A1NAA	ERNOTES	1105347317	. [0	000734		
Zero	air pum	np	Werther Internationa	PC70/4		000821894	. (06900		
Filte	r pack fl	ow pump	Thomas	107CA18		04040002218	5	04986		
			nation (photograph or s ay affect the monitorin		ary) r	egarding condition	ons listed above, or	any other features,		
					STATE OF THE STATE					

F-02058-1500-S6-rev001

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? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473	Site ID	ROM206	Technician	Eric Hebert		Site Visit Date 06	6/10/2013	
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? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473	DAS,	sensor translators, and	l peripheral equi	pment operation	ns aı	nd maintenance		
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? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473	1 Do the well n	e DAS instruments appaintained?	pear to be in goo	d condition and	✓			
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? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,			ne DAS operation	al? (printers,	✓			
well maintained? Are the signal leads connected to the correct DAS channel? Are the DAS, sensor translators, and shelter properly grounded? Does the instrument shelter have a stable power source? Is the instrument shelter temperature controlled? Is the met tower stable and grounded? Is the sample tower stable and grounded? It Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,				through	>	Met sensors only		
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? 10 Is the sample tower stable and grounded? 11 Tower comments? 12 Parameter Manufacturer Model S/N Client ID 13 Computer Dell D530 unknown 000454 14 DAS Campbell CR3000 2510 000415 15 Modem Raven V4221-V 0808311135 06473			rotected from th	e weather and	✓			
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? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473	5 Are th	ne signal leads connect	ed to the correct	DAS channel?	V			
8 Is the instrument shelter temperature controlled? 9 Is the met tower stable and grounded? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,			tors, and shelter	properly	✓			
9 Is the met tower stable and grounded? 10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	7 Does t	the instrument shelter	have a stable po	wer source?	✓			
10 Is the sample tower stable and grounded? 11 Tower comments? Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	8 Is the	instrument shelter ten	nperature contro	lled?	✓			
Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	9 Is the	met tower stable and	grounded?			Stable	Grounded	
Parameter Manufacturer Model S/N Client ID Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	10 Is the	sample tower stable a	nd grounded?			✓	V	
Computer Dell D530 unknown 000454 DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	11 Tower	r comments?						
DAS Campbell CR3000 2510 000415 Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Parameter	r I	Manufacturer	Model		S/N	Clie	ent ID
Modem Raven V4221-V 0808311135 06473 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Computer	[Dell	D530		unknown	000	454
Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	DAS	STORY OF THE STORY			19500		osterio estrucción de traca	reserved was also being a fire
	Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:							

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Site ID ROM206		Tech	nician	Eric Hebert		Site Visit Date	06/10/2013	3	
<u>Documentation</u>									
Does the site have the requir					anuals?				
Wind speed sensor	Yes	No	N/2		ta logg	o r	Yes	No ✓	N/A
Wind direction sensor	T		✓		ita loggi ita loggi		i i		✓
Temperature sensor	✓					rt recorder		H	✓
Relative humidity sensor					mputer		~		
Solar radiation sensor			✓		odem			✓	
Surface wetness sensor			✓		inter		✓		
Wind sensor translator				Ze	ro air p	oump		<u> </u>	
Temperature translator			✓			v pump		V	
Humidity sensor translator			✓		rge pro				v
Solar radiation translator			✓	UI	PS			✓	
Tipping bucket rain gauge			✓	Li	ghtning	protection device	e \square		✓
Ozone analyzer	✓			Sh	elter he	eater		~	
Filter pack flow controller	V			Sh	elter ai	r conditioner		✓	
Filter pack MFC power supply	V								
Does the site have the requi	ired ar	nd mo	st rece	nt QC docum	ents and	d report forms?			
	Prese	ent					Curre	nt	
tation Log	V	•	30.5545.535		90 P. S.		✓		
SRF	V	7					✓		
Site Ops Manual	V	•	Oct 200)1		A			
IASP	V		Oct 201	1					
ield Ops Manual									
alibration Reports	V	7					✓		
Ozone z/s/p Control Charts									
reventive maintenance schedu	d 🔽	7					V		
1 Is the station log properly	compl	eted (during	every site visit	? 🗸				
2 Are the Site Status Report current?	Form	s beir	ng comp	oleted and	•				
3 Are the chain-of-custody f sample transfer to and fro			rly used	d to document	✓				
4 Are ozone z/s/p control chacurrent?	arts pr	operl	ly comp	leted and		Control charts not	used		
Provide any additional explana natural or man-made, that may						regarding cond	itions listed	above,	or any ot
	DOMESTIC OF THE PARTY OF THE PA	Carl Control		ELECTRIC STORY	7.100/2002		ONE RECEIPTION TO A LEGIS		THE REAL PROPERTY.

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Site ID	ROM206	Technician Eric Hebert	S	ite Visit Date 06/10/2013	
	te operation procedures	ed a formal CASTNET traini	Train	ed on site by MACTEC employee duri	ng site installation
	urse? If yes, when and who		ig 🗸 Hain	ed on site by MACTEC employee dun	ng site installation
2 Ha	as the backup operator atto	ended a formal CASTNET	Train	ed by site operator	
	nining course? If yes, when				na sensena sensena se successione se sensena se
	he site visited regularly on edule?	the required Tuesday	V		
	e the standard CASTNET lowed by the site operator	operational procedures being?			
5 Is t the	he site operator(s) knowled required site activities? (in	dgeable of, and able to perfor ncluding documentation)	m 🗹		
Are	e regular operational QA/(OC checks performed on met	eorological i	instruments?	
OC Cho	eck Performed	Frequenc	v	Compliant	
	oint Calibrations	✓ N/A			
	Inspections	✓ N/A	CATHERING MINERSONS INC.		
	ntor Zero/Span Tests (clima	atronics) N/A	After Calcul, Sanctin	V	
	l Rain Gauge Test	✓ N/A		✓	
	n Reasonableness of Curre	ent Values 🔽 N/A		V	
Test Su	rface Wetness Response	✓ N/A		V	
Arc	e regular operational QA/(OC checks performed on the	ozone analy	zer?	
QC Che	eck Performed	Frequenc	y	Compliant	
Multi-p	oint Calibrations	✓ Semiannu	allv		
Automa	atic Zero/Span Tests	✓ Daily		✓	
	l Zero/Span Tests				
	atic Precision Level Tests	✓ Daily	CT NAME OF STREET, COPY OF ASSOCIA		
Manual	l Precision Level Test				
Analyzo	er Diagnostics Tests	✓ Weekly			
In-line	Filter Replacement (at inle	et) Every 2 w	eeks	✓	
In-line	Filter Replacement (at ana		AUNI CARRA SONORIA	✓	
Sample	Line Check for Dirt/Wate			V	
Zero Ai	ir Desiccant Check	Weekly	Same Contract	✓	
1 Do	multi-point calibration gas	ses go through the complete	✓		And the state of t
san	nple train including all filte	ers?			
	automatic and manual z/s/				
	nplete sample train includi	ng all filters? al z/s/p checks monitored and	✓ SSRI	=, call-in	
	orted? If yes, how?	ii z/s/p checks momtored and	0011	, 64	
				arding conditions listed above, or a	ny other features,
natural	or man-made, that may af	fect the monitoring paramete	rs:		

F-02058-1500-S9-rev001

Site	e ID	ROM206	Tecl	nician	Eric Hebert		Site Visit Date	e 06/10/2013
	Site or	peration procedures						
1	Is the	filter pack being change	d every	Tuesda	ay as scheduled?	✓	Filter changed mo	rinings 50% of the time
2	Are th	e Site Status Report For tly?	ms bei	ng comp	pleted and filed	V		
3	Are da	nta downloads and backu uled?	ıps bei	ng perfo	ormed as		No longer required	ı
4	Are ge	eneral observations being	g made	and red	corded? How?	✓	SSRF, logbook	
5	Are sit	te supplies on-hand and in?	repleni	shed in	a timely	✓		
6	Are sa	mple flow rates recorded	d? Hov	v ?		✓	SSRF, call-in	
7	Are sa	imples sent to the lab on n?	a regul	ar sche	dule in a timely	✓		
8		ters protected from cont	amina	tion dui	ring handling	✓	one set of gloves of	only
9	Are th	e site conditions reported tions manager or staff?	d regul	arly to	the field	✓		
QC	Check	Performed		Free	quency			Compliant
N	Iulti-po	oint MFC Calibrations		✓ Sem	iannually	OL O		V
F	low Sys	stem Leak Checks		Wee	kly	100.00		
		nck Inspection						
		te Setting Checks		Wee	SERVICE AND PARTY OF THE PARTY			▽
		Check of Flow Rate Rotor		Wee	ekly	APP VIII		✓✓
		Tilter Inspection/Replace		✓ N/A ✓ Wee	I de	terativa		
		Line Check for Dirt/Wat				1691		
		additional explanation (nan-made, that may affe					y) regarding condi	tions listed above, or any other features,
				3 500 2 50 52 52	6-PB-9-77-8-77-77-77-77-77-77-77-77-77-77-77-7	The state of the s		

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
ROM	1406-Eric 1	Hebert-06/10/2013				
1	6/10/2013	Computer	Toshiba	none	Terca	unknown
2	6/10/2013	DAS	Environmental Sys Corp	90535	8816	2025
3	6/10/2013	Elevation	Elevation	None	1	None
4	6/10/2013	Filter pack flow pump	Thomas	02978	107CAB18	0493002494
5	6/10/2013	flow rate	Tylan	03393	FC280AV	AW9403024
6	6/10/2013	Infrastructure	Infrastructure	none	none	none
7	6/10/2013	Met tower	Rohn	none	unknown	none
8	6/10/2013	MFC power supply	Tylan	none	RO-32	illegible
9	6/10/2013	Modem	US Robotics	none	33.6 fax modem	unknown
10	6/10/2013	Ozone	ThermoElectron Inc	none	49i A3NAA	1030745086
11	6/10/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1130450194
12	6/10/2013	Precipitation	Climatronics	01620	100508-2	illegible
13	6/10/2013	Printer	Hewlett Packard	none	842C	unknown
14	6/10/2013	Relative Humidity	Rotronic	none	MP 601A	56091
15	6/10/2013	Sample Tower	Aluma Tower	illegible	В	none
16	6/10/2013	Shelter Temperature	ARS	none	none	none
17	6/10/2013	Shield (10 meter)	RM Young	none	unknown	none
18	6/10/2013	Shield (2 meter)	RM Young	none	unknown	none
19	6/10/2013	Siting Criteria	Siting Criteria	None	1	None
20	6/10/2013	Solar Radiation	Licor	none	LI-200	PY19983
21	6/10/2013	Solar Radiation Translator	RM Young	none	70101-X	none
22	6/10/2013	Temperature	RM Young	none	41342	17079
23	6/10/2013	Temperature2meter	RM Young	none	41342	17078
24	6/10/2013	Wind Direction	RM Young	none	AQ05103-5	89123wdr
25	6/10/2013	Wind Speed	RM Young	none	AQ05103-5	89123wsp
26	6/10/2013	Zero air pump	Werther International	none	PC70/4	531391

DAS Data Form

DAS Time Max Error:

0.4

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2025	ROM406	Eric Hebert	06/10/2013	DAS	Primary
	0/2013 Audit D 2:30:00 Audit T 161 Audit D	ime 12:30:24	Mfg Serial Number	Datel 4000392	Parameter Tfer Desc.	DAS Source generator (D
Low Channel:	High Ch	annel:	Tfer ID	01321		
Avg Diff: Ma 0.0000	0.0001 Avg Diff: 0.0001	Max Diff: .0001 0.0002	Slope Cert Date	1.0000 2/13/201		0.00000
			Mfg	Fluke	Parameter	DAS
			Serial Number	86590148	Tfer Desc.	DVM
			Tfer ID	01310		
			Slope	1.0000	0 Intercept	0.00000
			Cert Date	1/27/201	3 CorrCoff	1.00000
Channel Int	DVM Outpu	t DAS Output	InputUnit	OutputUnit	Difference	

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
2	0.0000	0.0000	0.0000	V	V	0.0000
2	0.1000	0.1000	0.1000	V	V	0.0000
2	0.3000	0.3000	0.3000	V	V	0.0000
2	0.5000	0.5000	0.4999	V	V	-0.0001
2	0.7000	0.7000	0.7000	V	V	0.0000
2	0.9000	0.9000	0.8999	V	V	-0.0001
2	1.0000	1.0001	1.0000	V	V	-0.0001
12	0.0000	0.0000	0.0000	V	V	0.0000
12	0.1000	0.1000	0.0998	V	V	-0.0002
12	0.3000	0.3000	0.3000	V	V	0.0000
12	0.5000	0.5000	0.5000	V	V	0.0000
12	0.7000	0.7000	0.6999	V	V	-0.0001
12	0.9000	0.9000	0.9000	V	V	0.0000
12	1.0000	1.0001	1.0000	V	V	-0.0001

Flow Data Form

Mfg	S	erial Nun	iber Ta	Site	Tec	hnician	Site Visit l	Date Param	eter	Owner ID
Tylan	A	W940302	24	ROM406	Erio	Hebert	06/10/201	3 flow rat	te	03393
Mfg	Tylan	l				Mfg	BIOS	P	arameter Flo	w Rate
SN/Owner ID	illegib	ole	none			Serial Number	122974	T	fer Desc. BIC	OS 220-H
Parameter		power sup	noly			Tfer ID	01416			
1 at afficter		power sup	ургу					22222		0.0000
						Slope	1.	.00000 Inte	ercept	0.00000
					1	Cert Date	1/	8/2013 Cor	rCoff	1.00000
DAS 1:			DAS 2:		_	Cal Factor Z	ero	0.0)4	
A Avg % Diff:	A Ma	x % Di	A Avg %l	Dif A Max	x % Di	Cal Factor F	ull Scale	5.4	 6	
0.32%		0.35%				Rotometer R	eading:	3.9	95	
UseDescription	Te	st type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference
primary	pump		0.000	0.000	-0.05	-0.0150	0.02	l/m	l/m	
primary	leak c	check	0.000	0.000	-0.05	-0.0150	0.02	l/m	l/m	
primary	test p	t 1	0.000	2.998	3.05	2.7380	3.01	l/m	l/m	0.32%
primary	test p	t 2	0.000	2.998	3.05	2.7380	3.01	l/m	l/m	0.35%
primary	test p	t 3	0.000	3.000	3.05	2.7380	3.01	l/m	l/m	0.28%
Sensor Comp	onent	Leak Tes	t		Condition	1		Status	pass	
Sensor Comp	onent	Filter Azir	muth		Condition	180 deg		Status	pass	
Sensor Comp	onent	Filter Dep	oth		Condition	1.0 cm		Status	fail	
Sensor Comp	onent	Filter Pos	ition		Condition	Poor		Status	fail	
Sensor Comp	onent	Moisture	Present		Condition	No moisture pr	resent	Status	pass	
Sensor Comp	onent	Rotomete	er Condition	1	Condition	Clean and dry		Status	pass	
Sensor Comp	onent	System M	1emo		Condition	See comments	3	Status	pass	
Sensor Comp	onent	Tubing C	ondition		Condition	Good		Status	pass	
Sensor Component Filter Distance			Condition	5.5 cm	Status	Status pass				

Ozone Data Form

Mfg Se	erial Number Ta	Site	Teo	chnician		Site Vis	it Date	Parame	ter	Owner ID
ThermoElectron Inc 1	030745086	ROM406	Eri	c Heber	t	06/10/2	013	Ozone		none
Intercept 0.3	Slope: Intercept CorrCoff	0.00000 0.00000 0.00000		Mfg Serial N Tfer ID	Number	Thermol 5171121			rameter (ozone Ozone primary stan
DAS 1:	DAS 2:			Slope			0.99720	0 Inter	cent	0.18428
A Avg % Diff: A Ma		6Dif A Max 9		_					•	
0.4%	0.6%			Cert Da	ite		1/2/201	3 Corr	Coff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site	Unit:	PctD	ifference:
primary	1	0.32	0.1			50	ppb			
primary	2	31.40	31.	30	31.	.12	ppb			-0.58%
primary	3	49.81	49.	76	50.	.02	ppb			0.52%
primary	4	80.17	80.2	21	80.	.14	ppb			-0.09%
primary	5	110.10	110.	.22	109	0.70	ppb			-0.47%
Sensor Component	Cell B Noise		Conditio	0.9 pp	ob			Status	pass	
Sensor Component	Cell B Tmp.		Conditio	n				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	n 0.999	5			Status	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	n Clear	l			Status	pass	
Sensor Component	Line Loss		Conditio	n Not te	ested			Status	pass	
Sensor Component	Offset		Conditio	0.000				Status	pass	
Sensor Component	Span		Conditio	n 1.008				Status	pass	
Sensor Component	Cell B Freq.		Conditio	73.6 l	кНz			Status	Fail	
Sensor Component	System Memo		Conditio	n See c	omments	i		Status	pass	
Sensor Component	Sample Train		Conditio	n Good				Status	pass	
Sensor Component	Cell B Pressure		Conditio	n				Status	pass	
Sensor Component	Cell B Flow		Conditio	0.58 I	pm			Status	pass	
Sensor Component	Cell A Tmp.		Conditio	34.0 (0			Status	pass	
Sensor Component	Cell A Pressure		Conditio	n 538 n	nmHg			Status	pass	
Sensor Component	Cell A Noise		Conditio	0.8 pp	ob			Status	pass	
Sensor Component	Cell A Freq.		Conditio	66.1 l	кНz			Status	Fail	
Sensor Component	Cell A Flow		Conditio	on 0.57 I	pm			Status	pass	
Sensor Component	Battery Backup		Conditio	n N/A				Status	pass	
Sensor Component	Zero Voltage		Conditio	n -0.000	02			Status	pass	

Wind Speed Data Form Mfg Serial Number Ta Site **Technician** Site Visit Date Parameter Owner ID ROM406 Wind Speed RM Young Eric Hebert 06/10/2013 89123wsp none Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (h Serial Number 01262 Tfer ID 0.00000 1.00000 **Slope Intercept** 68464 Prop or Cups SN 0.3 **to** 0.3 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** 0.0512 Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (I **Serial Number** 01261 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/13/2010 1.00000 **Cert Date** CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 0.05 0.00% Abs Avg Err 0.20 0.00% Abs Max Er UseDescription: InputDevice: Input RPM: Output V: Diff/ % Diff: Difference: Input m/s: DAS m/s: none 0 0.20 0.0000 0.0 -0.20 primary 01262 200 1.02 0.0000 1.0 0.00 primary primary 01262 400 2.05 0.0000 2.1 0.00 4.10 4.1 0.00 01262 800 0.0000 primary 6.1 primary 01262 1200 6.14 0.0000 0.00% 12.29 0.0000 12.3 0.00% primary 01262 2400 01262 4000 20.48 0.0000 20.5 0.00% primary 48.1 primary 01262 9400 48.13 0.0000 0.00% Sensor Component | System Memo Status pass **Condition** Sensor Component | Sensor Plumb Condition Plumb **Status** pass Sensor Component | Sensor Heater **Condition** N/A Status pass Sensor Component Prop or Cups Condition **Condition** Good Status pass Sensor Component | Condition **Condition** Good Status pass Sensor Component | Torque **Condition** Good **Status** pass

Wind Direction Data Form

Sensor Component Condition

Sensor Component Sensor Heater

Sensor Component Sensor Plumb

Sensor Component Vane Condition

Sensor Component System Memo

Sensor Component Torque

Mfg	Serial Nu	nber Ta	Site		Technician	Site Visit	Date Para	meter	Owner ID
RM Young	89123wdr		ROM40	6	Eric Hebert	06/10/20	13 Wind	Direction	none
Vane SN: N/A C. A. Align. deg. to Vane Torque 12 to 15					Mfg Serial Num Tfer ID Slope Cert Date Mfg Serial Num Tfer ID	01265 RM Youn	1/4/2011 C	Tfer Desc. to the tercept orrCoff	vind direction ransit 0.00000 1.00000 wind direction wind direction wheel
	DAS 1:		D	OAS 2:					
		Linearit		Orientation	Linearity:				
Abs Avg Err	9.7		10.8						
Abs Max Er	13		43						
UseDescription	on: TferID:	In	put Raw:	Linearity	Output V:	Output Deg.:	Difference:	Change:	Error:
primary	01266		0	✓	0.0000	26	26		43
primary	01266		45	✓	0.0000	60	15	34	-11
primary	01266		90	✓	0.0000	101	11	41	-4
primary	01266		135	✓	0.0000	140	5	39	-6
primary	01266		180	✓	0.0000	180	C	40	-5
primary	01266		225	✓	0.0000	220	5	40	-5 -7
primary	01266		270	✓	0.0000	258	12	38	-7
primary	01266		315	~	0.0000	298	17	40	-5
primary	01265		96		0.0000	104	8		8
primary	01265		236		0.0000	228	8		8
primary	01265		276		0.0000	263	13		13
Sensor Com	ponent Mast			Cond	lition Good		Stat	us pass	

