2013 – 1st Quarter Report Support for Conducting Systems & Performance Audits of CASTNET Sites and NADP Monitoring Stations

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Prepared for:

U. S. Environmental Protection Agency

Prepared by:



1128 NW 39th Drive Gainesville, FL 32605

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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 January 2012, the network is comprised of 82 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		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 ± 5.0% of designated rate
Ozone	Slope	Linear regression of multi-	$0.9000 \le m \le 1.1000$
Ozone			-5.0 ppb ≤ b ≤ 5.0 ppb
Ozone			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.

U.S. EPA

May, 2013

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 First Quarter 2013

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

Table 2. Site Audit Visits

Site ID	Audit Type	Sponsor	Site Location	Visit dates
CVL151	Audit w/o met	EPA	Coffeeville	2/13/2013
CAD150	CAD150 Audit w/o met		Caddo Valley	2/14/2013
ALC188	Audit w/o met	EPA	Alabama-Coushatta	2/15/2013

Site ID	Audit Type	Sponsor	Site Location	Visit dates
MAC426	Audit with met	NPS	Mammoth Cave NP	3/1/2013
CHE185	Audit with met	EPA	Cherokee Nation	3/3/2013
CDZ171	Audit w/o met	EPA	Cadiz	3/5/2013
MCK131	Audit w/o met	EPA	Mackville	3/6/2013
MCK231	Audit w/o met	EPA	Mackville (precision site)	3/6/2013
BBE401	Audit with met	NPS	Big Bend NP	3/6/2013
PAL190	Audit with met	EPA	Palo Duro	3/7/2013
CKT136	Audit w/o met	EPA	Crockett	3/9/2013

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	Visit dates
SUM156	EPA	Sumatra	2/17/2013
IRL141	EPA	Indian River Lagoon	2/20/2013
GAS153	EPA	Georgia Station	2/28/2013
SND152	EPA	Sand Mountain	2/28/2013
COW137	EPA	Coweeta	3/29/2013
ESP127	EPA	Edgar Evins St. Park	3/30/2013
SPD111	EPA	Speedwell	3/30/2013