Condition Poor

Condition N/A

Condition Plumb

Condition Good

Condition Good

Condition See comments

Status Fail

Status pass

Status pass

Status pass

Status pass

Status pass

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young 17079 ROM406 Eric Hebert 06/10/2013 Temperature none Mfg Extech Parameter Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err Abs Max Er **Cert Date** CorrCoff Abs Avg Err Abs Max Er 0.10 0.10 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: 0.0000 -0.09 primary Temp Low Range 0.13 0.25 0.16 \mathbf{C} C Temp Mid Range 25.40 25.34 0.0000 25.44 0.1 primary 48.52 C primary Temp High Range 48.65 48.42 0.00000.1 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Condition** Functioning **Sensor Component** Blower **Status** pass Sensor Component System Memo Condition Status pass

2 Meter Temperature Data For Calc. Difference Serial Number Ta **Technician** Site Visit Date Parameter Mfg **Owner ID** ROM406 RM Young 17078 Eric Hebert 06/10/2013 Temperature2meter none Mfg Extech **Parameter** Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2: Cert Date** 1/12/2013 1.00000 CorrCoff Abs Avg Err Abs Max Er Abs Avg Err Abs Max Er 0.11 0.2 InputTmpRaw | InputTmpCorrected: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDescription: Test type: primary Temp Low Rang 0.13 0.25 0.0000 0.45 C 0.2 Temp Mid Rang 25.40 25.34 0.0000 25.48 C 0.14 primary 0 primary Temp High Ran 48.65 48.42 0.0000 48.42 C Sensor Component Blower Status Switch **Condition** N/A **Status** pass Sensor Component System Memo **Condition Status** pass **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | Properly Sited Condition Properly sited Status pass Condition Clean Sensor Component | Shield **Status** pass

Humidity Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site ROM406 Eric Hebert 06/10/2013 Relative Humidity Rotronic 56091 none Mfg Rotronic **Parameter** Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 1.00000 0.00000 Slope **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 8.0 4.2 Abs Avg Err 1.0 4.2 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 0.0 0.3375 33.8 primary 32.8 1.0 RH Low Range 52.9 0.0 -0.6 primary Hygroclip 52.9 0.5232 52.3 primary RH High Range Hygroclip 93.6 0.0 93.6 0.8935 89.4 -4.2 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Condition Functioning Status pass Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Condition Clean **Status** pass Sensor Component Shield **Condition** Clean Status pass

Solar Radiation Data Form Serial Number Ta **Technician** Mfg Site Visit Date Parameter Owner ID PY19983 Eric Hebert Solar Radiation Licor ROM406 06/10/2013 none Mfg **Eppley** Parameter solar radiation RM Young Mfg 10765 Tfer Desc. SR transfer translat **Serial Number** none none **SN/Owner ID** 01246 Tfer ID Solar Radiation Translator **Parameter** Slope 1.00000 **Intercept** 0.00000 **DAS 1: DAS 2:** 1/6/2010 1.00000 **Cert Date** CorrCoff % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max Parameter solar radiation Mfg **Eppley** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 Tfer ID 01245 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 0.0% 3.1% 7.1% 0.0% Measure Date MeasureTime Tfer Corr: PctDifference: UseDescription: DAS w/m2: 6/10/2013 12:00 871 869 -0.2% primary -1.0% 6/10/2013 13:00 483 478 primary primary 6/10/2013 14:00 628 621 -1.1% 399 405 1.5% primary 6/10/2013 16:00 6/11/2013 5:00 47 50 6.4% primary primary 6/11/2013 6:00 290 285 -1.7% 6/11/2013 7:00 513 503 -1.9% primary 6/11/2013 8:00 707 683 -3.4% primary 6/11/2013 10:00 1001 938 -6.3% primary 6/11/2013 1070 994 -7.1% 11:00 primary Sensor Component | Sensor Level **Condition** Level Status pass Sensor Component | Sensor Clean Condition Clean Status pass Sensor Component | Properly Sited Condition Properly sited **Status** pass Sensor Component | System Memo **Status** pass Condition

Precipitation Data Form

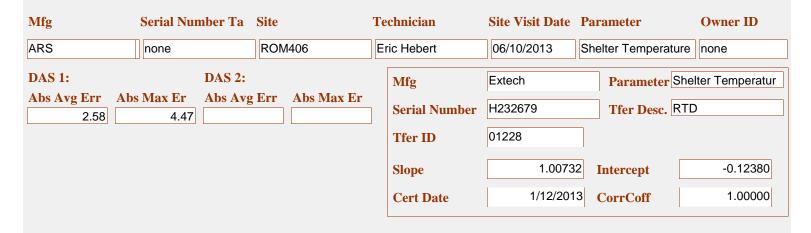
Mfg	S	erial N	Number Ta	Site		Te	chnician		Site	Visit Date	Parame	eter		Owner ID
Climatronics	Į.	llegible	•	ROM406		Er	ic Hebert		06/	10/2013	Precipita	ation		01620
			2100				Mfg		PMF					ipitation
DAS 1: A Avg % Diff 0.0%		x % D		Dif A	Max % Di		Serial Nur Tfer ID	nber	012	-06134-50 50	Tfo	er Desc	. 250r	nl graduate
							Slope			1.0000	0 Inter	cept		0.00000
							Cert Date			9/5/200	05 Corr	Coff		1.00000
UseDesc.	Test t	ype:	TferVolume:	Iteration:	TimePerTi	ip:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Un	it: Tfer	Units:	PctDifference
primary	tip chec	ck	10 manual	1	2 sec		1.00	1.0	00	mm	mm	n	nl	
primary	test 1		231.5	1	8 sec		5.00	5.	00	mm	mm	n	nl	0.0%
primary	test 2		231.5	2	10 sec		5.00	5.	00	mm	mm	n	nl	0.0%
Sensor Com	ponent	Syste	m Memo		Cond	itio	See com	ments	i		Status	pass		
Sensor Com	ponent	Senso	or Heater		Cond	itio	Function	ing			Status	pass		
Sensor Com	ponent	Prope	erly Sited		Cond	itio	See com	ments	;		Status	pass		
Sensor Com	ponent	Gaug	e Drain Scree	n	Cond	itio	Not insta	lled			Status	Fail		
Sensor Com	ponent	Level			Cond	itio	Level				Status	pass		
Sensor Com	ponent	Gaug	e Clean		Cond	itio	Clean				Status	pass		
Sensor Com	ponent	Funne	el Clean		Cond	itio	Clean				Status	pass		
Sensor Com	ponent	Condi	tion		Cond	itio	Good				Status	pass		
Sensor Com	ponent	Gaug	e Screen		Cond	itio	Not insta	lled			Status	Fail		

Infrastructure Data For

Si	te ID	ROM406	Technician	Eric Hebert	Site Visit Date	06/10/2013	
	Shelter Ma	ake	Shelter Model	SI	helter Size		
	Ekto		8814 (s/n 3062-	1) 89	96 cuft		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Met Tower	Condition	Good	Status	pass
Sensor Component	Moisture Trap	Condition	Not installed	Status	Fail
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	Good	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Good	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Fair	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Fair	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	19.11	19.09	0.000	22.0	C	2.91
primary	Temp Mid Range	21.38	21.35	0.000	21.7	С	0.37
primary	Temp Mid Range	17.22	17.22	0.000	21.7	C	4.47

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Flow Rate	ROM406	Eric Hebert	06/10/2013	Filter Position	Tylan	1578		✓
The filter attachment plorientation.	ate is mounted to	oo low in the enclos	sure resulting in	the filter being expo	sed to wind-driven	rain and in the	standard ge	ometric
Ozone	ROM406	Eric Hebert	06/10/2013	Cell B Freq.	ThermoElectron	3779		✓
This analyzer diagnosti	c check is outsid	e the manufacturer's	s recommended	value.				
Ozone	ROM406	Eric Hebert	06/10/2013	Cell A Freq.	ThermoElectron	3779		✓
This analyzer diagnosti	c check is outsid	e the manufacturer's	s recommended	value.				
Precipitation	ROM406	Eric Hebert	06/10/2013	Properly Sited	Climatronics	3769		✓
Objects violate the 45 d	legree rule for th	e tipping bucket rai	n gage.					
Shelter Temperature	ROM406	Eric Hebert	06/10/2013	Accuracy Mid Ra	ARS	2274		✓
The shelter temperature	e is going outside	e CFR requirements	for pollutant mo	onitor operation.				

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is doing a very good job performing the site duties and expressed an interest in trying to improve any deficiencies. The sample flow rate systems for both the dry deposition and ozone sample trains were explained during the audit at the request of the site operator.

2 Parameter: SiteOpsProcedures

Mercury thermometer was removed from the shelter during the site audit. The site operator has requested additional training from ARS.

3 Parameter: ShelterCleanNotes

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

4 Parameter: MetSensorComme

The tipping bucket rain gage and solar radiation sensor have been moved to the roof of the shelter since the previous audit visit. Both temperature sensor shields have been replaced with new models.

5 Parameter: MetOpMaintCom

The wind direction sensor is exhibiting the symptoms of potentiometer failure. Wind direction data quality are being impacted by this condition.

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Site ID ROM406	Technician Eric Hebert	Site Visit Date 06/1	0/2013			
Site Sponsor (agency)	NPS	USGS Map	Longs Peak			
Operating Group	NPS	Map Scale				
AQS#	08-069-0007	Map Date				
Meteorological Type	R.M. Young					
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	40.2778			
Deposition Measurement	dry	QAPP Longitude	-105.5453			
Land Use	woodland - mixed	QAPP Elevation Meters	2743			
Terrain	complex	QAPP Declination				
Conforms to MLM	Marginally	QAPP Declination Date				
Site Telephone	(970) 586-8520	Audit Latitude	40.278129			
Site Address 1	High Peak Camp	Audit Longitude	-105.545635			
Site Address 2	Route 7	Audit Elevation	2742			
County	Larimer	Audit Declination	9.0			
City, State	Estes Park, CO	Present				
Zip Code	80517	Fire Extinguisher 🔽	Inspected July 2012			
Time Zone	Mountain	First Aid Kit				
Primary Operator		Safety Glasses				
Primary Op. Phone #		Safety Hard Hat				
Primary Op. E-mail		Climbing Belt				
Backup Operator		Security Fence				
Backup Op. Phone #		Secure Shelter				
Backup Op. E-mail		Stable Entry Step 🔽				
Shelter Working Room \checkmark	Make Ekto M	odel 8814 (s/n 3062-1)	Shelter Size 896 cuft			
Shelter Clean	Notes The shelter is clean, neat, orga	anized, and well maintained.				
Site OK	Notes					
	Estes Park take route 7 south approxima or High Peak Camp operated by the Salva					

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Site ID ROM406 Technician Eric Hebert Site Visit Date 06/10/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		V
City > 50,000 population	40 km		V
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		✓
Secondary road, heavily traveled	500 m		V
Secondary road, lightly traveled	200 m		
Feedlot operations	500 m		✓
Intensive agricultural ops (including aerial spraying)	500 m		~
Limited agricultural operations	200 m		~
Large parking lot	200 m		✓
Small parking lot	100 m		✓
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		✓

Siting	Distances OK
Siting	Criteria Comment

Field S	ystems l	Data	Form
and the barbon beautiful and "	A STATE OF THE PARTY OF THE PAR		Control State Control State Control

F-02058-1500-S3-rev001

Site	· ID	ROM406	Technician	Eric Hebert		Site Visit Date 06/10/2013
1	Are wi	nd speed and directio	n sensors sited so	as to avoid	✓	
Ē		nfluenced by obstruct				
2 Are wind sensors mounted so as to minimize tower effects? (i.e. wind sensors should be mounted atop the tower or on a horizontally extended boom >2x the max diameter of the tower into the prevailing wind)				tower or on a	V	
3	Are the	e tower and sensors pl	lumb?		V	
4		e temperature shields radiated heat sources	THE RESERVE OF THE PARTY OF THE		✓	
5	conditi surface	mperature and RH seconds? (i.e. ground below and not steeply sloped and water should be av	w sensors should ed. Ridges, hollov	be natural	V	
6	Is the s	olar radiation sensor	plumb?		✓	
7	Is it sit light?	ed to avoid shading, o	or any artificial o	r reflected	✓	
8	Is the r	rain gauge plumb?			✓	
9	Is it sit towers.	ed to avoid sheltering , etc?	effects from buil	dings, trees,		45 degree rule
10	Is the s	surface wetness senson north?	sited with the gr	rid surface	✓	N/A
11	Is it in	clined approximately	30 degrees?		✓	N/A
		y additional explanati man-made, that may				regarding conditions listed above, or any other features,
		bucket rain gage and se sensor shields have be			ved t	o the roof of the shelter since the previous audit visit. Both

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Site II	D	ROM406	Technician	Eric Hebert	W.C. (1867.00)	Site Visit Date	06/10/2013	
		e meterological sen n, and well mainta	nsors appear to be ined?	intact, in good		Wind direction malf	ucntion	No. 220 Control Control Control
2 Are all the meteorological sensors operational online, and reporting data?					V			
3 Are the shields for the temperature and RH sensors clean?					✓			
4 Are the aspirated motors working?					✓			
5 Is the solar radiation sensor's lens clean and free of scratches?					✓			
6 Is the surface wetness sensor grid clean and undamaged?					~	N/A		
7 Are the sensor signal and power cables intact, in good condition, and well maintained?					✓			
		sensor signal and pelements and well	oower cable connec l maintained?	tions protected	~			
Paran	neter		Manufacturer	Model		S/N	Cli	ent ID
Met to	wer		Rohn	unknown		none	nor	ne
Relativ	ve Humi	idity	Rotronic	MP 601A		56091	nor	ne
Precip	oitation		Climatronics	100508-2		illegible	016	520
Solar I	Radiatio	on	Licor	LI-200		PY19983	nor	ne
Wind [Direction	n	RM Young	AQ05103-	5	89123wdr	nor	ne
Wind S	Speed		RM Young	AQ05103-	5	89123wsp	nor	ne
Tempe	erature		RM Young	41342		17079	nor	ne
Tempe	erature2	2meter	RM Young	41342		17078	nor	ne
Shield	l (10 me	eter)	RM Young	unknown		none	nor	ne
Shield	d (2 mete	er)	RM Young	unknown		none	nor	ne
Shield (10 meter) RM Young unknown		sary)	none	nor	ne			

The wind direction sensor is exhibiting the symptoms of potentiometer failure. Wind direction data quality are being impacted by this condition.

Field Systems Data Form F-02058-1500-S5-rev001 ROM406 Site Visit Date 06/10/2013 Site ID Technician Eric Hebert Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E **V** Do the sample inlets have at least a 270 degree arc of unrestricted airflow? ~ Are the sample inlets 3 - 15 meters above the ground? ~ Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? Pollutant analyzers and deposition equipment operations and maintenance **V** Do the analyzers and equipment appear to be in good condition and well maintained? **V** Are the analyzers and monitors operational, on-line, and reporting data? Describe ozone sample tube. 1/4 teflon by 12 meters Describe dry dep sample tube. 3/8 teflon by 12 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) ~ Are sample lines clean, free of kinks, moisture, and obstructions? **V** 7 Is the zero air supply desiccant unsaturated? Are there moisture traps in the sample lines? Is there a rotometer in the dry deposition filter line, and is it <a> Clean and dry clean? **Parameter** Manufacturer S/N **Client ID** Model Sample Tower Aluma Tower В illegible none 107CAB18 0493002494 02978 Filter pack flow pump Thomas Zero air pump Werther International PC70/4 531391 none MFC power supply Tylan RO-32 illegible none ThermoElectron Inc 49i A3NAA 1030745086 Ozone none

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

F-02058-1500-S6-rev001

Site ID	ROM406	Technician Eric H	ebert		Site Visit Da	te 06/10/2013		
<u>DA</u>	S, sensor translators	, and peripheral equipment	operation	ıs an	l maintenance			
1 Do	the DAS instruments	s appear to be in good condi	ition and	✓				
2 Ar		of the DAS operational? (pr	inters,	✓				
3 Do		sor signal leads pass throug cuitry?	h					
	e the signal connectio	ns protected from the weath	her and	✓				
5 Ar	e the signal leads con	nected to the correct DAS cl	hannel?	✓				
	e the DAS, sensor tra ounded?	nslators, and shelter proper	·ly	✓				
7 Do	es the instrument she	lter have a stable power sou	irce?	✓				
8 Is 1	he instrument shelte	r temperature controlled?		✓				
	he met tower stable a				Stable <	Gro	ounded 🔽	
	the sample tower stab wer comments?	ne and grounded:		_	✓		V	
Param	eter	Manufacturer	Model	L	S/N		Clien	nt ID
Comput	er	Toshiba	Terca		unknown		none	
DAS		Environmental Sys Corp	8816	SEATS AS	2025		90538	5
Modem			33.6 fax m	oden	unknown		none	
Printer		Hewlett Packard	842C	350.78	unknown		none	
Solar R	adiation Translator	RM Young	70101-X		none		none	
		anation (photograph or sket nay affect the monitoring pa) regarding con	ditions listed abo	ove, or an	ny other features,

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Site ID ROM406		Tech	nician	Eric Hebert	Site Visit Date	06/10/2013		
<u>Documentation</u>								
Does the site have the require					<u>?</u>			
Wind speed sensor	Yes	No 🗸	N/.	A Data log	ger	Yes ✓	No	N/A
Wind direction sensor	H	✓		Data log				
Temperature sensor	ā.	✓	H		art recorder			<u> </u>
Relative humidity sensor		✓		Comput			<u>✓</u>	
				Modem			<u></u>	
Surface wetness sensor			_ _					
Wind sensor translator			✓		pump		✓	
Temperature translator			✓		BANKS THE WAY TO SHARE SHOW THE RES		✓	
Humidity sensor translator			✓					~
		~		UPS				~
Tipping bucket rain gauge		V			g protection devic	e \square		✓
	✓			Shelter l			✓	
	✓			Shelter a	ir conditioner	✓		
	✓							
Does the site have the requir	ed a	nd mo	st rece	nt OC documents a	nd report forms?			
	Pres	(A.W.S.)				Curre		
Station Log			D-4-1/:	0		Curre ✓	Ш	
SSRF		/	DataVie	ew2		✓		
Site Ops Manual			June 20	200				
HASP			June 20	J00				
Field Ops Manual								
Calibration Reports		_ /	Not cur	rent				
Ozone z/s/p Control Charts			i vot cui			$\overline{\Box}$		
Preventive maintenance schedul								
1 Is the station log properly c	omp	leted o	luring	every site visit?	Dataview			
2 Are the Site Status Report I	Forn	ıs beir	ig com	pleted and	Flow and observati	ion sections		
current?								
3 Are the chain-of-custody fo sample transfer to and from			rly use	d to document 🗸				
4 Are ozone z/s/p control charcurrent?	rts p	roperl	у сотр	oleted and	Control charts not	used		
Descride anni 1922 - 1				or alcodal de	.)	41		
Provide any additional explanati natural or man-made, that may					y) regarding condi	tions fisted a	idove, o	r any other featu
			DAY 12					

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Site II	ROM406	Technician	Eric Hebert	Site Visit Date	06/10/2013				
1 Ī	Site operation procedures Has the site operator attended course? If yes, when and who		STNET training	Trained by ARS on s	site				
2 I	Has the backup operator atter raining course? If yes, when	nded a formal		Trained by operator	Trained by operator and by ARS on site				
3 Is	the site visited regularly on chedule?								
	re the standard CASTNET oollowed by the site operator?	perational pro	cedures being						
5 Is	the site operator(s) knowled ne required site activities? (in	geable of, and cluding docum	able to perform entation)						
<u>A</u>	Are regular operational QA/QC checks performed on meteorological instruments?								
OC C	heck Performed		Frequency		Compliant				
	point Calibrations	V			Compnant ✓				
	l Inspections		VIII DESCRIPTION OF THE PROPERTY OF THE PROPER						
	lator Zero/Span Tests (clima	tronics)	Contract of the Contract of th		V				
	al Rain Gauge Test	V	Monthly		V				
	rm Reasonableness of Curre	nt Values	Weekly		V				
Test S	Surface Wetness Response		N/A		V				
	re regular operational QA/Q	C chacks norfa	armed on the ezo	na analyzar?					
*	re regular operational QA/Q	e cheeks perio	or med on the ozo	ne anaryzer.					
QC C	heck Performed		Frequency		Compliant				
Multi	-point Calibrations	V	Monthly and	semiannually	✓				
Auton	natic Zero/Span Tests	V	Daily		V				
Manu	al Zero/Span Tests	<u> </u>	Every 2 week	(S	V				
Auton	natic Precision Level Tests	✓	Daily		V				
Manu	al Precision Level Test			- Mary William And Arthresis William Advance of American Company					
Analy	zer Diagnostics Tests	✓	600	only					
In-lin	e Filter Replacement (at inlet) <u>~</u>	Every 2 week	S	<u> </u>				
In-lin	e Filter Replacement (at anal		0100						
Samp	le Line Check for Dirt/Water		265923		V				
Zero A	Air Desiccant Check	Semiannually		✓					
2 D co	sample train including all filters? Do automatic and manual z/s/p gasses go through the complete sample train including all filters?								

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:

Mercury thermometer was removed from the shelter during the site audit. The site operator has requested additional training from ARS.

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Site	ID	ROM406	Technici	an Eric Hebert		Site Visit Date	06/10/2013]		
	Site ope	ration procedures								
1	Is the fi	lter pack being change	d every Tu	esday as scheduled	!?✔	Filter changed vario	us times			
2	Are the correctl	Site Status Report For y?	ms being c	ompleted and filed	V					
3	Are dat	a downloads and back ed?	ups being p	erformed as		no longer required				
4	Are gen	eral observations being	g made and	recorded? How?	✓	SSRF				
5	Are site fashion	supplies on-hand and?	replenished	l in a timely	✓					
6	Are san	nple flow rates recorde	d? How?		✓	SSRF				
7	Are san	nples sent to the lab on?	a regular s	chedule in a timely	, .					
8		ers protected from comping? How?	tamination	during handling	~	Clean gloves on and off				
9		site conditions reporte ons manager or staff?	d regularly	to the field						
QC	Check P	erformed	J	Frequency			Compliant			
F F V In S Prov	low Systemater Paction Rate Cisual Charline Filample Linde any a ral or material or material of the sound in	nt MFC Calibrations em Leak Checks k Inspection e Setting Checks eck of Flow Rate Rotor ter Inspection/Replace ine Check for Dirt/War additional explanation an-made, that may affector is doing a very good te systems for both the company and the systems for both the s	meter	toring parameters	pressed an interest in	trying to improve any	deficiencies. The			

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
GTI	H161-Eric H	Hebert-06/12/2013				
1	6/12/2013	Computer	Dell	000251	D520	5HFNHB1
2	6/12/2013	DAS	Campbell	000416	CR3000	2513
3	6/12/2013	Elevation	Elevation	None	1	None
4	6/12/2013	Filter pack flow pump	Thomas	02751	107CAB18	1192001884
5	6/12/2013	flow rate	Tylan	000171	FC280SAV	AW04423004
6	6/12/2013	Infrastructure	Infrastructure	none	none	none
7	6/12/2013	MFC power supply	MACTEC	06044	none	none
8	6/12/2013	Modem	Raven	06589	H4223-C	0844321356
9	6/12/2013	Ozone	ThermoElectron Inc	000744	49i A1NAA	1105347324
10	6/12/2013	Ozone Standard	ThermoElectron Inc	000443	49i A3NAA	CM08200019
11	6/12/2013	Sample Tower	Aluma Tower	03564	Α	none
12	6/12/2013	Shelter Temperature	Campbell	none	107-L	none
13	6/12/2013	Siting Criteria	Siting Criteria	None	1	None
14	6/12/2013	Temperature	RM Young	06120	41342VC	11742
15	6/12/2013	Zero air pump	Werther International	06927	P 70/4	000836211

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2513 GTH161 Eric Hebert 06/12/2013 DAS Primary Das Date: 6 /13/2013 **Audit Date** 6 /13/2013 Datel **Parameter** DAS Mfg 8:56:10 Das Time: 8:56:10 **Audit Time** 4000392 Tfer Desc. Source generator (D **Serial Number** Das Day: 164 **Audit Day** 164 Tfer ID 01321 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff:** Max Diff: 1.00000 0.00000 Slope **Intercept** 0.0001 0.0002 0.0001 0.0002 2/13/2012 1.00000 **Cert Date** CorrCoff Fluke **Parameter** DAS Mfg **Serial Number** 86590148 Tfer Desc. DVM 01310 Tfer ID 1.00000 0.00000 Slope **Intercept** 1/27/2013 1.00000 **Cert Date** CorrCoff Channel Input **DVM** Output **DAS** Output InputUnit OutputUnit Difference 0.0000 0.0000 0.0000 0.0000 V V 7 0.1000 0.1000 0.0999 -0.0001 7 0.3000 0.3000 0.3000 V V 0.0000 7 0.5000 V V 0.00000.5000 0.5000 7 0.7000 V V -0.0002 0.7001 0.6999 V V 7 0.9000 0.9001 0.8999 -0.00027 0.9999 V V -0.0002 1.0000 1.0001

Flow Data Form

Mfg	Serial Nun	Serial Number Ta Site		Tecl	hnician	Site Visit I	Date Param	eter	Owner ID
Tylan	AW044230	004	GTH161	Eric	Hebert	06/12/201	flow rat	te	000171
Mfg	MACTEC			I	Mfg	BIOS	P	arameter Flo	w Rate
SN/Owner ID	none	06044			Serial Number	122974	Т	fer Desc. Blo	OS 220-H
	MEC nower ou	n n lu		r	Tfer ID	01416			
Parameter	MFC power su	рріу							
					Slope	1.	.00000 Inte	ercept	0.0000
					Cert Date	1/	8/2013 Cor	rCoff	1.0000
DAS 1:		DAS 2:			Cal Factor Z	ero	-0.0	9	
A Avg % Diff:	A Max % Di	A Avg %I	Dif A Max	x % Di	Cal Factor F	ull Scale	1.0)1	
2.16%	2.23%				Rotometer R	eading:	3.	.6	
UseDescription	: Test type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference
primary	pump off	0.000	0.000	0.05	0.046	-0.04	l/m	l/m	
primary	leak check	0.000	0.000	0.05	0.046	-0.04	1/m	l/m	
primary	test pt 1	0.000	2.936	2.81	2.808	3.00	l/m	l/m	2.17%
primary	test pt 2	0.000	2.935	2.81	2.808	3.00	l/m	l/m	2.23%
primary	test pt 3	0.000	2.939	2.81	2.808	3.00	l/m	l/m	2.07%
Sensor Comp	onent Leak Tes	st		Condition	Condition			pass	
Sensor Comp	onent Filter Azi	muth		Condition	180 deg	Status		pass	
Sensor Comp	onent Filter De	oth		Condition	1.5 cm		Status	pass	
Sensor Comp	onent Filter Pos	sition		Condition	Good		Status	pass	
Sensor Comp	onent Moisture	Present		Condition	No moisture pr	esent	Status	pass	
Sensor Comp	onent Rotomet	er Condition		Condition	Clean and dry		Status	pass	
Sensor Comp	onent System N	Memo		Condition	1		Status	pass	
Sensor Comp	onent Tubing C	ondition		Condition	ndition Good			pass	
Sensor Component Filter Distance				Condition	5.5 cm	Status	pass		

Ozone Data Form

Mfg S	erial Number Ta	Site	Te	Technician S		Site Visit Date Parame		eter Owner ID		D	
ThermoElectron Inc 1	105347324	GTH161	Er	ic Hebert		06/12/20	013 Oz	one		000744	
Intercept 0.4	3953 Slope: 4137 Intercept 9997 CorrCoff	0.00000 0.00000 0.00000		Mfg Serial N	umber	ThermoE 51711217	lectron Inc	_	rameter o	zone Ozone primary	y stan
CorrCoff 0.9	OPPOSITION CONTROL CON	0.00000	<u>'</u>	Tfer ID		01111					
DAS 1:	DAS 2:			Slope			0.99720	Inter	cept	0.18	3428
A Avg % Diff: A Ma 5.4%	x % Di A Avg % 5.8%	Dif A Max %	% Di	Cert Da	te		1/2/2013	Corr	Coff	1.00	0000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Un	nit:	PctDi	fference:	
primary	1	0.03	-0.		0.		ppb				
primary	2	29.75	29.				ppb			-5.74%	
primary	3	49.75	49.				ppb			-5.11%	
primary primary	5	79.85 109.80	79. 109		103	-	ppb			-4.98% -5.84%	
Sensor Component		109.80		on 1.5 pp		1.30 J	ppb	otuc	pass	-3.64%	
											_
Sensor Component	Cell B Tmp.		Conditio	on			Sta	atus	pass		
Sensor Component	Fullscale Voltage		Conditio	on N/A			Sta	atus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			Sta	atus	pass		
Sensor Component	Line Loss		Condition				Sta	atus	pass		
Sensor Component	Offset					atus	pass				
Sensor Component	Span		Condition	Condition 0.988			Sta	atus	pass		
Sensor Component	Cell B Freq.		Conditio	ondition 99.0 kHz			Sta	atus	pass		
Sensor Component	System Memo		Condition			Sta	atus	pass			
Sensor Component	Sample Train		Condition Good			Sta	atus	pass			
Sensor Component	Cell B Pressure		Conditio	on			Sta	atus	pass		
Sensor Component	Cell B Flow		Conditio	0.59 lp	om		Sta	atus	pass		
Sensor Component	Cell A Tmp.		Condition	33.3 C	;		Sta	atus	pass		
Sensor Component	Cell A Pressure		Conditio	522 m	mHg		Sta	atus	pass		
Sensor Component	Cell A Noise		Conditio	1.1 pp	b		Sta	atus	pass		
Sensor Component	Component Cell A Freq.		Conditio	dition 90.9 kHz			Sta	atus	pass		
Sensor Component	nent Cell A Flow			lition 0.57 lpm			Sta	atus	pass		
Sensor Component	Component Battery Backup			dition N/A			Sta	atus	pass		
Sensor Component	Zero Voltage		Condition	on N/A			Sta	atus	pass		

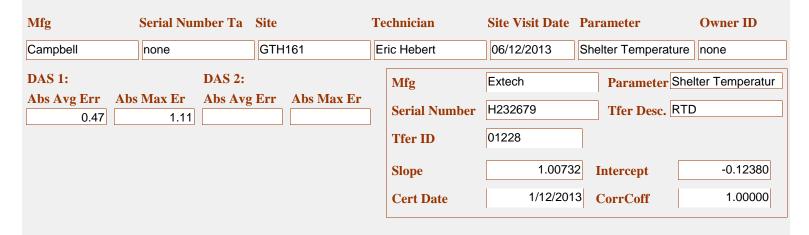
Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young 11742 GTH161 Eric Hebert 06/12/2013 Temperature 06120 Mfg Extech **Parameter** Temperature Tfer Desc. RTD H232679 **Serial Number** 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.13 0.21 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.04 0.08 0.000 primary Temp Low Range 0.3 C 0.21 C Temp Mid Range 23.81 23.76 0.000 23.8 0.03 primary C -0.14 primary Temp High Range 45.88 45.67 0.000 45.5 Sensor Component | Shield Condition Clean **Status** pass Sensor Component Blower Status Switch **Condition** N/A **Status** pass **Sensor Component** Blower **Condition** N/A **Status** pass Sensor Component System Memo Condition Status pass

Infrastructure Data For

Si	te ID	GTH161	Technician	Eric Hebert	Site Visit Date	06/12/2013	
	Shelter Ma	ake	Shelter Model	She	lter Size		
	Ekto		8810 (s/n 2149-	12) 640	cuft		
	O ALCOHOMO DE SENS	MERCHANNA MARKANIA		DESCRIPTION OF STREET	NE SEMANDE SE ASSESSOR		

Sensor Component	Shelter Roof	Condition	Fair	Status	pass
Sensor Component	Sample Tower Type	Condition	Type A	Status	pass
Sensor Component	Met Tower	Condition	N/A	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Conduit	Condition	N/A	Status	pass
Sensor Component	Sample Tower	Condition	Fair	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Fair	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Shelter Door	Condition	Fair	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass

Shelter Temperature Data For



UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	19.94	19.92	0.000	21.0	C	1.11
primary	Temp Mid Range	21.94	21.90	0.000	21.8	С	-0.12
primary	Temp Mid Range	22.72	22.68	0.000	22.5	C	-0.19

Field Systems Comments

1 Parameter: SiteOpsProcComm

Due to the remote location of the site, it can take up to a week to return the filter sample to the lab after it is removed from the tower in the winter. The site operator is transferring the filter bag and caps from the new filter to the removed filter. There are no clean bags and spare caps on-site. It was discussed that the bags and caps are intended to stay with each filter and not be transferred from one to the next.

2 Parameter: DasComments

There is a new sample tower on-site to be installed in the near future.

3 Parameter: SiteOpsProcedures

The site operator is new and has not received formal training. He has been provided with written instructions prepared by the previous site operator. Site operation has improved since the previous site audit visit.

4 Parameter: ShelterCleanNotes

Some floor tiles are damaged.

5 Parameter: MetSensorComme

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

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Site ID GTH161		Technician	Eric Hebert	NUMBER OF STREET	Site Visit	Date 06/1	2/2013			
Site Sponsor	(agency)	EPA			US	GS Map		Gothic		
Operating Gr	oup	RMBL			Ma	p Scale				
AQS#		08-051-9	991		Map Date					
Meteorologica	al Type	R.M. You	ing							
Air Pollutant	Analyzer	Ozone			QA	PP Latitude		38.9573		
Deposition M	easurement	dry, wet			QA	PP Longitude	e	-106.9854		
Land Use		mountain	meadow, wood	dland - mixed	QA	PP Elevation	Meters	2926		
Terrain		complex	ECVC SINANG		QA	PP Declinatio) <u>n</u>	10.75		
Conforms to	MLM	No			QA	PP Declinatio	n Date	2/23/2006		
Site Telephon	ie	(970) 349	9-5691		Aud	lit Latitude			38.95627	
Site Address	1	RMBL			Au	lit Longitude			-106.9858	
Site Address	2	Gothic			Au	lit Elevation			291	
County		Gunnisor	<u>1</u>		Aud	lit Declination	n	9.6		
City, State		Crested E	Butte, CO				Present			
Zip Code		81224			Fire	e Extinguishe	r 🗸	Inspected Nov 1	987	
Time Zone		Mountain			Fire	st Aid Kit	✓			
Primary Ope	rator				Saf	ety Glasses				
Primary Op.	Phone #			Henri Buzuan beraka	Saf	ety Hard Hat	•			
Primary Op.	E-mail				Cli	nbing Belt	✓			
Backup Oper	ator				Sec	urity Fence				
Backup Op.	Phone #				Sec	ure Shelter				
Backup Op.	E-mail				Sta	ble Entry Ste	p 🗆			
Shelter Work	ing Room✓	Make	Ekto	l I	Model	8810 (s/n 214	19-12)	Shelter Size	640 cuft	
Shelter Clean		Notes	Some floor tile	s are damaged	d.				MATERIAL CONTROL CONTR	
Site OK	V	Notes								
Driving Direc	throug appro	gh town pa ximately th	st the fire statio	on and the road cark at the visi	d mainte tor area	enance facility	onto the di	to Mount Creste rt road to Gothic. pelow the site. Th		

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Site ID GTH161 Technician Eric Hebert Site Visit Date 06/12/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		V
Major industrial complex	10 to 20 km		✓
City > 50,000 population	40 km		✓
City 10,000 to 50,000 population	10 km		✓
City 1,000 to 10,000 population	5 km		V
Major highway, airport or rail yard	2 km		
Secondary road, heavily traveled	500 m	8	✓
Secondary road, lightly traveled	200 m		✓
Feedlot operations	500 m		✓
Intensive agricultural ops (including aerial spraying)	500 m		✓
Limited agricultural operations	200 m		
Large parking lot	200 m		✓
Small parking lot	100 m		
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		

Siting	Distances OK
Siting	Criteria Comment

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Site	ID	GTH161	Technician Eric Hebert		Site Visit Date 06/12/2013
1		nd speed and direct nfluenced by obstru	ion sensors sited so as to avoid actions?	~	N/A
2	(i.e. win	nd sensors should b	I so as to minimize tower effects? e mounted atop the tower or on a m >2x the max diameter of the vind)	✓	N/A
3	Are the	e tower and sensors	plumb?	✓	N/A
4			ds pointed north or positioned to es such as buildings, walls, etc?		South
5	conditi surface	ons? (i.e. ground be	sensors sited to avoid unnatural clow sensors should be natural oped. Ridges, hollows, and areas of avoided)		Over shelter
6	Is the s	olar radiation sens	or plumb?	✓	N/A
7	Is it site light?	ed to avoid shading	, or any artificial or reflected	✓	N/A
8	Is the r	ain gauge plumb?		V	N/A
9	Is it site towers,		ng effects from buildings, trees,	V	N/A
10	Is the s		sor sited with the grid surface	V	N/A
11	Is it in	clined approximate	ly 30 degrees?	V	N/A
	A CONTRACT OF THE PARTY OF THE		ation (photograph or sketch if neco y affect the monitoring parameter		y) regarding conditions listed above, or any other features,
		ature sensor has bee et tower has been re		ounte	d in a naturally aspirated shield facing south and over the shelter

Date 06/12/2013
Client ID
06120

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Site ID	GTH161	Technician Eric	Hebert		Site Visit Date 06/12/20)13	
Siting	Criteria: Are the po	llutant analyzers and d	leposition eg	uipı	ment sited in accordance w	ith 40 CFR 58	3. Appendix E
	sample inlets have a ricted airflow?	at least a 270 degree ar	c of	✓			
2 Are the	e sample inlets 3 - 15	5 meters above the grou	ınd?	✓			
	e sample inlets > 1 n meters from trees?	neter from any major o	bstruction,	V			
Polluta	nt analyzers and de	position equipment op	erations and	ma	<u>intenance</u>		
	analyzers and equipon and well maintai	oment appear to be in gined?	good	✓			And the first of the control of the
	e analyzers and moring data?	nitors operational, on-li	ne, and	✓			
3 Descri	be ozone sample tub	e.			1/4 teflon by 12 meters		
4 Descri	be dry dep sample to	ube.			3/8 teflon by 15 meters		
	Are in-line filters used in the ozone sample line? (if yes indicate location)		✓	At inlet only			
6 Are sar obstru		e of kinks, moisture, a	nd	✓			
7 Is the 2	zero air supply desic	cant unsaturated?		✓			
8 Are the	ere moisture traps i	n the sample lines?		✓			
9 Is ther clean?	e a rotometer in the	dry deposition filter li	ne, and is it	✓	Clean and dry		
Parameter		Manufacturer	Model		S/N	Clie	ent ID
Sample Tov	ver	Aluma Tower	Α	SERVER	none	035	64
MFC power	supply	MACTEC	none	DESCRIPTION OF THE PERSON OF T	none	060	44
Ozone		ThermoElectron Inc	49i A1NAA		1105347324	000	744
Filter pack f	low pump	Thomas	107CAB18		1192001884	027	51
Zero air pur	np	Werther International	P 70/4		000836211	069	27
		ion (photograph or ske affect the monitoring p		ary)	regarding conditions listed	d above, or an	y other features,
			era kanpanista			Control of the Contro	

F-02058-1500-S6-rev001

Site	ID	GTH161	Technician	Eric Hebert		Site Visit Date 06/12/2	2013	
	DAS, se	ensor translators, an	d peripheral equi	pment operatio	ns aı	nd maintenance		
1	Do the well ma	DAS instruments appintained?	pear to be in good	d condition and	V			
2		the components of th , backup, etc)	ne DAS operation	al? (printers,	✓			
3		analyzer and sensor ng protection circuitr		through	✓	Met sensors only		
4	Are the signal connections protected from the weather and well maintained?				✓			
5	Are the	signal leads connect	ed to the correct	DAS channel?	✓			
6	Are the ground	DAS, sensor transla	tors, and shelter	properly	~			
7	Does th	e instrument shelter	have a stable pov	wer source?	V			
8	Is the in	nstrument shelter ter	nperature contro	lled?	V			
9	9 Is the met tower stable and grounded?					Stable	Grounded	
10	Is the sa	ample tower stable a	nd grounded?					
11	Tower	comments?				Tower does not have groun	STATE OF THE PERSON NAMED IN	ed to shelter.
Par	ameter	1	Manufacturer	Model		S/N	Clie	ent ID
Con	nputer		Dell	D520	122.00	5HFNHB1	000	251
DAS	3		Campbell	CR3000	12,000,000	2513	000	416
Mod	dem	Į	Raven	H4223-C	NI SELII	0844321356	065	89
	COMMERCIAL DESCRIPTION OF THE PERSON OF THE	y additional explanat nan-made, that may				y) regarding conditions lis	sted above, or a	any other features,
The	re is a ne	ew sample tower on-si	te to be installed ir	n the near future.				