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 First Quarter 2013

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

Table 4. Sites Surveyed – First Quarter 2013

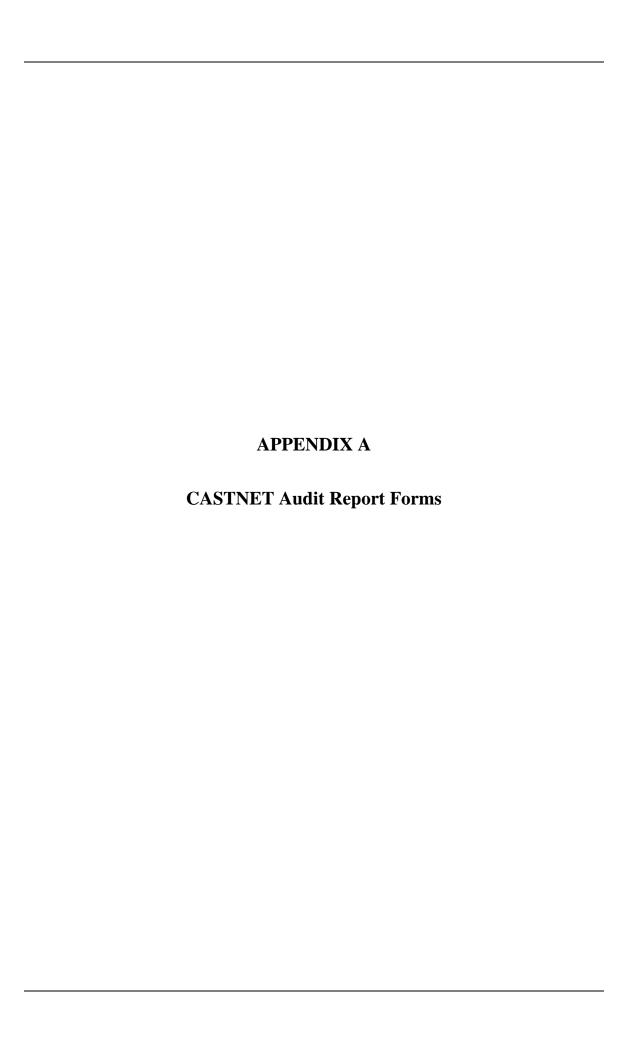
Side ID	Network	Survey Date	Station Name
FL03	NTN	2/4/2013	Bradford Forest
FL05	MDN/NTN	2/5/2013	Chassahowitzka National Wildlife Refuge
FL11	MDN/NTN/AMoN	2/20/2013	Everglades National Park-Research Center
FL14	NTN	2/12/2013	Quincy
FL23	NTN	2/17/2013	Sumatra
FL34	MDN	2/19/2013	Everglades Nutrient Removal Project
FL41	NTN	2/18/2013	Verna Well Field
FL97	MDN	2/19/2013	Everglades-Western Broward County
FL99	NTN	3/21/2013	Kennedy Space Center
GA20	NTN	3/19/2013	Claxton
KY03	NTN/AMoN	3/7/2013	Mackville
KY10	MDN/NTN	3/1/2013	Mammoth Cave National Park-Houchin Meadow
KY19	NTN	3/6/2013	Seneca Park
KY22	NTN	3/8/2013	Lilley Cornett Woods
KY99	NTN	3/5/2013	Mulberry Flat
MS12	MDN/NTN	2/12/2013	Grand Bay NERR
OK22	MDN	3/4/2013	Miami
PR20	NTN	2/12/2013	El Verde
TN04	NTN	3/30/2013	Speedwell
TN14	NTN	3/29/2013	Hatchie National Wildlife Refuge
VI01	NTN	2/13/2013	Virgin Islands National Park-Lind Point

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
CVL	151-Sandy	Grenville-02/13/2013				
1	2/13/2013	Computer	Dell	000477	D630	unknown
2	2/13/2013	DAS	Campbell	000410	CR3000	2508
3	2/13/2013	Elevation	Elevation	None	1	None
4	2/13/2013	Filter pack flow pump	Thomas	04282	107CAB18B	129800010140
5	2/13/2013	flow rate	Tylan	03867	FC280SAV	AW9508046
6	2/13/2013	Infrastructure	Infrastructure	none	none	none
7	2/13/2013	MFC power supply	Tylan	03410	RO-32	FP9403012
8	2/13/2013	Modem	Raven	06462	V42221	0808338333
9	2/13/2013	Ozone	ThermoElectron Inc	000698	49i A1NAA	1030244797
10	2/13/2013	Ozone Standard	ThermoElectron Inc	000440	49i A3NAA	CM08200016
11	2/13/2013	Sample Tower	Aluma Tower	03540	Α	none
12	2/13/2013	Shelter Temperature	Campbell	none	107-L	none
13	2/13/2013	Siting Criteria	Siting Criteria	None	1	None
14	2/13/2013	Temperature	Climatronics	06668	100093	none
15	2/13/2013	Zero air pump	Werther International	06884	PC70/4	000815263

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2508 CVL151 Sandy Grenville 02/13/2013 DAS Primary Das Date: 2 /13/2013 **Audit Date** 2 /13/2013 Datel Parameter DAS Mfg 13:30:00 Das Time: 13:30:00 **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 44 **Audit Day** 44 Tfer ID 01320 **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** 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 0.0999 0.00007 0.3000 0.2998 0.2998 V V 0.0000

0.4997

0.6995

0.8994

0.9993

V

V

V

V

V

V

V

V

0.0000

-0.0002

-0.0001

-0.0002

7

7

7

7

0.5000

0.7000

0.9000

1.0000

0.4997

0.6997

0.8995

0.9995

Flow Data Form

Mfg	Serial Nur	nber Ta	Site	Tec	chnician	Site Visit I	Date Param	eter	Owner ID
Tylan	AW95080	46	CVL151	Sa	ndy Grenville	02/13/2013	flow rat	е	03867
Mfg	Tylan				Mfg	BIOS	P	arameter Fl	ow Rate
SN/Owner ID	FP9403012	03410			Serial Number	103471	T	fer Desc. ne	exus
Parameter	MFC power su	pply			Tfer ID	01420			
			"		Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	6/13	3/2012 Cor	rCoff	1.00000
					Mfg	BIOS		arameter FI	ow Rate
					Serial Number	103424		fer Desc. B	
					Tfer ID	01410		ici Desc. =	
							00000	. [0.0000
					Slope			ercept	0.00000
					Cert Date	1/2	7/2012 Cor	rCoff	1.00000
DAS 1:		DAS 2:			Cal Factor Z		0.1		
A Avg % Diff:		A Avg %	Dif A Max	% Di	Cal Factor F		1.2		
1.53%	1.70%				Rotometer R	leading:	1.	4	
UseDescription		_	: Input STP:	MfcDisp.:					llPctDifference:
primary	pump off	0.000	0.000	-0.17	-0.145	-0.03	1/m	1/m	
primary	leak check	0.000	0.000	-0.17	-0.141	-0.02	1/m	1/m	
primary	test pt 1	1.492	1.520	1.24	1.248	1.50	1/m	1/m	-1.32%
primary	test pt 2	1.494	1.524	1.24	1.248	1.50	1/m	1/m	-1.57%
primary	test pt 3	1.496	1.526	1.24	1.247	1.50	1/m	1/m	-1.70%
Sensor Comp	onent Leak Tes	st		Conditio	n		Status	pass	
Sensor Comp	onent Filter Azi	imuth		Conditio	n 360		Status	pass	
Sensor Comp	onent Filter De	pth		Conditio	n 1.0 cm		Status	pass	
Sensor Comp	onent Filter Po	sition		Conditio	n Good		Status	pass	
Sensor Comp	onent Moisture	Present			n See comments	S	Status	pass	
	onent Rotomet		n		n Clean and dry		Status		
			•						
	onent System I				n See comments	S	Status		
Sensor Comp	onent Tubing C	Condition		Conditio			Status	pass	
	onent Filter Dis			Conditio			~	pass	

Ozone Data Form

Mfg So	erial Number Ta	Site	Teo	chnician		Site Visi	t Date	Parame	ter	Owner ID
ThermoElectron Inc 1	030244797	CVL151	Sa	ndy Gre	nville	02/13/20	013	Ozone		000698
Intercept -0.0	00458 Slope: 14842 Intercept 19999 CorrCoff	0.00000 0.00000)	Mfg Serial N Tfer ID	lumber	ThermoE 49C-731			rameter ozo	
DAS 1: A Avg % Diff: A Ma 0.5%	DAS 2: x % Di	6Dif A Max 9		Slope Cert Da	ıte		1.0012		-	-0.18383 1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si			Unit:	PctDiffe	erence:
primary	1	0.01	0.1		0.0		ppb			0.400/
primary	3	44.91 66.32	45.0 66.4		45. 66.		ppb			0.49%
primary primary	4	84.44	84.		85.		ppb ppb			0.57%
primary	5	109.81	109		110		ppb			0.22%
Sensor Component	-	103.01	Conditio				PP	Status	nass	0.2270
Sensor Component			Conditio					Status		
Sensor Component			Conditio	n N/A				Status		
Sensor Component	Inlet Filter Condition	n	Conditio	n Clear				Status	pass	
Sensor Component	Line Loss		Conditio	Not te	sted			Status	pass	
Sensor Component	Offset		Conditio	on 0.3				Status	pass	
Sensor Component	Span		Conditio	n 1.020				Status	pass	
Sensor Component	Cell B Freq.		Conditio	98.1 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					Status	pass	
Sensor Component			Conditio					Status	pass	
Sensor Component	Cell A Pressure		Conditio	727 m	nmHg			Status	pass	
Sensor Component			Conditio					Status	pass	
Sensor Component			Conditio					Status		
Sensor Component			Conditio		pm			Status		
Sensor Component			Conditio					Status		
Sensor Component	Zero Voltage		Conditio	n N/A				Status	pass	