F-02058-1500-S7-rev001

Wind speed sensor Wind direction sensor Data logger Wind direction sensor Temperature sensor Relative humidity sensor Solar radiation sensor Wind sensor Wind sensor translator Wind sensor t	Site ID	GTH161		Tech	nician	Eric Hebert		Site Visit Dat	e 06/12/2	2013		
Does the site have the required instrument and equipment manuals? Yes No N/A Yes No N/A Wind speed sensor	D											
Yes No N/A Yes												
Wind speed sensor	Does the						anuals?		V /0.		NI	NI/A
Wind direction sensor	Wind speed		les				ta logge	r	Yes			N/A
Strip chart recorder												✓
Relative humidity sensor			V									V
Solar radiation sensor	CHARLES THE RESIDENCE				✓		7		✓			
Surface wetness sensor											✓	
Temperature translator	Surface wet	ness sensor				Pri	nter					✓
Temperature translator	Wind sensor	r translator			✓	Zer	ro air pu	ımp			✓	
Solar radiation translator	Temperatur	e translator			✓						V	
Tipping bucket rain gauge	Humidity se	ensor translator			✓	Sur	rge prot	ector				✓
Ozone analyzer	Solar radiat	ion translator			✓	UP	S				✓	
Filter pack flow controller	Tipping buc	ket rain gauge			✓	Lig	htning j	protection device	ce \square			✓
Filter pack MFC power supply	Ozone analy	/zer		✓		She	elter hea	iter			✓	
Does the site have the required and most recent QC documents and report forms? Present Current Station Log SSRF Site Ops Manual Cot 2001 HASP Field Ops Manual July 1990 Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an	Filter pack f	flow controller		✓		She	elter air	conditioner			✓	
Present Station Log SSRF Cot 2001 HASP Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used current? Control charts not used current?	Filter pack I	MFC power supply		✓								
SSRF Site Ops Manual W Oct 2001 HASP Field Ops Manual Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an	Does the	e site have the requi	red a	and mo	ost rece	nt QC docume	nts and	report forms?				
Station Log SSRF V Oct 2001 HASP Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an			Pre	sent					Cı	ırren	t	
SSRF Site Ops Manual Oct 2001 HASP Field Ops Manual July 1990 Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul Is the station log properly completed during every site visit? Minimal information Are the Site Status Report Forms being completed and current? Are the chain-of-custody forms properly used to document sample transfer to and from lab? Are ozone z/s/p control charts properly completed and current? Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an	Station Log											
Site Ops Manual HASP Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1 Is the station log properly completed during every site visit? 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 an								8				
Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 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? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an	Site Ops Ma	nual			Oct 200)1						
Calibration Reports	HASP											
Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul 1	Field Ops M	Ianual		✓	July 199	90		<u> </u>				
Preventive maintenance schedul ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Calibration	Reports			-							
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 current?	Ozone z/s/p	Control Charts						132 132				
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 current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an	Preventive r	naintenance schedu	l									
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 current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an												
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 Control charts not used	1 Is the s	tation log properly o	comp	oleted (during	every site visit:	? ✓ M	inimal informatio	n			
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 Control charts not used current?			Fori	ns beir	ng comp	oleted and	✓					
4 Are ozone z/s/p control charts properly completed and current? Control charts not used current? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or an	3 Are the	chain-of-custody fo			rly used	d to document	✓					
	4 Are ozo	one z/s/p control cha			ly comp	leted and	C	ontrol charts not	used			
								regarding cond	itions list	ted al	bove,	or any

Field Systems Data Form F-02058-1500-S8-rev001 Site ID GTH161 Site Visit Date 06/12/2013 Technician Eric Hebert Site operation procedures Has the site operator attended a formal CASTNET training Trained by previous operator course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ~ schedule? Are the standard CASTNET operational procedures being flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform ✓ the required site activities? (including documentation) Are regular operational QA/QC checks performed on meteorological instruments? **QC Check Performed** Frequency **Compliant V** ~ N/A **Multipoint Calibrations** ~ ~ N/A **Visual Inspections** ~ N/A **Translator Zero/Span Tests (climatronics) V** ~ N/A **Manual Rain Gauge Test** V ~ N/A **Confirm Reasonableness of Current Values** ~ ~ N/A **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **OC Check Performed Compliant** Frequency **Multi-point Calibrations** ~ ~ Semiannually ~ **V Automatic Zero/Span Tests** Daily ~ ~ Manual Zero/Span Tests ~ **V** Daily **Automatic Precision Level Tests** ~ **Manual Precision Level Test V V** Weekly **Analyzer Diagnostics Tests** ~ Every 2 weeks **In-line Filter Replacement (at inlet) V** ~ N/A In-line Filter Replacement (at analyze ~ **V** Sample Line Check for Dirt/Water Weekly **V** ~

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:

~

Semiannually

Unknown

SSRF, call-in

Zero Air Desiccant Check

reported? If yes, how?

sample train including all filters?

Do multi-point calibration gases go through the complete

Are the automatic and manual z/s/p checks monitored and

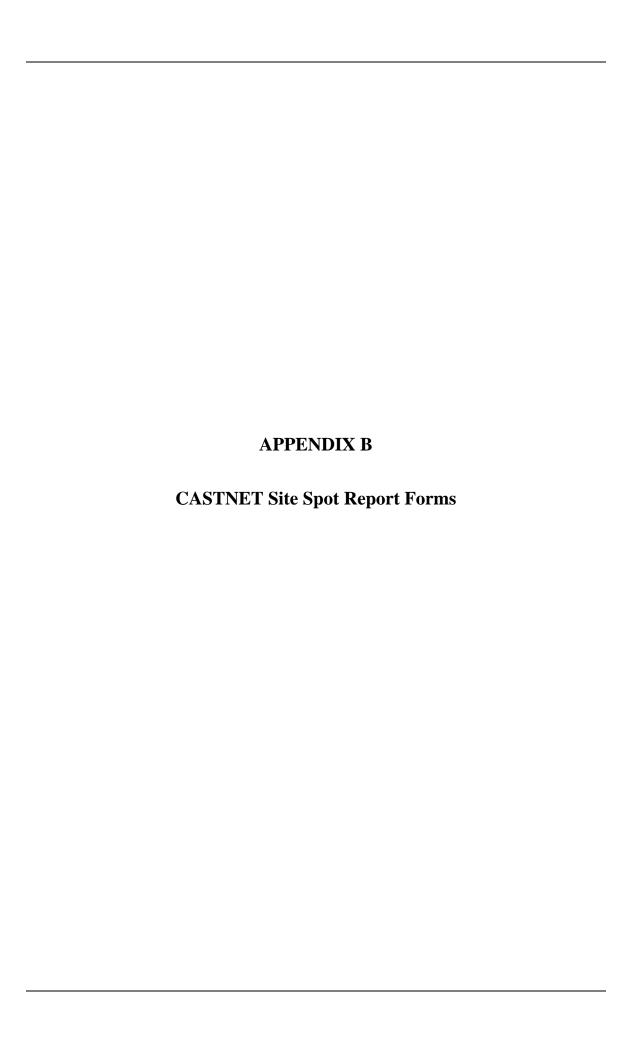
Do automatic and manual z/s/p gasses go through the

complete sample train including all filters?

The site operator is new and has not received formal training. He has been provided with written instructions prepared by the previous site operator. Site operation has improved since the previous site audit visit.

F-02058-1500-S9-rev001

Site	ID	GTH161	Tec	hnician	Eric Hebert		Site Visit Date 06/12/2013		
	Site op	eration procedu	res						
1		ilter pack being		y Tuocde	w ac cahaduladi		Filter changed morinings		
1	18 the 1	nier pack being	changeu ever	y Tuesua	ly as selleduled.		The Granged Moninings		
2	2 Are the Site Status Report Forms being completed and filed correctly?								
3	Are data downloads and backups being performed as scheduled?						No longer required		
4	Are ge	neral observation	ns being made	and rec	orded? How?	✓	SSRF, logbook		
5	Are sit	e supplies on-hai 1?	nd and replen	ished in	a timely	✓			
6	Are sa	mple flow rates r	ecorded? Hov	w?		✓	SSRF, call-in		
7	Are sar	mples sent to the 1?	lab on a regu	lar sche					
8		ters protected fro ipping? How?	om contamina	tion dur	ing handling	✓	Clean gloves on and off		
9		e site conditions i ions manager or		larly to 1	he field	V			
QC	Check I	Performed		Freq	luency		Compliant		
N	Iulti-po	int MFC Calibra	ations	✓ Sem	iannually	50.00			
F	low Sys	tem Leak Check	S	✓ Wee	kly				
F	ilter Pa	ck Inspection				**************************************			
F	low Rat	te Setting Checks		Wee	CHEST CONTRACTOR OF THE OWNER				
V	isual C	heck of Flow Rat	te Rotometer	Wee	CONTRACTOR OF THE PARTY OF THE	200000			
Iı	n-line F	ilter Inspection/I	Replacement	SCHOOL COLUMN	iannually	and a			
S	Sample Line Check for Dirt/Water Weekly								
	Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:								
winte	Oue to the remote location of the site, it can take up to a week to return the filter sample to the lab after it is removed from the tower in the vinter. The site operator is transferring the filter bag and caps from the new filter to the removed filter. There are no clean bags and spare caps on-site. It was discussed that the bags and caps are intended to stay with each filter and not be transferred from one to the next.								
			30			,			



Data Compiled: 7/11/2013 3:02:18 PM

SiteVisitDate	Site	Technician
04/01/2013	CHA467	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.99085	unitless	P
2	Ozone Intercept	P	0	5	4	0.45247	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
4	Ozone % difference avg	P	7	10	4	0.3	%	P
5	Ozone % difference max	P	7	10	4	0.5	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: System Memo CommentCode 178

Stainless steel fittings are connected to Teflon fittings on the ozone analyzer. This can cause leaks and premature failure of the fittings.

2 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

Data Compiled: 7/11/

7/11/2013 7:29:05 PM

SiteVisitDate	Site	Technician
04/02/2013	PET427	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.99254	unitless	P
2	Ozone Intercept	P	0	5	4	0.63847	ppb	P
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
4	Ozone % difference avg	P	7	10	4	0.5	%	P
5	Ozone % difference max	P	7	10	4	1.1	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

2 Parameter: Ozone SensorComponent: Cell A Freq. CommentCode 99

Data Compiled: 7/

7/11/2013 7:39:36 PM

SiteVisitDate	Site	Technician
04/04/2013	GRC474	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00765	unitless	P
2	Ozone Intercept	P	0	5	4	-1.00446	ppb	P
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
4	Ozone % difference avg	P	7	10	4	1.1	%	P
5	Ozone % difference max	P	7	10	4	2.7	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell A Tmp. CommentCode 99

Data Compiled:

7/11/2013 7:49:36 PM

SiteVisitDate	Site	Technician
04/08/2013	JOT403	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.95679	unitless	P
2	Ozone Intercept	P	0	5	4	1.01348	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99982	unitless	P
4	Ozone % difference avg	P	7	10	4	2.1	%	P
5	Ozone % difference max	P	7	10	4	4.3	%	P

Data Compiled:

7/11/2013 9:19:49 PM

SiteVisitDateSiteTechnician04/11/2013PIN414Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Wind Speed average error below 5m/s in m/s	P	3	0.5	4	0.01	m/s	P
2	Wind Speed max error below 5m/s in m/s	P	3	0.5	4	0.03	m/s	P
3	Wind Speed average % difference above 5 m/s	P	3	5	4	0.3	%	P
4	Wind Speed max % difference above 5 m/s	P	3	5	4	0.3	%	P
5	Wind Speed Torque average error	P	3	0.5	1	0.45	g-cm	P
6	Wind Speed Torque max error	P	3	0.5	1	0.5	g-cm	Fail
7	Wind Direction Input Deg True average error (de	P	2	5	5	3.4	degrees	P
8	Wind Direction Input Deg True max error (deg)	P	2	5	5	6	degrees	Fail
9	Wind Direction Linearity average error (deg)	P	2	5	8	2.2	degrees	P
10	Wind Direction Linearity max error (deg)	P	2	5	8	6	degrees	Fail
11	Wind Direction Torque average error	P	2	20	1	8	g-cm	P
12	Wind Direction Torque max error	P	2	20	1	8	g-cm	P
13	Temperature average error	P	4	0.5	3	0.08	c	P
14	Temperature max error	P	4	0.5	3	0.11	c	P
15	Relative Humidity average above 85%	P	6	10	1	4.0	%	P
16	Relative Humidity max above 85%	P	6	10	1	4.0	%	P
17	Relative Humidity average below 85%	P	6	10	2	2.5	%	P
18	Relative Humidity max below 85%	P	6	10	2	4.2	%	P
19	Solar Radiation % diff of avg	P	9	10	27	9.42	%	P
20	Solar Radiation % diff of max STD value	P	9	10	27	9.00	%	P
21	Precipitation average % difference	P	1	10	2	2.0	%	P
22	Precipitation max % difference	P	1	10	2	4.0	%	P
23	Ozone Slope	P	0	1.1	4	0.98686	unitless	P
24	Ozone Intercept	P	0	5	4	0.13471	ppb	P
25	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
26	Ozone % difference avg	P	7	10	4	1.1	%	P
27	Ozone % difference max	P	7	10	4	1.7	%	P
28	Flow Rate average % difference	P	10	5	3	0.10	%	P
29	Flow Rate max % difference	P	10	5	3	0.14	%	P
30	DAS Time maximum error	P	0	5	1	0.67	min	P
31	DAS Voltage average error	P	9	0.003	28	0.0001	V	P
32	DAS Voltage average error	P	2	0.003	28	0.0003	V	P
33	Shelter Temperature average error	P	5	1	9	1.28	c	Fail
34	Shelter Temperature max error	P	5	1	9	2.09	c	Fail

04/11/2013

PIN414

Eric Hebert

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

2 Parameter: Ozone SensorComponent: Cell A Freq. CommentCode 99

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

3 Parameter: Precipitation SensorComponent: Properly Sited CommentCode 193

Objects violate the 45 degree rule for the tipping bucket rain gage.

4 Parameter: Precipitation SensorComponent: Sensor Heater CommentCode 107

The tipping bucket rain gauge heater is not functioning.

5 Parameter: Wind Direction SensorComponent: Condition CommentCode 147

The upper and lower sections of the wind sensor body are loose. This condition will cause premature failure of the sensor and can affect data accuracy.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator reported that the flow pump is routinely turned on while the tower is down after the dry deposition filter is installed. She reported that she was instructed by ARS to operate the flow pump while the tower was in the down position to check for proper filter pack installation. It was discussed that this is not a proper check of filter installation since air flow could be going through the connector with the connector completely locked in place. The operator reported that the plastic bag is used to handle the filter and that gloves are not used. The site operator reported that the ozone inlet filter is changed while the dry deposition filter is still installed and exposed on the tower.

2 Parameter: SiteOpsProcedures

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

3 Parameter: ShelterCleanNotes

Shelter has some loose tiles and signs of a leak in the SW corner. It is somewhat cluttered with equipment that is unused and some that requires installation. The lighting is poor.

Data Compiled: 7/11/2013 9:31:58 PM

SiteVisitDate	Site	Technician
04/16/2013	GRB411	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.0428	unitless	P
2	Ozone Intercept	P	0	5	4	-0.30416	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
4	Ozone % difference avg	P	7	10	4	3.5	%	P
5	Ozone % difference max	P	7	10	4	4.1	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

2 Parameter: Ozone SensorComponent: Cell A Freq. CommentCode 99

Data Compiled:

7/11/2013 9:48:03 PM

SiteVisitDate	Site	Technician					
04/18/2013	MEV405	Eric Hebert					
Line Audited	d Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00093	unitless	P
2	Ozone Intercept	P	0	5	4	-0.68617	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
4	Ozone % difference avg	P	7	10	4	1.4	%	P
5	Ozone % difference max	P	7	10	4	3.2	%	P

Field Performance Comments

SensorComponent: Cell A Freq. CommentCode 99 Parameter: Ozone

Data Compiled: 7/11/2013 10:01:49 PM

SiteVisitDate	Site	Technician
04/19/2013	CAN407	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.97307	unitless	P
2	Ozone Intercept	P	0	5	4	0.93607	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99997	unitless	P
4	Ozone % difference avg	P	7	10	4	1.3	%	P
5	Ozone % difference max	P	7	10	4	1.9	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell A Tmp. CommentCode 94

The cooling fan dust cover for the ozone analyzer is clogged with dust and restricting air flow. This is increasing the internal ozone analyzer temperature. This could lead to premature failure of components including the ozone sample pump.

2 Parameter: Ozone SensorComponent: Cell A Tmp. CommentCode 99

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

3 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

Data Compiled:

7/13/2013 12:19:30 PM

SiteVisitDate	Site	Technician
04/22/2013	DCP114	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	12	0.13	c	P
2	Temperature max error	P	4	0.5	12	0.15	c	P
3	Ozone Slope	P	0	1.1	4	0.99126	unitless	P
4	Ozone Intercept	P	0	5	4	0.91544	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	0.8	%	P
7	Ozone % difference max	P	7	10	4	2.4	%	P
8	Flow Rate average % difference	P	10	5	2	1.64	%	P
9	Flow Rate max % difference	P	10	5	2	1.7	%	P
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	0.11	c	P
13	Shelter Temperature max error	P	5	1	9	0.12	c	P

DCP114

Sandy Grenville

Field Performance Comments

1 Parameter: Temperature SensorComponent: Blower CommentCode 26

The forced-air blower for the shield is not functioning.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is following procedures and doing a very good job with filter handling.

2 Parameter: DasComments

One leg of the meteorological sensor tower is damaged and has a hole near the midpoint of the tower.

3 Parameter: SiteOpsProcedures

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

4 Parameter: SitingCriteriaCom

The site is located in a wooded thicket within a state park. The area surrounding the park is almost completely intensive agriculture. The site may not be regionally representative.

5 Parameter: ShelterCleanNotes

The shelter is currently in fair condition. There are loose floor tiles. There are signs of rodent infestation.

6 Parameter: MetOpMaintCom

The blower for the aspirated temperature sensor shield is not functioning. This will affect sensor accuracy and data quality.

Data Compiled: 7/27/2013 12:33:22 PM

SiteVisitDate	Site	Technician
04/25/2013	SAN189	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.11	c	P
2	Temperature max error	P	4	0.5	6	0.24	c	P
3	Ozone Slope	P	0	1.1	4	0.95175	unitless	P
4	Ozone Intercept	P	0	5	4	1.21042	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99993	unitless	P
6	Ozone % difference avg	P	7	10	4	3.0	%	P
7	Ozone % difference max	P	7	10	4	3.6	%	P
8	Flow Rate average % difference	P	10	5	6	1.12	%	P
9	Flow Rate max % difference	P	10	5	6	1.15	%	P
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	21	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	0.34	c	P
13	Shelter Temperature max error	P	5	1	9	0.65	c	P

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator was observed to be not completely familiar with all aspects of CASTNET site operation. Additional training is recommended. Flow rate leak checks are not performed although they are reported. The initial and final flow rates are not recorded correctly. These observations were reported following the previous audit.

2 Parameter: SiteOpsProcedures

CASTNET procedures including filter pack leak check and filter pack final flow rate are not being performed correctly. Additional training is recommended.

3 Parameter: ShelterCleanNotes

The shelter is in very good condition, however somewhat cluttered.

Data Compiled: 7/27/2013 1:05:28 PM

SiteVisitDate	Site	Technician			
04/26/2013	KNZ184	Sandy Grenville			

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	3	0.17	c	P
2	Temperature max error	P	4	0.5	3	0.19	c	P
3	Flow Rate average % difference	P	10	5	2	0.08	%	P
4	Flow Rate max % difference	P	10	5	2	0.13	%	P
5	DAS Time maximum error	P	0	5	1	0.00	min	P
6	DAS Voltage average error	P	7	0.003	28	0.0000	V	P
7	Shelter Temperature average error	P	5	1	9	0.93	c	P
8	Shelter Temperature max error	P	5	1	9	1.17	c	Fail

Field Systems Comments

1 Parameter: SiteOpsProcComm

One clean glove is used to handle the filter for removal and installation.

2 Parameter: SiteOpsProcedures

Ozone monitor not operating.

3 Parameter: SitingCriteriaCom

The site is located at a Long Term Ecological Research site operated by KSU.

4 Parameter: ShelterCleanNotes

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

5 Parameter: PollAnalyzerCom

By request of the Kansas Department of Health and Environment, the site ozone monitor was not operating at the time of the site audit.

Data Compiled:

7/27/2013 3:32:43 PM

SiteVisitDate Site Technician

05/01/2013 YOS404 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Wind Speed average error below 5m/s in m/s	P	3	0.5	4	0.02	m/s	P
2	Wind Speed max error below 5m/s in m/s	P	3	0.5	4	0.03	m/s	P
3	Wind Speed average % difference above 5 m/s	P	3	5	4	0.7	%	P
4	Wind Speed max % difference above 5 m/s	P	3	5	4	0.8	%	P
5	Wind Speed Torque average error	P	3	0.5	1	0.30	g-cm	P
6	Wind Speed Torque max error	P	3	0.5	1	0.3	g-cm	P
7	Wind Direction Input Deg True average error (de	P	2	5	4	10.8	degrees	Fail
8	Wind Direction Input Deg True max error (deg)	P	2	5	4	13	degrees	Fail
9	Wind Direction Linearity average error (deg)	P	2	5	8	1.5	degrees	P
10	Wind Direction Linearity max error (deg)	P	2	5	8	4	degrees	P
11	Wind Direction Torque average error	P	2	20	1	8	g-cm	P
12	Wind Direction Torque max error	P	2	20	1	8	g-cm	P
13	Temperature average error	P	4	0.5	3	0.05	c	P
14	Temperature max error	P	4	0.5	3	0.12	c	P
15	Relative Humidity average above 85%	P	6	10	2	2.1	%	P
16	Relative Humidity max above 85%	P	6	10	2	2.1	%	P
17	Relative Humidity average below 85%	P	6	10	4	3.3	%	P
18	Relative Humidity max below 85%	P	6	10	4	4.3	%	P
19	Solar Radiation % diff of avg	P	9	10	8	3.82	%	P
20	Solar Radiation % diff of max STD value	P	9	10	8	4.8	%	P
21	Precipitation average % difference	P	1	10	2	3.0	%	P
22	Precipitation max % difference	P	1	10	2	4.0	%	P
23	Ozone Slope	P	0	1.1	4	1.00354	unitless	P
24	Ozone Intercept	P	0	5	4	-0.98519	ppb	P
25	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
26	Ozone % difference avg	P	7	10	4	1.3	%	P
27	Ozone % difference max	P	7	10	4	1.9	%	P
28	Flow Rate average % difference	P	10	5	6	3.14	%	P
29	Flow Rate max % difference	P	10	5	6	3.22	%	P
30	DAS Time maximum error	P	0	5	1	1.4	min	P
31	DAS Voltage average error	P	15	0.003	21	0.0001	V	P
32	DAS Voltage average error	P	6	0.003	21	0.0000	V	P
33	Shelter Temperature average error	P	5	1	9	2.83	c	Fail
34	Shelter Temperature max error	P	5	1	9	3.6	c	Fail

05/01/2013

YOS404

Eric Hebert

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Filter Position CommentCode 71

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

2 Parameter: Ozone SensorComponent: Cell A Freq. CommentCode 99

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

3 Parameter: Wind Direction SensorComponent: Vane Condition CommentCode 211

The wind direction vane is slightly bent and could be causing additional bias in wind direction measurements.

4 Parameter: Wind Direction SensorComponent: Condition CommentCode 147

The upper and lower sections of the wind sensor body are loose. This condition will cause premature failure of the sensor and can affect data accuracy.

5 Parameter: Wind Speed SensorComponent: Condition CommentCode 147

The upper and lower sections of the wind sensor body are loose. This condition will cause premature failure of the sensor and can affect data accuracy.

Field Systems Comments

1 Parameter: ShelterCleanNotes

The site is neat, clean, and well organized.

2 Parameter: PollAnalyzerCom

The DAS full scale and zero factors for the ozone channel are set to 497 and -3 respectively. The usual settings are 500 and 0. This may not be a problem but it does contribute to the error observed during the ozone accuracy check. It is possible that polled data at the central polling station have different factors.

Data Compiled:

7/27/2013 4:51:57 PM

SiteVisitDate Site Technician

05/03/2013 SEK430 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Wind Speed average error below 5m/s in m/s	P	3	0.5	4	0.07	m/s	P
2	Wind Speed max error below 5m/s in m/s	P	3	0.5	4	0.19	m/s	P
3	Wind Speed average % difference above 5 m/s	P	3	5	4	0.2	%	P
4	Wind Speed max % difference above 5 m/s	P	3	5	4	0.5	%	P
5	Wind Speed Torque average error	P	3	0.5	1	0.40	g-cm	P
6	Wind Speed Torque max error	P	3	0.5	1	0.4	g-cm	P
7	Wind Direction Input Deg True average error (de	P	2	5	4	2.8	degrees	P
8	Wind Direction Input Deg True max error (deg)	P	2	5	4	5	degrees	P
9	Wind Direction Linearity average error (deg)	P	2	5	8	1.8	degrees	P
10	Wind Direction Linearity max error (deg)	P	2	5	8	3	degrees	P
11	Wind Direction Torque average error	P	2	20	1	14	g-cm	P
12	Wind Direction Torque max error	P	2	20	1	14	g-cm	P
13	Temperature average error	P	4	0.5	9	0.13	c	P
14	Temperature max error	P	4	0.5	9	0.21	c	P
15	Relative Humidity average above 85%	P	6	10	1	2.0	%	P
16	Relative Humidity max above 85%	P	6	10	1	2.0	%	P
17	Relative Humidity average below 85%	P	6	10	2	2.0	%	P
18	Relative Humidity max below 85%	P	6	10	2	2.9	%	P
19	Solar Radiation % diff of avg	P	9	10	6	1.73	%	P
20	Solar Radiation % diff of max STD value	P	9	10	6	2.2	%	P
21	Precipitation average % difference	P	1	10	2	4.7	%	P
22	Precipitation max % difference	P	1	10	2	5.5	%	P
23	Ozone Slope	P	0	1.1	4	0.98730	unitless	P
24	Ozone Intercept	P	0	5	4	0.82037	ppb	P
25	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
26	Ozone % difference avg	P	7	10	4	0.9	%	P
27	Ozone % difference max	P	7	10	4	2.4	%	P
28	Flow Rate average % difference	P	10	5	6	0.20	%	P
29	Flow Rate max % difference	P	10	5	6	0.31	%	P
30	DAS Time maximum error	P	0	5	1	0.33	min	P
31	DAS Voltage average error	P	9	0.003	28	0.0002	V	P
32	DAS Voltage average error	P	2	0.003	28	0.0002	V	P
33	Shelter Temperature average error	P	5	1	9	1.42	c	Fail
34	Shelter Temperature max error	P	5	1	9	1.5	c	Fail

05/03/2013

SEK430

Eric Hebert

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Filter Position CommentCode 71

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

geometric orientation.

2 Parameter: Precipitation SensorComponent: Sensor Heater CommentCode 107

The tipping bucket rain gauge heater is not functioning.

3 Parameter: Precipitation SensorComponent: Properly Sited CommentCode 193

Objects violate the 45 degree rule for the tipping bucket rain gage.

4 Parameter: Temperature SensorComponent: Blower CommentCode 26

The forced-air blower for the shield is not functioning.

Field Systems Comments

1 Parameter: SitingCriteriaCom

The site is a wooded area with spaced trees on three sides and a steep drop in elevation on the west side. Although not strictly conforming to siting criteria it is elevated in a wide valley and representative of the area. Some trees have been trimmed since the previous site audit. Trees are still within 5 meters, however none are higher than the CASTNET sample inlets.

2 Parameter: ShelterCleanNotes

The shelter is aging but is in fair condition and kept clean, neat, and well organized.

3 Parameter: MetSensorComme

The rain gauge is mounted near the tower.

4 Parameter: MetOpMaintCom

The temperature sensor aspirated shield blower is not functioning which will impact temperature data accuracy.

Data Compiled: 7/27/2013 11:01:13 PM

SiteVisitDate Site Technician

05/07/2013 LAV410 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Wind Speed average error below 5m/s in m/s	P	3	0.5	8	0.01	m/s	P
2	Wind Speed max error below 5m/s in m/s	P	3	0.5	8	0.03	m/s	P
3	Wind Speed average % difference above 5 m/s	P	3	5	8	0.1	%	P
4	Wind Speed max % difference above 5 m/s	P	3	5	8	0.3	%	P
5	Wind Speed Torque average error	P	3	0.5	1	0.30	g-cm	P
6	Wind Speed Torque max error	P	3	0.5	1	0.3	g-cm	P
7	Wind Direction Input Deg True average error (de	P	2	5	8	3.2	degrees	P
8	Wind Direction Input Deg True max error (deg)	P	2	5	8	5	degrees	P
9	Wind Direction Linearity average error (deg)	P	2	5	16	2.0	degrees	P
10	Wind Direction Linearity max error (deg)	P	2	5	16	4	degrees	P
11	Wind Direction Torque average error	P	2	20	1	8	g-cm	P
12	Wind Direction Torque max error	P	2	20	1	10	g-cm	P
13	Temperature average error	P	4	0.5	3	0.15	c	P
14	Temperature max error	P	4	0.5	3	0.34	c	P
15	Relative Humidity average above 85%	P	6	10	2	1.0	%	P
16	Relative Humidity max above 85%	P	6	10	2	1.0	%	P
17	Relative Humidity average below 85%	P	6	10	4	8.0	%	P
18	Relative Humidity max below 85%	P	6	10	4	11.4	%	Fail
19	Solar Radiation % diff of avg	P	9	10	18	9.72	%	P
20	Solar Radiation % diff of max STD value	P	9	10	18	11.4	%	Fail
21	Precipitation average % difference	P	1	10	2	3.0	%	P
22	Precipitation max % difference	P	1	10	2	4.0	%	P
23	Ozone Slope	P	0	1.1	4	0.98219	unitless	P
24	Ozone Intercept	P	0	5	4	1.20291	ppb	P
25	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
26	Ozone % difference avg	P	7	10	4	1.0	%	P
27	Ozone % difference max	P	7	10	4	2.1	%	P
28	Flow Rate average % difference	P	10	5	6	1.13	%	P
29	Flow Rate max % difference	P	10	5	6	1.26	%	P
30	DAS Time maximum error	P	0	5	1	0.15	min	P
31	DAS Voltage average error	P	9	0.003	28	0.0001	V	P
32	DAS Voltage average error	P	2	0.003	28	0.0000	V	P
33	Shelter Temperature average error	P	5	1	9	1.27	c	Fail
34	Shelter Temperature max error	P	5	1	9	1.68	c	Fail

05/07/2013

LAV410

Eric Hebert

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Filter Position CommentCode 71

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

geometric orientation.

2 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

3 Parameter: Ozone SensorComponent: Cell A Freq. CommentCode 99

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

4 Parameter: Precipitation SensorComponent: System Memo CommentCode 100

The edge of the tipping bucket funnel rests on the pipe that supports the rain gauge. This causes the funnel to be out of level.

5 Parameter: Precipitation SensorComponent: Properly Sited CommentCode 193

Objects violate the 45 degree rule for the tipping bucket rain gage.

6 Parameter: Wind Direction SensorComponent: Condition CommentCode 147

The upper and lower sections of the wind sensor body are loose. This condition will cause premature failure of the sensor and can affect

data accuracy.

7 Parameter: Wind Speed SensorComponent: Prop or Cups Con CommentCode 145

Both set screws are stripped.

Field Systems Comments

1 Parameter: SiteOpsProcedures

The ozone inlet filter is changed and the sample line conditioned every two weeks.

2 Parameter: DocumentationCo

The most recent calibration and verification results are not available on-site.

3 Parameter: ShelterCleanNotes

The inside equipment is located in room within the fire station, clean, neat, and organized.

4 Parameter: SitingCriteriaCom

The site is located at the end of a park service facility parking lot, in a fire station. The tree line is near the building, but the prevailing wind direction is from the clearing. Tree height above the sample inlet is not twice as far away as it is high above the inlet.

5 Parameter: MetSensorComme

The rain gauge funnel is contacting the tipping bucket mounting post causing it to be 1/2 bubble off level. Objects violate the 45 degree rule.

6 Parameter: MetOpMaintCom

The signal cables are showing signs of wear.

Data Compiled:

7/27/2013 11:52:39 PM

SiteVisitDate	Site	Technician
05/08/2013	OXF122	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.44	c	P
2	Temperature max error	P	4	0.5	6	0.97	c	Fail
3	Ozone Slope	P	0	1.1	4	0.99852	unitless	P
4	Ozone Intercept	P	0	5	4	0.14735	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99992	unitless	P
6	Ozone % difference avg	P	7	10	4	0.7	%	P
7	Ozone % difference max	P	7	10	4	1.7	%	P
8	Flow Rate average % difference	P	10	5	2	0.12	%	P
9	Flow Rate max % difference	P	10	5	2	0.20	%	P
10	DAS Time maximum error	P	0	5	1	0.02	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0000	V	P
12	Shelter Temperature average error	P	5	1	9	0.45	c	P
13	Shelter Temperature max error	P	5	1	9	0.52	c	P

05/08/2013

OXF122

Sandy Grenville

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

Field Systems Comments

1 Parameter: SiteOpsProcComm

Due to the high operator turn-over rate, the operators are unfamiliar with some minor aspects of site operation.

2 Parameter: DasComments

The met tower is operated by the university and the temperature sensor has been moved to the sample tower in a naturally aspirated shield.

3 Parameter: SitingCriteriaCom

The site is located in university agriculture research facility.

4 Parameter: ShelterCleanNotes

The shelter roof is in poor condition with several leaks.

Data Compiled: 7/28/2013 12:13:50 AM

SiteVisitDate	Site	Technician
05/09/2013	QAK172	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	3	0.17	c	P
2	Temperature max error	P	4	0.5	3	0.22	c	P
3	Ozone Slope	P	0	1.1	4	0.99551	unitless	P
4	Ozone Intercept	P	0	5	4	0.61213	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99997	unitless	P
6	Ozone % difference avg	P	7	10	4	0.8	%	P
7	Ozone % difference max	P	7	10	4	1.3	%	P
8	Flow Rate average % difference	P	10	5	6	2.43	%	P
9	Flow Rate max % difference	P	10	5	6	2.47	%	P
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	0.61	c	P
13	Shelter Temperature max error	P	5	1	9	0.81	c	P

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is doing an excellent job maintaining the site.

2 Parameter: ShelterCleanNotes

The shelter is in good condition. It is clean, well organized, and well maintained.

Data Compiled: 7/28/2013 12:35:32 AM

SiteVisitDate	Site	Technician
05/12/2013	PND165	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.05	c	P
2	Temperature max error	P	4	0.5	6	0.14	c	P
3	Ozone Slope	P	0	1.1	4	0.95790	unitless	P
4	Ozone Intercept	P	0	5	4	0.02026	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	4.1	%	P
7	Ozone % difference max	P	7	10	4	4.4	%	P
8	Flow Rate average % difference	P	10	5	6	1.02	%	P
9	Flow Rate max % difference	P	10	5	6	1.36	%	P
10	DAS Time maximum error	P	0	5	1	0.08	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	1.43	c	Fail
13	Shelter Temperature max error	P	5	1	9	2.26	c	Fail

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator uses the filter bag received with the new filter to send the filter removed from the tower back to the lab. There is no bag for the sample filter on site for storing the filter when it is removed from the tower.

2 Parameter: DasComments

Both the heat and the air conditioner are running simultaneously.

3 Parameter: DocumentationCo

General site observations are not being recorded on the SSRF. The purpose for recording the general observations was discussed with the site operator.

4 Parameter: ShelterCleanNotes

The shelter is well maintained.

Data Compiled: 7/2

7/28/2013 2:48:21 PM

SiteVisitDate	Site	Technician
05/12/2013	PNF126	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.06946	unitless	P
2	Ozone Intercept	P	0	5	4	-0.38181	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99993	unitless	P
4	Ozone % difference avg	P	7	10	4	6.6	%	P
5	Ozone % difference max	P	7	10	4	7.5	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Flow CommentCode 99

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

2 Parameter: Ozone SensorComponent: Cell A Flow CommentCode 99

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

Data Compiled: 7/28/2013 12:57:44 AM

 SiteVisitDate
 Site
 Technician

 05/14/2013
 CNT169
 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	3	0.10	c	P
2	Temperature max error	P	4	0.5	3	0.17	c	P
3	Ozone Slope	P	0	1.1	4	0.95862	unitless	P
4	Ozone Intercept	P	0	5	4	0.26392	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	3.5	%	P
7	Ozone % difference max	P	7	10	4	4.1	%	P
8	Flow Rate average % difference	P	10	5	6	5.76	%	Fail
9	Flow Rate max % difference	P	10	5	6	6.13	%	Fail
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	0.69	c	P
13	Shelter Temperature max error	P	5	1	9	0.99	c	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell A Tmp. CommentCode 99

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

Field Systems Comments

1 Parameter: DasComments

The sample tower has been replaced and the met tower removed since the previous site audit visit.

2 Parameter: SiteOpsProcedures

The ozone inlet filter is changed once each month and the ozone sample line is leak tested every two weeks.

3 Parameter: ShelterCleanNotes

The shelter is dirty. Some floor tiles have been repaired since the previous audit visit.

Data Compiled:

7/28/2013 2:45:14 PM

SiteVisitDate	Site	Technician
05/18/2013	MCK231	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.97219	unitless	P
2	Ozone Intercept	P	0	5	4	0.30066	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99970	unitless	P
4	Ozone % difference avg	P	7	10	4	2.7	%	P
5	Ozone % difference max	P	7	10	4	5.4	%	P

Data Compiled: 7/28/2013 12:31:17 PM

SiteVisitDate Site Technician

06/06/2013 YEL408 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Wind Speed average error below 5m/s in m/s	P	3	0.5	8	0.08	m/s	P
2	Wind Speed max error below 5m/s in m/s	P	3	0.5	8	0.13	m/s	P
3	Wind Speed average % difference above 5 m/s	P	3	5	8	1.1	%	P
4	Wind Speed max % difference above 5 m/s	P	3	5	8	1.6	%	P
5	Wind Speed Torque average error	P	3	0.5	1	0.30	g-cm	P
6	Wind Speed Torque max error	P	3	0.5	1	0.3	g-cm	P
7	Wind Direction Input Deg True average error (de	P	2	5	8	9.5	degrees	Fail
8	Wind Direction Input Deg True max error (deg)	P	2	5	8	13	degrees	Fail
9	Wind Direction Linearity average error (deg)	P	2	5	16	1.2	degrees	P
10	Wind Direction Linearity max error (deg)	P	2	5	16	5	degrees	P
11	Wind Direction Torque average error	P	2	20	1	8	g-cm	P
12	Wind Direction Torque max error	P	2	20	1	8	g-cm	P
13	Temperature average error	P	4	0.5	9	0.05	c	P
14	Temperature max error	P	4	0.5	9	0.11	c	P
15	Relative Humidity average above 85%	P	6	10	2	0.9	%	P
16	Relative Humidity max above 85%	P	6	10	2	0.9	%	P
17	Relative Humidity average below 85%	P	6	10	4	2.2	%	P
18	Relative Humidity max below 85%	P	6	10	4	2.8	%	P
19	Solar Radiation % diff of avg	P	9	10	15	1.35	%	P
20	Solar Radiation % diff of max STD value	P	9	10	15	1.3	%	P
21	Precipitation average % difference	P	1	10	2	3.0	%	P
22	Precipitation max % difference	P	1	10	2	4.0	%	P
23	Ozone Slope	P	0	1.1	4	1.02906	unitless	P
24	Ozone Intercept	P	0	5	4	-0.33928	ppb	P
25	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
26	Ozone % difference avg	P	7	10	4	1.9	%	P
27	Ozone % difference max	P	7	10	4	2.8	%	P
28	Flow Rate average % difference	P	10	5	6	0.48	%	P
29	Flow Rate max % difference	P	10	5	6	0.87	%	P
30	DAS Time maximum error	P	0	5	1	0.52	min	P
31	DAS Voltage average error	P	16	0.003	35	0.0003	V	P
32	DAS Voltage average error	P	2	0.003	35	0.0001	V	P
33	Shelter Temperature average error	P	5	1	12	1.68	c	Fail
34	Shelter Temperature max error	P	5	1	12	2.06	c	Fail

06/06/2013

YEL408

Eric Hebert

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Filter Position CommentCode 71

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

2 Parameter: Precipitation SensorComponent: Properly Sited CommentCode 193

Objects violate the 45 degree rule for the tipping bucket rain gage.

3 Parameter: Wind Speed SensorComponent: System Memo CommentCode 212

The external heater that wraps around the sensor was found to be impeding the rotation of the sensor shaft. This condition impacts data accuracy. The condition was corrected during the sensor audit.