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville CVL151 Temperature 06668 Climatronics none 02/13/2013 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** 0.16 0.38 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.02 0.06 0.000 -0.07 primary Temp Low Range 0.0 \mathbf{C} C Temp Mid Range 25.39 25.36 0.000 25.4 0.03 primary C -0.38 primary Temp High Range 48.08 47.96 0.000 47.6 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

Sit	te ID	CVL151	Technician	Sandy Grenville	Site Visit Date	02/13/2013	
	Shelter Ma	ake	Shelter Model	She	lter Size		
	Ekto		8810	640	cuft		

Sensor Component	Shelter Roof	Condition	Fair	Status	pass
Sensor Component	Sample Tower Type	Condition	Type A	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	Fair	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	Status	pass
Sensor Component	Shelter Floor	Condition	Poor	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	Fair	Status	pass

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	CVL151	Sandy Grenville	02/13/2013	Shelter Temperatu	ure none
DAS 1:	DAS 2:		Mfg	Extech	Parameter S	Shelter Temperatur
Abs Avg Err Ab	s Max Er Abs Avg	Err Abs Max Er	Serial Number	H232734	Tfer Desc.	RTD
			Tfer ID	01227		
			Slope	1.00435	Intercept	-0.08480
			Cert Date	1/12/2013	3 CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	16.14	16.15	0.000	16.3	C	0.1
primary	Temp Mid Range	16.04	16.05	0.000	16.0	С	-0.04
primary	Temp Mid Range	15.88	15.90	0.000	16.0	C	0.05

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	l Problem
Flow Rate	CVL151	Sandy Grenville	02/13/2013	Moisture Present	Tylan	1204		
The filter sample tubing	has drops of moi	sture in low section	s outside the sh	elter.				

Field Systems Comments

1 Parameter: DocumentationCo

The site operations manual does not apply to the currently installed instrumentation.

2 Parameter: SitingCriteriaCom

The site is located in a Pine forest on USFS managed land. The tree line has been cut back to at least 17 meters from the site.

3 Parameter: ShelterCleanNotes

The shelter is somewhat cluttered. The floor and lower walls are beginning to rot.

F-02058-1500-S1-rev001

Site ID CVL151	Technician Sandy Grenville	Site Visit Date 02/1	3/2013
Site Sponsor (agency)	EPA	USGS Map	Coker Lake
Operating Group	Private - USFS	Map Scale	
AQS#		Map Date	
Meteorological Type	Climatronics		
Air Pollutant Analyzer	Ozone	QAPP Latitude	34.0028
Deposition Measurement	dry, wet	QAPP Longitude	-89.7989
Land Use	woodland - evergreen	QAPP Elevation Meters	134
Terrain	rolling	QAPP Declination	0.2
Conforms to MLM	Marginally	QAPP Declination Date	2/22/2006
Site Telephone	(662) 623-7334	Audit Latitude	34.002747
Site Address 1	Forest Road 809	Audit Longitude	-89.799183
Site Address 2	Tombigbee National Forest	Audit Elevation	138
County	Yalobusha	Audit Declination	-0.95
City, State	Tillatoba, MS	Present	
Zip Code	38961	Fire Extinguisher	No inspection date
Time Zone	Central	First Aid Kit	
Primary Operator	Gail Thompson	Safety Glasses	
Primary Op. Phone #	(662) 675-8187	Safety Hard Hat	
Primary Op. E-mail	gtpworksite@yahoo.com	Climbing Belt	
Backup Operator	none	Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Ekto Me	8810	Shelter Size 640 cuft
	Notes The shelter is somewhat clutter	red. The floor and lower walls	are beginning to rot.
	Notes	withing the state of the state	
Fores after t	interstate 55 take exit 220 east on highwat t Service sign for the Yalobusha County V he facility turn left on forest service road 8 309. Continue approximately 0.3 miles to	Vork Center and Jamie L. White 602. Continue approximately 1	ter Plant Materials Center. Immediately

F-02058-1500-S2-rev001

Site ID CVL151 Technician Sandy Grenville Site Visit Date 02/13/2013

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	17 m	
Obstacles to wind	10 times obstacle height		_

Siting Distances OK

Siting Criteria Comment

The site is located in a Pine forest on USFS managed land. The tree line has been cut back to at least 17 meters from the site.