Field Systems Comments

1 Parameter: SiteOpsProcComm

Gloves are no longer used to handle the filter pack.

2 Parameter: SitingCriteriaCom

The site is located at the edge of a tree line. The trees close to the inlet are approximately 5 meters tall. Trees taller than 10 meters are 15 meters from the inlet.

3 Parameter: ShelterCleanNotes

The shelter is organized and well maintained.

4 Parameter: PollAnalyzerCom

The shelter and sample tower are located at the edge of the tree line and mountain slope. Small trees are encroaching on the sample tower. Taller trees are 10 to 15 meters from the sample tower.

Data Compiled:

7/28/2013 1:02:30 PM

SiteVisitDate	Site	Technician
06/10/2013	ROM206	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	9	0.08	c	P
2	Temperature max error	P	4	0.5	9	0.12	c	P
3	Ozone Slope	P	0	1.1	4	0.99603	unitless	P
4	Ozone Intercept	P	0	5	4	0.31352	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
6	Ozone % difference avg	P	7	10	4	0.5	%	P
7	Ozone % difference max	P	7	10	4	0.8	%	P
8	Flow Rate average % difference	P	10	5	3	0.78	%	P
9	Flow Rate max % difference	P	10	5	3	0.94	%	P
10	DAS Time maximum error	P	0	5	1	0.02	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	0.52	c	P
13	Shelter Temperature max error	P	5	1	9	0.54	c	P

SiteVisitDate Site Technician

06/10/2013 ROM206

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Flow CommentCode 99

Eric Hebert

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

2 Parameter: Ozone SensorComponent: Cell A Flow CommentCode 99

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

Field Systems Comments

1 Parameter: ShelterCleanNotes

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

2 Parameter: MetSensorComme

The temperature sensor has been removed from the met tower and mounted in a naturally aspirated shield on the sample tower.

Data Compiled:

7/28/2013 2:01:22 PM

SiteVisitDate Site Technician 06/10/2013 ROM406

Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	3	0.11	c	P
2	Temperature2meter max error	P	5	0.5	3	0.20	c	P
3	Wind Speed average error below 5m/s in m/s	P	3	0.5	4	0.05	m/s	P
4	Wind Speed max error below 5m/s in m/s	P	3	0.5	4	0.20	m/s	P
5	Wind Speed average % difference above 5 m/s	P	3	5	4	0.0	%	P
6	Wind Speed max % difference above 5 m/s	P	3	5	4	0.0	%	P
7	Wind Speed Torque average error	P	3	0.5	1	0.30	g-cm	P
8	Wind Speed Torque max error	P	3	0.5	1	0.3	g-cm	P
9	Wind Direction Input Deg True average error (de	P	2	5	3	9.7	degrees	Fail
10	Wind Direction Input Deg True max error (deg)	P	2	5	3	13	degrees	Fail
11	Wind Direction Linearity average error (deg)	P	2	5	8	10.8	degrees	Fail
12	Wind Direction Linearity max error (deg)	P	2	5	8	43	degrees	Fail
13	Wind Direction Torque average error	P	2	20	1	14	g-cm	P
14	Wind Direction Torque max error	P	2	20	1	15	g-cm	P
15	Temperature average error	P	4	0.5	3	0.10	c	P
16	Temperature max error	P	4	0.5	3	0.10	c	P
17	Relative Humidity average above 85%	P	6	10	2	4.2	%	P
18	Relative Humidity max above 85%	P	6	10	2	4.2	%	P
19	Relative Humidity average below 85%	P	6	10	4	0.8	%	P
20	Relative Humidity max below 85%	P	6	10	4	1.0	%	P
21	Solar Radiation % diff of avg	P	9	10	10	3.05	%	P
22	Solar Radiation % diff of max STD value	P	9	10	10	7.1	%	P
23	Precipitation average % difference	P	1	10	2	0.0	%	P
24	Precipitation max % difference	P	1	10	2	0.0	%	P
25	Ozone Slope	P	0	1.1	4	0.99341	unitless	P
26	Ozone Intercept	P	0	5	4	0.32985	ppb	P
27	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
28	Ozone % difference avg	P	7	10	4	0.4	%	P
29	Ozone % difference max	P	7	10	4	0.6	%	P
30	Flow Rate average % difference	P	10	5	6	0.32	%	P
31	Flow Rate max % difference	P	10	5	6	0.35	%	P
32	DAS Time maximum error	P	0	5	1	0.40	min	P
33	DAS Voltage average error	P	12	0.003	35	0.0001	V	P
34	DAS Voltage average error	P	2	0.003	35	0.0000	V	P

SiteVisitDate	Site	Technician		_		
06/10/2013	ROM406	Eric Hebert				
35 Shelter	Temperature average error	P	5	1	12	2.58
36 Shelter	Temperature max error	P	5	1	12	4.47

06/10/2013

ROM406

Eric Hebert

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Filter Position CommentCode 71

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

2 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

3 Parameter: Ozone SensorComponent: Cell A Freq. CommentCode 99

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

4 Parameter: Precipitation SensorComponent: Properly Sited CommentCode 193

Objects violate the 45 degree rule for the tipping bucket rain gage.

5 Parameter: Shelter Temperatur SensorComponent: Accuracy Mid Ran CommentCode 213

The shelter temperature is going outside CFR requirements for pollutant monitor operation.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is doing a very good job performing the site duties and expressed an interest in trying to improve any deficiencies. The sample flow rate systems for both the dry deposition and ozone sample trains were explained during the audit at the request of the site operator.

2 Parameter: SiteOpsProcedures

Mercury thermometer was removed from the shelter during the site audit. The site operator has requested additional training from ARS.

3 Parameter: ShelterCleanNotes

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

4 Parameter: MetSensorComme

The tipping bucket rain gage and solar radiation sensor have been moved to the roof of the shelter since the previous audit visit. Both temperature sensor shields have been replaced with new models.

5 Parameter: MetOpMaintCom

The wind direction sensor is exhibiting the symptoms of potentiometer failure. Wind direction data quality are being impacted by this condition.

Data Compiled:

7/28/2013 2:27:29 PM

SiteVisitDate	Site	Technician
06/12/2013	GTH161	Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	9	0.13	c	P
2	Temperature max error	P	4	0.5	9	0.21	c	P
3	Ozone Slope	P	0	1.1	4	0.93953	unitless	P
4	Ozone Intercept	P	0	5	4	0.44137	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99997	unitless	P
6	Ozone % difference avg	P	7	10	4	5.4	%	P
7	Ozone % difference max	P	7	10	4	5.8	%	P
8	Flow Rate average % difference	P	10	5	6	2.15	%	P
9	Flow Rate max % difference	P	10	5	6	2.23	%	P
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0001	V	P
12	Shelter Temperature average error	P	5	1	9	0.47	c	P
13	Shelter Temperature max error	P	5	1	9	1.11	c	Fail

06/12/2013

GTH161

Eric Hebert

Field Systems Comments

1 Parameter: SiteOpsProcComm

Due to the remote location of the site, it can take up to a week to return the filter sample to the lab after it is removed from the tower in the winter. The site operator is transferring the filter bag and caps from the new filter to the removed filter. There are no clean bags and spare caps on-site. It was discussed that the bags and caps are intended to stay with each filter and not be transferred from one to the next.

2 Parameter: DasComments

There is a new sample tower on-site to be installed in the near future.

3 Parameter: SiteOpsProcedures

The site operator is new and has not received formal training. He has been provided with written instructions prepared by the previous site operator. Site operation has improved since the previous site audit visit.

4 Parameter: ShelterCleanNotes

Some floor tiles are damaged.

5 Parameter: MetSensorComme

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

Data Compiled:

7/28/2013 2:47:00 PM

SiteVisitDate	Site	Technician
06/15/2013	DEN417	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.99826	unitless	P
2	Ozone Intercept	P	0	5	4	1.06287	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
4	Ozone % difference avg	P	7	10	4	1.9	%	P
5	Ozone % difference max	P	7	10	4	4.1	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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

Data Compiled:

7/28/2013 2:49:22 PM

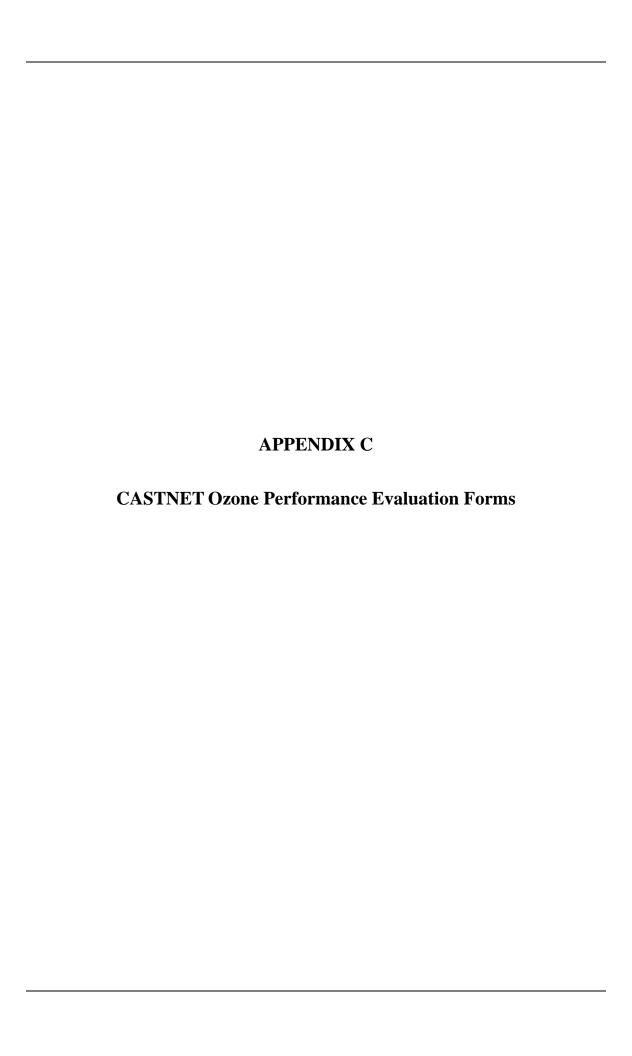
SiteVisitDate	Site	Technician
06/17/2013	MOR409	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.97890	unitless	P
2	Ozone Intercept	P	0	5	4	-0.66252	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99992	unitless	P
4	Ozone % difference avg	P	7	10	4	3.5	%	P
5	Ozone % difference max	P	7	10	4	5.3	%	P

Field Performance Comments

1 Parameter: Ozone SensorComponent: Cell B Freq. CommentCode 99

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



Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number					
СНА	CHA467-Eric Hebert-04/01/2013										
1	4/1/2013	Computer	Gateway	none	Solo	B2509462726					
2	4/1/2013	DAS	Environmental Sys Corp	90611	8816	2613					
3	4/1/2013	Modem	US Robotics	09615	56k	unknown					
4	4/1/2013	Ozone	ThermoElectron Inc	none	49i A3NAA	CM08460007					
5	4/1/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1130450193					
6	4/1/2013	Printer	Hewlett Packard	none	5610	Unknown					
7	4/1/2013	Sample Tower	Aluma Tower	03566	A	none					
8	4/1/2013	Zero air pump	Werther International	none	PC70/4	000665785					

Ozone Data Form

Mfg	erial Number Ta	Site	Te	chnician		Site Visi	it Date	Parame	eter	Owner ID
ThermoElectron Inc	CM08460007	CHA467	Er	ic Hebert		04/01/20	013	Ozone		none
Intercept 0.4	0.99999 CorrCoff 0.0000			Serial Number			ThermoElectron Inc Para 517112175 Tfer 01111			zone zone primary stan
DAS 1:	DAS 2:			Slope			0.9972	0 Inter	rcept	0.18428
A Avg % Diff: A Ma	0.6% A Avg %	6Dif A Max (% Di	Cert Da	ite		1/2/201	3 Corr	·Coff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si			Unit:	PctDif	fference:
primary	1	0.03	-0.		0		ppb			0.000/
primary	3	25.72	25. 56.		25.		ppb			0.08%
primary primary	4	56.23 86.17	86.		56. 85.		ppb ppb			-0.55%
primary	5	107.58	107		107		ppb			-0.35%
Sensor Component		107.50	Condition				PPO	Status	pass	0.1070
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	on 0.996	0			Status	pass	
Sensor Component	Inlet Filter Condition	n	Condition	On Clean				Status	pass	
Sensor Component	Line Loss		Condition	Not te	sted			Status	pass	
Sensor Component	Offset		Condition	on 0.1				Status	pass	
Sensor Component	Span		Conditio	on 1.055				Status	pass	
Sensor Component	Cell B Freq.		Conditio	78.9 k	Hz			Status	Fail	
Sensor Component	System Memo		Condition	See o	omments	i		Status	pass	
Sensor Component	Sample Train		Conditio	Poor				Status	Fail	
Sensor Component	Cell B Pressure		Conditio	on				Status	pass	
Sensor Component	Cell B Flow		Condition	0.67 l	pm			Status	pass	
Sensor Component	Cell A Tmp.		Condition	on 39.2 (Status	pass	
Sensor Component	Cell A Pressure		Condition	on 627 m	nmHg			Status	pass	
Sensor Component	Cell A Noise		Condition	0.8 pp	bb			Status	pass	
Sensor Component	Cell A Freq.		Condition	on 81.3 k	Hz			Status		
Sensor Component	Cell A Flow		Condition	0.71 l	pm			Status	pass	
Sensor Component	Battery Backup		Condition	N/A				Status	pass	
Sensor Component	Zero Voltage		Condition	0.000	2			Status	pass	

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone	CHA467	Eric Hebert	04/01/2013	System Memo	ThermoElectron	3564		✓
Stainless steel fittings	are connected to	Teflon fittings on th	e ozone analyzer	. This can cause le	eaks and premature	failure of the fi	ttings.	
Ozone	CHA467	Eric Hebert	04/01/2013	Cell B Freq.	ThermoElectron	3564		✓
This analyzer diagnos	tic check is outsid	le the manufacturer's	s recommended v	alue.				

Site Inventory by Site Visit

Site V	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
PET4	127-Eric H	lebert-04/02/2013				
1	4/2/2013	Computer	Gateway	none	Solo	B2500212709
2	4/2/2013	DAS	Environmental Sys Corp	90641	8816	2526
3	4/2/2013	Modem	US Robotics	none	56k	unknown
4	4/2/2013	Ozone	ThermoElectron Inc	none	49i A3NAA	1211052490
5	4/2/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1015543061
6	4/2/2013	Sample Tower	Aluma Tower	none	В	none

Ozone Data Form

Mfg So	erial Number Ta	Site	Teo	chnician		Site Visi	it Date	Parame	eter	Owner ID
ThermoElectron Inc 1	211052490	PET427	Eri	ic Hebert		04/02/2	013	Ozone		none
Intercept 0.6	9254 Slope: 33847 Intercept 00000 CorrCoff	0.00000	0	Mfg Serial Num Tfer ID	ber	ThermoE 5171121 01111			rameter oz er Desc. Oz	one zone primary stan
DAS 1: A Avg % Diff: A Ma 0.5%	DAS 2: x % Di	6Dif A Max (Slope Cert Date			0.9972		-	0.18428
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site	Unit:	PctDif	ference:
primary	1	0.06	-0.		0.4		ppb			
primary	2	36.16	36.		36.		ppb			1.14%
primary	3	54.32	54.:		54.		ppb			0.77%
primary	4	77.85	77.		77.		ppb			-0.01%
primary	5	105.70	105		105	.60	ppb			-0.20%
Sensor Component	Cell B Noise		Conditio	2.0 ppb				Status	pass	
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	0.9998				Status	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass	
Sensor Component	Line Loss		Conditio	Not tested	d			Status	pass	
Sensor Component	Offset		Conditio	0.000				Status	pass	
Sensor Component	Span		Conditio	1.033				Status	pass	
Sensor Component	Cell B Freq.		Conditio	78.9 kHz				Status	Fail	
Sensor Component	System Memo		Conditio	See comr	nents			Status	pass	
Sensor Component	Sample Train		Conditio	Good				Status	pass	
Sensor Component	Cell B Pressure		Conditio	on				Status	pass	
Sensor Component	Cell B Flow		Conditio	0.67 lpm				Status	pass	
Sensor Component	Cell A Tmp.		Conditio	36.0 C				Status	pass	
Sensor Component	Cell A Pressure		Conditio	608 mmH	lg			Status	pass	
Sensor Component	Cell A Noise		Conditio	1.9 ppb				Status	pass	
Sensor Component	Cell A Freq.		Conditio	77.7 kHz				Status	Fail	
Sensor Component	Cell A Flow		Conditio	0.66 lpm				Status	pass	
Sensor Component	Battery Backup		Conditio	n N/A				Status	pass	
Sensor Component	Zero Voltage		Conditio	0.0001				Status	pass	

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone This analyzer diagnostic	PET427	Eric Hebert the manufacturer's	04/02/2013 recommended	Cell B Freq. value.	ThermoElectron	3729		✓
Ozone This analyzer diagnostic	PET427	Eric Hebert	04/02/2013 recommended	Cell A Freq. value.	ThermoElectron	3729		✓

Site Inventory by Site Visit

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
GRC	474-Eric H	Hebert-04/04/2013				
1	4/4/2013	Computer	Gateway	none	Solo	B2500251337
2	4/4/2013	DAS	Environmental Sys Corp	90602	8816	2270
3	4/4/2013	Modem	US Robotics	none	33.6 sportster	unknown
4	4/4/2013	Ozone	ThermoElectron Inc	none	49i A3NAA	1023943902
5	4/4/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1130450192
6	4/4/2013	Printer	Hewlett Packard	none	842C	unknown
7	4/4/2013	Sample Tower	Aluma Tower	03570	В	none
8	4/4/2013	Zero air pump	Werther International	none	PC70/4	531380

Ozone Data Form

Mfg Se	erial Number Ta	Site	Te	chnician		Site Visi	t Date	Parame	eter	Owner II)
ThermoElectron Inc 1	023943902	GRC474	Er	ic Hebert		04/04/20	013	Ozone		none	
Slope: 1.0	0765 Slope:	0.00000	Mfg			ThermoElectron Inc Parameter			rameter	zone	
	0446 Intercept	0.00000	_	Serial N	umber	5171121	75	Tf	er Desc.	zone primary	stan
CorrCoff 1.0	00000 CorrCoff	0.00000)	Tfer ID		01111					
DAS 1:	DAS 2:			Slope			0.99720	Inter	rcept	0.184	128
A Avg % Diff: A Ma		6Dif A Max %	% Di	Cert Da	te		1/2/2013	Corr	·Coff	1.000	000
1.1%	2.7%										
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si			Unit:	PctDif	ference:	
primary primary	2	0.03 27.77	-0. 27.		-1. 26.		ppb ppb			-2.71%	
primary	3	56.06	56.		55.		ppb			-1.14%	
primary	4	83.12	83.		82.		ppb			-0.37%	
primary	5	107.99	108		107		ppb			-0.19%	
Sensor Component	Cell B Noise	24137		0.8 pp		., .		Status	pass	0.23,74	
Sensor Component								Status			,]
Sensor Component	Cell B Tillp.		Condition					Status	pass		_
Sensor Component	Fullscale Voltage		Conditio	0.9999	9			Status	pass		
Sensor Component	Sensor Component Inlet Filter Condition			on Clean				Status	pass		
Sensor Component Line Loss			Conditio	Not te	sted			Status	pass		
Sensor Component Offset			Conditio	n 1.6				Status	pass		
Sensor Component	Sensor Component Span			Condition 1.040				Status	pass		
Sensor Component	Cell B Freq.		Conditio	n 103.7	kHz			Status	pass		
Sensor Component	System Memo		Conditio	See c	omments			Status	pass		
Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component	Cell B Flow		Conditio	on 0.61 կ	om			Status	pass		
Sensor Component	Cell A Tmp.		Conditio	on 40.1 C	;			Status	Fail		
Sensor Component	Cell A Pressure		Conditio	on 594 m	mHg			Status	pass		
Sensor Component	ensor Component Cell A Noise			0.6 pp	b			Status	pass		
Sensor Component	Sensor Component Cell A Freq.			Condition 114.3 kHz				Status	pass		
Sensor Component	Cell A Flow		Conditio	o.61 կ	om			Status	pass		
Sensor Component	Battery Backup		Conditio	n N/A				Status	pass		
Sensor Component	Zero Voltage		Conditio	0.0002	2			Status	pass		

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	d Problem
Ozone	GRC474	Eric Hebert	04/04/2013	Cell A Tmp.	ThermoElectron	3570		✓

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

Site Inventory by Site Visit

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
JOT4	03-Eric H	ebert-04/08/2013				
1	4/8/2013	Computer	Hewlett Packard	none	8460p	CNU1360668
2	4/8/2013	DAS	Environmental Sys Corp	90599	8816	2271
3	4/8/2013	Modem	US Robotics	none	56k	unknown
4	4/8/2013	Ozone	ThermoElectron Inc	none	49i A3NAA	CM08460006
5	4/8/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1211052489
6	4/8/2013	Printer	Hewlett Packard	none	842C	unknown
7	4/8/2013	Sample Tower	Aluma Tower	923310	В	none
8	4/8/2013	Zero air pump	Werther International	none	PC70/4	606491

Ozone Data Form

Mfg Se	rial Number Ta	Site	Tec	chnician		Site Visi	it Date	Parame	eter	Owner I	D
ThermoElectron Inc C	M08460006	JOT403	Eri	c Hebert		04/08/20	013	Ozone		none	
Intercept 1.0	5679 Slope: 1348 Intercept 9982 CorrCoff	0.00000 0.00000 0.00000		Mfg Serial N Tfer ID	umber	ThermoE 5171121			er Desc.	zone zone primary	v stan
				Tiel ID				_	_		
DAS 1:	DAS 2:			Slope			0.99720	Inter	rcept	0.18	428
A Avg % Diff: A Max		Dif A Max %		Cert Da	te		1/2/2013	3 Corr	·Coff	1.00	000
2.1%	4.3%					1		1			
UseDescription:	ConcGroup:	Tfer Raw:	Tfer C		Sit		Site	Unit:	PctDif	ference:	
primary	1	0.16	-0.0		0.0		ppb				
primary	2	26.16	26.0		25.		ppb			-0.23%	
primary	3	55.43	55.4		54.		ppb			-1.90%	
primary	4	81.93	81.9		80.		ppb			-1.87%	
primary	5	102.85	102.	.95	98.	.53	ppb			-4.29%	
Sensor Component	Cell B Noise		Conditio	0.8 pp	b			Status	pass		
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass		
Sensor Component	Fullscale Voltage		Conditio	10.00°	18			Status	pass		
Sensor Component	Inlet Filter Conditio	n	Conditio	n Clean				Status	pass		
Sensor Component	Line Loss		Conditio	Not te	sted			Status	pass		
Sensor Component	Offset		Conditio	-0.8				Status	pass		
Sensor Component	Span		Conditio	1.001				Status	pass		
Sensor Component	Cell B Freq.		Conditio	99.3 k	Hz			Status	pass		
Sensor Component	System Memo		Conditio	on				Status	pass		
Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component	Cell B Pressure		Conditio	n				Status	pass		
Sensor Component	Cell B Flow		Conditio	0.68 lp	om			Status	pass		
Sensor Component	Cell A Tmp.		Conditio	31.7 C	;			Status	pass		
Sensor Component	Cell A Pressure		Conditio	n 643 m	mHg			Status	pass		
Sensor Component	Cell A Noise		Conditio	n 1.1 pp	b			Status	pass		
Sensor Component	Cell A Freq.		Conditio	n 101.0	kHz			Status	pass		
Sensor Component	Cell A Flow		Conditio	0.72 lp	om			Status	pass		
Sensor Component	Battery Backup		Conditio	n N/A				Status	pass		
Sensor Component	Zero Voltage		Conditio	-0.000	3			Status	pass		

Site Inventory by Site Visit

Site V	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
GRB-	411-Eric H	lebert-04/16/2013				
1	4/16/2013	Computer	Gateway	none	Solo	B2500130064
2	4/16/2013	DAS	Environmental Sys Corp	90635	8816	2507
3	4/16/2013	Modem	US Robotics	none	V.92	unknown
4	4/16/2013	Ozone	ThermoElectron Inc	90565	49C	49C-59285-322
5	4/16/2013	Ozone Standard	ThermoElectron Inc	90570	49C	49C-59301-322
6	4/16/2013	Printer	Hewlett Packard	none	842C	unknown
7	4/16/2013	Sample Tower	Aluma Tower	none	В	AT-5381-F9-2
8	4/16/2013	Zero air pump	Werther International	90722	TT70/4E	507782

Ozone Data Form

ThermoElectron Inc. 49C-50285-322 GRB411 Eric Hebert Q4/16/2013 Ozone g00565	Mfg Se	erial Number Ta	Site	Tec	chnician		Site Visi	t Date	Parame	eter	Owner ID	
DAS 1:	ThermoElectron Inc 4	9C-59285-322	GRB411	Er	ic Hebert		04/16/20	013	Ozone		90565	
DAS 1:	Intercept -0.3	30416 Intercept	0.00000	Serial Number			517112175 Tf 6					
A Avg % Diff: A Max % Di				_	Tfer ID		01111					
UseDescription: ConeGroup: Tier Raw: Tier Corr: Site: Site Unit: PetiDifference: primary 1 0.18 0.00 -0.09 pph 2.37% primary 2 28.42 28.31 28.98 pph 3.59% primary 3 54.04 54.00 55.94 pph 3.59% primary 4 81.75 81.79 84.95 pph 3.80% primary 5 104.98 105.08 109.40 pph 4.11% Sensor Component Cell B Noise Condition Condition Condition Clean Status pass Sensor Component Cell B Freq. Condition			(D10 1 7 0	(D.	Slope			0.99720	Inter	rcept	0.18428	3
primary			6Dif A Max 9	% D1	Cert Da	te		1/2/2013	Corr	·Coff	1.00000	כ
primary 2 28.42 28.31 28.98 ppb 2.37% primary 3 54.04 54.00 55.94 ppb 3.59% primary 4 81.75 81.79 84.95 ppb 3.86% primary 5 104.98 105.08 109.40 ppb 4.11% Sensor Component Cell B Noise Condition 1.8 ppb Status pass Sensor Component Fullscale Voltage Condition Conditio		ConcGroup:							Unit:	PctDif	ference:	
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Primary S 104.98 105.08 109.40 ppb 4.11%	1 .	-						• •				
Sensor Component Cell B Noise Condition Condition Status pass Sensor Component Fullscale Voltage Condition Condition Status pass Sensor Component Inlet Filter Condition Condition Condition Condition Condition Status pass Sensor Component Inlet Filter Condition Condition Condition Condition Condition Status pass Sensor Component Condition Condition												
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Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.6 Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 33.3 C Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status pass Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Componen	Sensor Component	Cell B Tmp.		Conditio	on				Status	pass		
Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.6 Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition 66.4 kHz Status Fail Sensor Component System Memo Condition See comments Status pass Sensor Component Cell B Pressure Condition Good Status pass Sensor Component Cell B Flow Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Fullscale Voltage		Conditio	on 0.999	5			Status	pass		
Sensor Component Offset Condition 0.6 Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 33.3 C Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Cell A Flow Condition 0.68 lpm Status pass	Sensor Component								Status	pass		
Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition 66.4 kHz Status Fail Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell A Tmp. Condition 33.3 C Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 69.3 kHz Status Fail Sensor Component Cell A Freq. Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	<u> </u>			Conditio	Not te	sted			Status	pass		
Sensor Component Cell B Freq. Condition 66.4 kHz Status Fail Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 573 mmHg Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component Offset			Conditio	on 0.6				Status	pass		
Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 573 mmHg Status pass Sensor Component Cell A Pressure Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Conditio	1.044				Status	pass		
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 33.3 C Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Conditio	on 66.4 k	Hz			Status	Fail		
Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.63 lpm Status pass Sensor Component Cell A Tmp. Condition 33.3 C Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	System Memo		Conditio	See co	omments			Status	pass		
Sensor ComponentCell B FlowCondition0.63 lpmStatuspassSensor ComponentCell A Tmp.Condition33.3 CStatuspassSensor ComponentCell A PressureCondition573 mmHgStatuspassSensor ComponentCell A NoiseCondition1.6 ppbStatuspassSensor ComponentCell A Freq.Condition69.3 kHzStatusFailSensor ComponentCell A FlowCondition0.68 lpmStatuspassSensor ComponentBattery BackupConditionN/AStatuspass	Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component Cell A Tmp. Condition 33.3 C Status pass Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component Cell A Pressure Condition 573 mmHg Status pass Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Flow		Conditio	0.63 lp	om			Status	pass		
Sensor Component Cell A Noise Condition 1.6 ppb Status pass Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Conditio	33.3 C	;			Status	pass		
Sensor Component Cell A Freq. Condition 69.3 kHz Status Fail Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Conditio	573 m	mHg			Status	pass		
Sensor Component Cell A Flow Condition 0.68 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Conditio	1.6 pp	b			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Conditio	on 69.3 k	Hz			Status	Fail		
	Sensor Component	Cell A Flow		Conditio	o.68 կ	om			Status	pass		
Sensor Component Zero Voltage Condition 0.0008 Status pass	Sensor Component	Battery Backup		Conditio	N/A				Status	pass		
	Sensor Component	Zero Voltage		Conditio	0.0008	3			Status	pass		

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone This analyzer diagnostic	GRB411	Eric Hebert e the manufacturer's	04/16/2013 s recommended	Cell B Freq. value.	ThermoElectron	1577		✓
Ozone This analyzer diagnostic	GRB411	Eric Hebert e the manufacturer's	04/16/2013 s recommended	Cell A Freq. value.	ThermoElectron	1577		✓

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
MEV4	405-Eric H	Hebert-04/18/2013				
1	4/18/2013	Computer	Gateway	none	450SX4	unknown
2	4/18/2013	DAS	Environmental Sys Corp	90613	8816	2616
3	4/18/2013	Modem	US Robotics	none	56k fax modem	unknown
4	4/18/2013	Ozone	ThermoElectron Inc	none	49C	0425208058
5	4/18/2013	Ozone Standard	ThermoElectron Inc	none	49C	0425208055
6	4/18/2013	Printer	Hewlett Packard	none	842C	unknown
7	4/18/2013	Sample Tower	Aluma Tower	illegible	В	none
8	4/18/2013	Zero air pump	Werther International	none	PC40/4	526289

New Component Cell B Trip. Condition	Mfg Se	erial Number Ta	Site	Te	chnician		Site Visi	t Date	Parame	eter	Owner II)
DAS 1:	ThermoElectron Inc)425208058	MEV405	Er	ic Hebert		04/18/20	013	Ozone		none	
DAS 1: DAS 2: Slope 0.99720 Intercept 0.18428	Slope: 1.0	00093 Slope:	0.00000		Mfg		ThermoE	Electron I	nc Pa	rameter 02	zone	
DAS 1:				_	Serial N	umber	5171121	75	Tf	er Desc. O	zone primary	stan
A Neg % Diff: A Max % Di	CorrCoff 0.9	99998 CorrCoff	0.00000)]	Tfer ID		01111					
UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PetDifference: primary 1 0.05 -0.13 -0.63 ppb -0.317% primary 2 27.24 27.13 26.27 ppb -1.05% primary 3 52.32 52.28 51.73 ppb -1.05% primary 4 81.47 81.51 80.57 ppb -0.30% Ppb -0.30% Ppimary 5 108.61 108.73 108.40 ppb -0.30% Pp	DAS 1:	DAS 2:			Slope			0.99720	Inter	rcept	0.184	128
primary			6Dif A Max %	% Di	Cert Da	te		1/2/2013	Corr	·Coff	1.000)00
primary 2 27.24 27.13 26.27 ppb -3.17% primary 3 52.32 52.28 51.73 ppb -1.105% primary 4 81.47 81.51 80.57 ppb -1.15% primary 5 108.61 108.73 108.40 ppb -1.15% primary 5 108.61 108.73 108.40 ppb -0.30% Sensor Component Cell B Noise Condition 0.7 ppb Status pass Sensor Component Fullscale Voltage Condition 1.0003 Status pass Sensor Component Inlet Filter Condition Condition Moderately clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Condition Status pass Sensor Component Span Condition 1.030 Status pass Sensor Component Cell B Freq. Condition Secondition Secondition Status pass Sensor Component System Memo Condition Secondition Secondition Status pass Sensor Component Cell B Pressure Condition Secondition Status pass Sensor Component Cell B Pressure Condition Second Status pass Sensor Component Cell A Tmp. Condition Condition Status pass Sensor Component Cell A Pressure Condition Condition Status pass Sensor Component Cell A Pressure Condition Condition Status pass Sensor Component Cell A Pressure Condition Condition Status pass Sensor Component Cell A Noise Condition Condition Condition Status pass Sensor Component Cell A Freq. Condition Condition Condition Status pass Sensor Component Cell A Freq. Condition Condition Condition Status pass Sensor Component Cell A Freq. Condition Condition Condition Status pass Sensor Component Cell A Freq. Condition Cond	UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site	Unit:	PctDif	ference:	
primary 3 52.32 52.28 51.73 ppb -1.05% primary 4 81.47 81.51 80.57 ppb -1.115% primary 5 108.61 108.73 108.40 ppb -1.15% -0.30% Sensor Component Cell B Noise Condition 0.7 ppb Status pass Sensor Component Fullscale Voltage Condition 1.0003 Status pass Sensor Component Inlet Filter Condition Condition Moderately clean Status pass Sensor Component Unine Loss Condition Not tested Status pass Sensor Component Offset Condition 1.00 Status pass Sensor Component Span Condition 1.00 Status pass Sensor Component Span Condition 1.030 Status pass Sensor Component Span Condition 86.4 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Cell B Freq. Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B From Condition See comments Status pass Sensor Component Cell B Fressure Condition See Component Status pass Sensor Component Cell B Fressure Condition Status pass Sensor Component Cell B Fressure Condition See Component Status pass Sensor Component Cell B Fressure Condition Status pass Sensor Component Cell A Tmp. Condition 5.72 mmHg Status pass Sensor Component Cell A Freq. Condition 6.2. kHz Status pass Sensor Component Cell A Freq. Condition 6.2. kHz Status pass Sensor Component Cell A Freq. Condition 6.2. kHz Status pass Sensor Component Cell A Freq. Condition 6.2. kHz Status pass Sensor Component Cell A Freq. Condition 6.2. kHz Status pass Sensor Component Cell A Freq. Condition 6.2. kHz Status pass		1										
primary 4 81.47 81.51 80.57 ppb -1.15% primary 5 108.61 108.73 108.40 ppb -0.30% Sensor Component Cell B Noise												
Sensor Component Cell B Noise Condition O.7 ppb Status pass	1 .	-										
Sensor Component Cell B Noise Condition Sensor Component Cell B Tmp. Condition Sensor Component Fullscale Voltage Condition Condition Sensor Component Inlet Filter Condition Condition Condition Sensor Component Inlet Filter Condition Condition Condition Not tested Sensor Component Sensor Component Sensor Component Condition Condition Sensor Component Sensor Component Sensor Component Cell B Freq. Condition Condition Condition Sensor Component Cell B Fressure Condition Condition Sensor Component Sensor Component Cell B Flow Condition Condition Sensor Component Cell A Tmp. Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Freq. Condition Condition Sensor Component Cell A Freq. Condition Condition Condition Condition Sensor Component Cell A Freq. Condition Condit												
Sensor Component Cell B Tmp. Condition Status pass			108.61				5.40				-0.30%	 7
Sensor Component Fullscale Voltage Condition 1.0003 Status pass Sensor Component Inlet Filter Condition Condition Moderately clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 1.0 Status pass Sensor Component Span Condition 1.030 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition O.60 lpm Status pass Sensor Component Cell A Tmp. Condition Good Status pass Sensor Component Cell A Pressure Condition O.60 lpm Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Freq. Condition Good Status pass Sensor Component Cell A Freq. Condition Good Status Fail Sensor Component Cell A Freq. Condition O.70 lpm Status pass Sensor Component Cell A Flow Condition O.70 lpm Status pass Sensor Component Cell A Flow Condition O.70 lpm Status pass Sensor Component Cell A Flow Condition O.70 lpm Status pass Sensor Component Cell A Flow Condition O.70 lpm Status pass	Sensor Component	Cell B Noise		Condition	on 0.7 pp	b			Status	pass		
Sensor Component Inlet Filter Condition Condition Moderately clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 1.0 Status pass Sensor Component Span Condition 1.030 Status pass Sensor Component Cell B Freq. Condition 86.4 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.60 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 6.2 kHz Status pass Sensor Component Cell A Freq. Condition 0.70 lpm Status pass Sensor Component Cell A Flow Condition 0.70 lpm Status pass	Sensor Component	Cell B Tmp.		Conditio	on				Status	pass		
Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 1.0 Status pass Sensor Component Span Condition 1.030 Status pass Sensor Component Cell B Freq. Condition Secondition Second Component Second C	Sensor Component	Fullscale Voltage		Conditio	n 1.0003	3			Status	pass		
Sensor Component Offset Condition 1.0 Status pass Sensor Component Span Condition 1.030 Status pass Sensor Component Cell B Freq. Condition 86.4 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition O.60 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 62.2 kHz Status Fail Sensor Component Cell A Freq. Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Inlet Filter Condition	n	Conditio	Mode	ately clea	an		Status	pass		
Sensor Component Span Condition 1.030 Status pass Sensor Component Cell B Freq. Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.60 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Line Loss		Condition	Not te	sted			Status	pass		
Sensor Component Cell B Freq. Condition 86.4 kHz Status pass Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass	Sensor Component	Offset							Status	pass		
Sensor Component System Memo Condition See comments Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Conditio	1.030				Status	pass		
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.60 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Conditio	86.4 k	Hz			Status	pass		
Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.60 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	System Memo		Conditio	See co	omments	i		Status	pass		
Sensor Component Cell B Flow Condition 0.60 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status Fail Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component Cell A Pressure Condition 572 mmHg Status pass Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Flow		Conditio	0.60 lp	om			Status	pass		
Sensor Component Cell A Noise Condition 0.5 ppb Status pass Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Conditio	36.7 C	;			Status	pass		
Sensor Component Cell A Freq. Condition 62.2 kHz Status Fail Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Conditio	572 m	mHg			Status	pass		
Sensor Component Cell A Flow Condition 0.70 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Conditio	0.5 pp	b			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Conditio	62.2 k	Hz			Status	Fail		
	Sensor Component	Cell A Flow		Conditio	0.70 lp	om			Status	pass		
Sensor Component Zero Voltage Condition 0.0003 Status pass	Sensor Component	Battery Backup		Conditio	n N/A				Status	pass		
	Sensor Component	Zero Voltage		Conditio	0.000	3			Status	pass		

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone	MEV405	Eric Hebert	04/18/2013	Cell A Freq.	ThermoElectron	418		✓

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

Site Vi	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
CAN4	07-Eric H	lebert-04/19/2013				
1	4/19/2013	Computer	Gateway	none	Solo	unknown
2	4/19/2013	DAS	Environmental Sys Corp	09638	8816	2523
3	4/19/2013	Modem	US Robotics	none	56k	unknown
4	4/19/2013	Ozone	ThermoElectron Inc	none	49C	0425208057
5	4/19/2013	Ozone Standard	ThermoElectron Inc	90567	49C	49C-59283-322
6	4/19/2013	Printer	Hewlett Packard	none	842C	unknown
7	4/19/2013	Sample Tower	Aluma Tower	illegible	В	none
8	4/19/2013	Zero air pump	Twin Tower Engineering	none	TT70/4E	526292

Mfg S	erial Number Ta	Site	Te	chnician		Site Visit	Date Para	ame	eter	Owner 1	ID
ThermoElectron Inc)425208057	CAN407	Er	ic Hebert		04/19/20	13 Ozo	ne		none	
Slope: 0.9	97307 Slope:	0.00000		Mfg		ThermoEl	ectron Inc	Pa	rameter 0	zone	
	Intercept	0.00000	_	Serial N	umber	51711217	' 5	Tf	er Desc.	zone primar	y stan
CorrCoff 0.9	Open CorrCoff	0.00000)	Tfer ID		01111					
DAS 1:	DAS 2:						0.00700		, 1	0.40	0.400
A Avg % Diff: A Ma		6Dif A Max %	% Di	Slope					cept		8428
1.3%	1.9%			Cert Da	te	1	1/2/2013	Corr	Coff	1.00	0000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (te:	Site Uni	t:	PctDi	fference:	
primary	1	-0.02	-0.				ppb			4.05	
primary	2	27.49	27.				ppb			-1.02%	
primary	3	55.52	55.				ppb			-1.03%	
primary	4	82.24	82.		81		pb			-1.18%	
primary	5	108.28	108			5.30 p	ppb			-1.93%	
Sensor Component	Cell B Noise		Condition	on 1.1 pp)D		Sta	tus	pass		
Sensor Component	Cell B Tmp.		Conditio	on			Sta	tus	pass		
Sensor Component	Fullscale Voltage		Conditio	0.9996	6		Sta	tus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	on Clean			Sta	tus	pass		
Sensor Component	Line Loss		Condition	Not te	sted		Sta	tus	pass		
Sensor Component	Offset			0.000			Sta	tus	pass		
Sensor Component	Span		Conditio	1.040			Sta	tus	pass		
Sensor Component	Cell B Freq.		Conditio	on 57.3 k	Hz		Sta	tus	Fail		
Sensor Component	System Memo		Condition	See co	omments	}	Sta	tus	pass		
Sensor Component	Sample Train		Conditio	Good			Sta	tus	pass		
Sensor Component	Cell B Pressure		Conditio	on			Sta	tus	pass		
Sensor Component	Cell B Flow		Conditio	0.59 lp	om		Sta	tus	pass		
Sensor Component	Cell A Tmp.		Conditio	on 40.3 C	;		Sta	tus	Fail		
Sensor Component	Cell A Pressure		Condition	on 615 m	mHg		Sta	tus	pass		
Sensor Component	Cell A Noise		Conditio	1.0 pp	b		Sta	tus	pass		
Sensor Component	Cell A Freq.		Conditio	on 92.2 k	Hz		Sta	tus	pass		
Sensor Component	Cell A Flow		Conditio	0.57 lp	om		Sta	tus	pass		
Sensor Component	Battery Backup		Conditio	on N/A			Sta	tus	pass		
Sensor Component	Zero Voltage		Condition	on -0.000)5		Star	tus	pass		

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone The cooling fan dust co temperature. This could		5 00		0	υ		one analyzer	✓
Ozone	CAN407	Eric Hebert	04/19/2013	Cell A Tmp.	ThermoElectron	216		✓
This analyzer diagnostic	c check is outsid	de the manufacturer's	s recommended	value.				
Ozone This analyzer diagnostic	CAN407	Eric Hebert	04/19/2013	Cell B Freq.	ThermoElectron	216		✓

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number		
PNF1	PNF126-Sandy Grenville-05/12/2013							
1	5/12/2013	Computer	Dell	000264	D520	unknown		
2	5/12/2013	DAS	Campbell	000346	CR3000	2125		
3	5/12/2013	Modem	Raven	06597	V4221-V	0844349884		
4	5/12/2013	Ozone	ThermoElectron Inc	000618	49i A1NAA	1009241789		
5	5/12/2013	Ozone Standard	ThermoElectron Inc	000512	49i A3NAA	0922236890		
6	5/12/2013	Sample Tower	Aluma Tower	000178	В	none		
7	5/12/2013	Zero air pump	Werther International	06886	C 70/4	000815259		

ThermoElectron Inc 1009 Slope: 1.0694		PNF126	Sa	andy Gren	ville	05/12/201	13 Ozor		000045
Slope: 1.0694	46 Slope:			,	VIIIO		0201	Е	000618
Intercept -0.3818	81 Intercept	0.00000	,	Mfg		ThermoEl		Parameter	
CorrCoff 0.9999	_	0.00000	_	Serial Nu	umber	49C-7310	4-373	Tfer Desc.	Ozone transfer
			_	Tfer ID		01100			
DAS 1:	DAS 2:			Slope		1	I.00308 In	tercept	-0.17961
A Avg % Diff: A Max % 6.6%	6 Di A Avg % 7.5%	Dif A Max %	% Di	Cert Dat	te	4	/2/2013 C	orrCoff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Sit		Site Unit	PctD	Difference:
primary	2	0.00 29.80	0.1 29.		-0.	1	pb ==		7.53%
primary primary	3	50.50	50.		32. 53.		pb pb		5.58%
primary	4	81.00	80.		86.	1	<u>ро</u> pb		7.13%
primary	5	100.20	100		106	1	pb		6.13%
Sensor Component Ce	ell B Noise		Conditio	0.9 ppl)	<u></u>		us pass	
Sensor Component Ce	ell B Tmp.		Conditio	on			Stat	pass	
Sensor Component Fu	ıllscale Voltage		Conditio	on N/A			Stat	pass	
Sensor Component Inle	et Filter Condition	n	Conditio	Clean			Stat	pass	
Sensor Component Lin	ne Loss		Conditio	Not tes	sted		Stat	pass	
Sensor Component Off	fset		Conditio	0.30			Stat	pass	
Sensor Component Sp	oan		Conditio	1.017			Stat	pass	
Sensor Component Ce	ell B Freq.		Conditio	93.2 kl	Нz		Stat	pass	
Sensor Component Sy	stem Memo		Conditio	See co	mments		Stat	pass	
Sensor Component Sa	ample Train		Conditio	Good			Stat	pass	
Sensor Component Ce	ell B Pressure		Conditio	on			Stat	pass	
Sensor Component Ce	ell B Flow		Conditio	0.000			Stat	fail	
Sensor Component Ce	ell A Tmp.		Conditio	31.9 C			Stat	pass	
Sensor Component Ce	ell A Pressure		Conditio	642 mr	mHg		Stat	pass	
Sensor Component Ce	ell A Noise		Conditio	0.8 ppt	0		Stat	pass	
Sensor Component Ce	ell A Freq.			82.8 kl			<u>.</u>	pass	
Sensor Component Ce	ell A Flow		Conditio	on 1.37 lp	m		Stat	tail fail	
Sensor Component Ba	attery Backup		Conditio	on N/A			Stat	pass	
Sensor Component Ze	ero Voltage		Conditio	N/A			Stat	pass	

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone This analyzer diagnostic	PNF126 check is outside	Sandy Grenville the manufacturer's		Cell B Flow value.	ThermoElectron	3364		✓
Ozone This analyzer diagnostic	PNF126 check is outside	Sandy Grenville the manufacturer's		Cell A Flow	ThermoElectron	3364		✓

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
MCF	K231-Eric I	Hebert-05/18/2013				
1	5/18/2013	Computer	Dell	000458	D530	unknown
2	5/18/2013	DAS	Campbell	000359	CR3000	2137
3	5/18/2013	Modem	Raven	06476	H4222-C	0808311140
4	5/18/2013	Ozone	ThermoElectron Inc	000723	49i A1NAA	1105347327
5	5/18/2013	Ozone Standard	ThermoElectron Inc	000439	49i A3NAA	CM08200015
6	5/18/2013	Zero air pump	Werther International	06924	C 70/4	000836205

Note	Mfg S	erial Number Ta	Site	Teo	chnician		Site Visi	t Date I	Parame	eter	Owner II	D
DAS 1:	ThermoElectron Inc 1	105347327	MCK231	Eri	ic Hebert		05/18/20)13	Ozone		000723	
Intercept	Slone: 0.9	7219 Slope:	0.0000		Mfg		ThermoE	lectron Ir	nc Pa	rameter	zone	
DAS 1:				;	Serial N	umber	5171121	75	Tfe	er Desc. C	zone primary	stan
DAS 1: DAS 2:	CorrCoff 0.9	9970 CorrCoff	0.00000		Tfer ID		01111					
A vg % Diff: A Max % Di	DAS 1:	DAS 2:						0.00720	Todas	4	0.10	420
UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PctDifference: primary 1 0.17 -0.35 -0.11 ppb -5.35% primary 2 30.01 29.90 28.30 ppb -5.35% primary 3 54.88 54.84 55.07 ppb 0.42% primary 4 83.75 83.80 82.30 ppb -1.79% primary 4 83.75 83.80 82.30 ppb -1.79% primary 5 109.06 109.18 105.60 ppb -3.28% Sensor Component Cell B Noise Condition 1.4 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Fitter Condition Cond			6Dif A Max %	% Di	•					- !		
primary	2.7%	5.4%			Cert Da	te		1/2/2013	Corr	:Coff	1.00	500
primary 2 30.01 29.90 28.30 ppb -5.35% primary 3 54.88 54.84 55.07 pph 0.42% primary 4 83.75 83.80 82.30 ppb -1.79% primary 5 109.06 109.18 105.60 ppb -3.28% Sensor Component Cell B Noise Condition N/A Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition C	UseDescription:	ConcGroup:							Unit:	PctDi	fference:	
primary 3 54.88 54.84 55.07 ppb 0.42% primary 4 83.75 83.80 82.30 ppb 1.79% primary 5 109.06 109.18 105.60 ppb 1.79% sass 109.06 109.18 105.60 ppb 3.28% Sensor Component Cell B Noise Condition 1.4 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.005 Status pass Sensor Component Span Condition 1.005 Status pass Sensor Component Span Condition 95.1 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Freq. Condition Good Status pass Sensor Component Cell B Pressure Condition 0.72 lpm Status pass Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 0.79 ppb Status pass Sensor Component Cell A Pressure Condition 0.9 ppb Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Status pass Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Status pass Status pass Senso		1									7.25 0/	
primary 4 83.75 83.80 82.30 ppb -1.79% primary 5 109.06 109.18 105.60 ppb -3.28% Sensor Component Cell B Noise Condition 1.4 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Not tested Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.005 Status pass Sensor Component Cell B Freq. Condition 95.1 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Good Status pass Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Pressure Condition 0.3 ppb Status pass Sensor Component Cell A Noise Condition 0.71 lpm Status pass Sensor Component Cell A Freq. Condition 0.79 lpm Status pass Sensor Component Cell A Freq. Condition 0.79 ppb Status pass Sensor Component Cell A Freq. Condition 0.79 ppb Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass	•											
Sensor Component Cell B Noise Condition 1.4 ppb Status pass	1 1	-										
Sensor Component Cell B Noise Condition Sensor Component Fullscale Voltage Condition Sensor Component Fullscale Voltage Condition Sensor Component Fullscale Voltage Condition Clean Status pass Sensor Component Line Filter Condition Condition Condition Clean Status pass Sensor Component Line Loss Condition Condition Condition Condition Sensor Component Offset Condition Sensor Component Span Condition Sensor Component Cell B Freq: Condition Sensor Component System Memo Condition Sensor Component System Memo Condition Sensor Component Sensor Component Sample Train Condition Sensor Component Cell B Pressure Condition Sensor Component Cell B Flow Condition Condition Sensor Component Cell A Tmp. Condition Sensor Component Cell A Pressure Condition Sensor Component Cell A Pressure Condition Condition Sensor Component Cell A Flow Condition Condition Condition Condition Condition Condition Sensor Component Cell A Flow Condition Condi	•							• •				
Sensor Component Cell B Tmp. Sensor Component Fullscale Voltage Condition C			109.00				.00		C4 - 4	nace	-3.26%	7
Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Not tested Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.005 Status pass Sensor Component Cell B Freq. Condition 95.1 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass	Sensor Component	Cell B Noise		Conditio	n 1.4 pp	D			Status	pass		
Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition Sensor Component Clife to Condition Sensor Component Span Condition Sensor Component Span Condition Sensor Component Cell B Freq. Condition Sensor Component System Memo Condition Sensor Component Sample Train Condition Sensor Component Cell B Pressure Condition Sensor Component Cell B Flow Condition Sensor Component Cell B Flow Condition Sensor Component Cell A Tmp. Condition Sensor Component Cell A Tmp. Condition Sensor Component Cell A Freq. Condition Sensor Component Cell A Noise Condition Sensor Component Cell A Freq. Condition Sensor Component Cell A Freq. Condition Sensor Component Cell A Flow Condition Sensor Ce	Sensor Component	Cell B Tmp.		Conditio	on				Status	pass		
Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.005 Status pass Sensor Component Cell B Freq. Condition 95.1 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Fullscale Voltage		Conditio	n N/A				Status	pass		
Sensor Component Offset Condition 0.3 Status pass Sensor Component Span Condition 1.005 Status pass Sensor Component Cell B Freq. Condition Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition O.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 94.8 kHz Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass		
Sensor Component Span Condition 1.005 Status pass Sensor Component Cell B Freq. Condition Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition N/A Status pass	Sensor Component	Line Loss		Conditio	Not te	sted			Status	pass		
Sensor Component Cell B Freq. Condition 95.1 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Offset		Conditio	0.3			-	Status	pass		
Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition O.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Conditio	1.005				Status	pass		
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Conditio	95.1 k	Hz			Status	pass		
Sensor ComponentCell B PressureConditionStatuspassSensor ComponentCell B FlowCondition0.72 lpmStatuspassSensor ComponentCell A Tmp.Condition31.8 CStatuspassSensor ComponentCell A PressureCondition703 mmHgStatuspassSensor ComponentCell A NoiseCondition0.9 ppbStatuspassSensor ComponentCell A Freq.Condition94.8 kHzStatuspassSensor ComponentCell A FlowCondition0.71 lpmStatuspassSensor ComponentBattery BackupConditionN/AStatuspass	Sensor Component	System Memo		Conditio	on				Status	pass		
Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Sample Train		Conditio	Good				Status	pass		
Sensor Component Cell A Tmp. Condition 31.8 C Status pass Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Conditio	on				Status	pass		
Sensor Component Cell A Pressure Condition 703 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Flow		Conditio	0.72 lp	om			Status	pass		
Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Conditio	31.8 C	;			Status	pass		
Sensor Component Cell A Freq. Condition 94.8 kHz Status pass Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Conditio	703 m	mHg			Status	pass		
Sensor Component Cell A Flow Condition 0.71 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Conditio	0.9 pp	b			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Conditio	94.8 k	Hz			Status	pass		
	Sensor Component	Cell A Flow		Conditio	0.71 lp	om			Status	pass		
Sensor Component Zero Voltage Condition N/A Status pass	Sensor Component	Battery Backup		Conditio	N/A				Status	pass		
	Sensor Component	Zero Voltage		Conditio	N/A				Status	pass		

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
DEΛ	1417-Sandy	Grenville-06/15/2013				
1	6/15/2013	Computer	Gateway	none	Solo	2500251309
2	6/15/2013	DAS	Environmental Sys Corp	90600	8816	2274
3	6/15/2013	Modem	US Robotics	none	33.6 fax modem	unknown
4	6/15/2013	Ozone	ThermoElectron Inc	90778	49C	49C-77033-384
5	6/15/2013	Ozone Standard	ThermoElectron Inc	90831	49C	0520012325
6	6/15/2013	Printer	Hewlett Packard	none	840C	unknown
7	6/15/2013	Sample Tower	Aluma Tower	none	В	AT-71102-7I-5
8	6/15/2013	Zero air pump	Werther International	none	PC 70/4	626281

ThermoElectron Inc	-0.17961 1.00000
Intercept	-0.17961 1.00000 erence: 4.06% 1.65% 0.71%
A Avg % Diff: A Max % Di 1.9% 4.1% UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PctDiffer primary 1 -0.23 -0.05 1.00 ppb primary 2 30.47 30.55 31.79 ppb primary 3 49.66 49.68 50.50 ppb primary 4 80.50 80.43 81.00 ppb	1.00000 erence: 4.06% 1.65% 0.71%
Cert Date 4/2/2013 CorrCoff UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PctDiffer primary 1 -0.23 -0.05 1.00 ppb primary 2 30.47 30.55 31.79 ppb primary 3 49.66 49.68 50.50 ppb primary 4 80.50 80.43 81.00 ppb	4.06% 1.65% 0.71%
primary 1 -0.23 -0.05 1.00 ppb primary 2 30.47 30.55 31.79 ppb primary 3 49.66 49.68 50.50 ppb primary 4 80.50 80.43 81.00 ppb	4.06% 1.65% 0.71%
primary 2 30.47 30.55 31.79 ppb primary 3 49.66 49.68 50.50 ppb primary 4 80.50 80.43 81.00 ppb	1.65% 0.71%
primary 3 49.66 49.68 50.50 ppb primary 4 80.50 80.43 81.00 ppb	1.65% 0.71%
primary 4 80.50 80.43 81.00 ppb	0.71%
1 mimor: 5 00.05 00.92 101.00 mmh	
primary 5 99.95 99.82 101.00 ppb	1.10/0
Sensor Component Cell B Noise Condition 0.6 ppb Status pass	
Sensor Component Cell B Tmp. Condition Status pass	
Sensor Component Fullscale Voltage Condition N/A Status pass	
Sensor Component Inlet Filter Condition Condition Clean Status pass	
Sensor Component Line Loss Condition Not tested Status pass	
Sensor Component Offset Condition -0.7 Status pass	
Sensor Component Span Condition 1.021 Status pass	
Sensor Component Cell B Freq. Condition 76.7 kHz Status Fail	
Sensor Component System Memo Condition See comments pass	
Sensor Component Sample Train Condition Good Status pass	
Sensor Component Cell B Pressure Condition Status pass	
Sensor Component Cell B Flow Condition 0.67 lpm Status pass	
Sensor Component Cell A Tmp. Condition 36.8 C Status pass	
Sensor Component Cell A Pressure Condition 695 mmHg Status pass	
Sensor Component Cell A Noise Condition 0.9 ppb Status pass	
Sensor Component Cell A Freq. Condition 92.4 kHz pass	
Sensor Component Cell A Flow Condition 0.67 lpm Status pass	
Sensor Component Battery Backup Condition N/A Status pass	
Sensor Component Zero Voltage Condition N/A Status pass	

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone	DEN417	Sandy Grenville	06/15/2013	Cell B Freq.	ThermoElectron	623		✓

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

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
MOI	R409-Sandy	v Grenville-06/17/2013				
1	6/17/2013	DAS	Environmental Sys Corp	90652	8816	2565
2	6/17/2013	Modem	US Robotics	none	14.4 fax modem	7643
3	6/17/2013	Ozone	ThermoElectron Inc	90608	49C	49C-61987-333
4	6/17/2013	Ozone Standard	ThermoElectron Inc	none	49C	49C-74537-376
5	6/17/2013	Sample Tower	Aluma Tower	none	В	none
6	6/17/2013	Zero air pump	Werther International	none	PC70/4	585572

Mfg S	erial Number Ta	Site	Te	chnician		Site Visit	Date Par	ame	eter	Owner I	D
ThermoElectron Inc 4	19C-61987-333	MOR409	Sa	andy Grer	ville	06/17/20	13 Ozo	ne		90608	
Slope: 0.9	97890 Slope:	0.00000)	Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	66252 Intercept	0.00000)	Serial N	umber	49C-7310)4-373	Tfe	er Desc. C	zone transfe	r
CorrCoff 0.9	99992 CorrCoff	0.00000)			01100					
				Tfer ID		01100					
DAS 1:	DAS 2:	(T) 0 1 3 5 0	v D !	Slope			1.00308	nter	cept	-0.17	'961
A Avg % Diff: A Ma 3.5%	x % Di A Avg % 5.3%	6Dif A Max %	% D1	Cert Da	te	4	4/2/2013	Corr	Coff	1.00	0000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Uni	t:	PctDi	fference:	
primary	1	0.14	0.3				opb				
primary	2	32.36	32.				opb			-5.30%	
primary	3	52.52	52.				opb			-2.65%	
primary	5	82.40 102.04	82. 101				opb			-3.73% -2.31%	
primary	<u> </u>	102.04				.33 <u> </u>	opb	,		-2.31%	
Sensor Component	Cell B Noise		Conditio	on 1.0 pp	ac ac		Sta	tus	pass		
Sensor Component	Cell B Tmp.		Conditio	on			Sta	tus	pass		
Sensor Component	Fullscale Voltage		Conditio	on N/A			Sta	tus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	on Clean			Sta	tus	pass		
Sensor Component	Line Loss		Conditio	Not te	sted		Sta	tus	pass		
Sensor Component	Offset		Conditio				Sta	tus	pass		
Sensor Component	Span		Conditio	on 1.131			Sta	tus	pass		
Sensor Component	Cell B Freq.		Conditio	58.9 k	Hz		Sta	tus	Fail		
Sensor Component	System Memo		Conditio	See co	omments	;	Sta	tus	pass		
Sensor Component	Sample Train		Conditio	Good			Sta	tus	pass		
Sensor Component	Cell B Pressure		Conditio	on			Sta	tus	pass		
Sensor Component	Cell B Flow		Conditio	0.78 lp	om		Sta	tus	pass		
Sensor Component	Cell A Tmp.		Conditio	34.7 C	;		Sta	tus	pass		
Sensor Component	Cell A Pressure		Conditio	705 m	mHg		Sta	tus	pass		
Sensor Component	Cell A Noise		Conditio	0.9 pp	b		Sta	tus	pass		
Sensor Component	Cell A Freq.		Conditio	89.6 k	Hz		Sta	tus	pass		
Sensor Component	Cell A Flow		Conditio	o.56 կ	om		Sta	tus	pass		
Sensor Component	Battery Backup		Conditio	on N/A			Sta	tus	pass		
Sensor Component	Zero Voltage		Condition	on N/A			Sta	tus	pass		

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Ozone	MOR409	Sandy Grenville	06/17/2013	Cell B Freq.	ThermoElectron	1389		✓

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