F-02058-1500-S3-rev001

Site	ID	CVL151	Technician	Sandy Grenville		Site Visit Date 02/13/2013
1		nd speed and dire afluenced by obst	ction sensors sited so ructions?	as to avoid	✓	N/A
2	(i.e. win	d sensors should	ed so as to minimize be mounted atop the oom >2x the max diar 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	I sensors sited to avo 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	r 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 facing n		nsor sited with the gr	rid surface	✓	N/A
11	Is it inc	clined approxima	tely 30 degrees?		✓	N/A
	ATTENDED TO THE RESERVE OF		nation (photograph on ay affect the monito			y) regarding conditions listed above, or any other features,

te ID	CVL151	Technician Sa	andy Grenville	21413	Site Visit Date 02/13/	2013		
	he meterologica on, and well mai	l sensors appear to be intintained?	tact, in good	✓	Temperature only			
	the meteorologiong data?	cal sensors operational o	nline, and	✓	Temperature only			
Are the	shields for the t	temperature and RH sens	sors clean?	✓				
Are the	aspirated moto	rs working?		✓				
Is the se		ensor's lens clean and free	e of	✓	N/A			
Is the s	urface wetness s	ensor grid clean and und	lamaged?	✓	N/A			
	sensor signal aron, and well mai	nd power cables intact, in intained?	ı good	✓				
		nd power cable connectio well maintained?	ons protected	✓				
rameter		Manufacturer	Model		S/N		Client ID	
nperature		Climatronics	100093		none	(06668	

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Site	ID	CVL151	Technician Sar	ndy Grenville	2003	Site Visit Date	02/13/2013	
	Siting (Criteria: Are the	pollutant analyzers and o	leposition eq	uipi	ment sited in accord	lance with 40 CFR	58, Appendix E
		sample inlets hav	ve at least a 270 degree ar	ec of	✓			
2	Are the	sample inlets 3 -	15 meters above the gro	und?	✓			
		sample inlets > 1 meters from tree	1 meter from any major o s?	obstruction,		17 meters		
	Polluta	nt analyzers and	deposition equipment op	erations and	ma	<u>intenance</u>		
		analyzers and eq on and well main	uipment appear to be in a	good	✓			
		analyzers and m	onitors operational, on-l	ine, and	✓			
3	Describ	e ozone sample t	ube.			1/4 teflon by 12 met	ers	
4	Describ	e dry dep sample	e tube.			3/8 teflon by 12 met	ers	
		line filters used in e location)	n the ozone sample line?	(if yes	✓	At inlet only		
	Are san		free of kinks, moisture, a	nd		Moisture in tubing o	nly	
7	Is the z	ero air supply de	siccant unsaturated?		✓			
8	Are the	re moisture trap	s in the sample lines?		✓			
	Is there clean?	a rotometer in t	he dry deposition filter li	ne, and is it	✓	Clean and dry		
Para	meter		Manufacturer	Model		S/N	C	lient ID
Sam	ple Tow	er	Aluma Tower	A	elsenn)	none	03	8540
Ozor	ne		ThermoElectron Inc	49i A1NAA	SEA T	1030244797	OC	00698
Filter	r pack flo	ow pump	Thomas	107CAB18	В	12980001014	0	1282
MFC	power	supply	Tylan	RO-32	BISE	FP9403012	03	3410
Zero	air pum	p	Werther International	PC70/4	NEWS !	000815263	06	884
			nation (photograph or ske ay affect the monitoring p		ary)	regarding condition	ons listed above, or a	any other features,

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Site	· ID	CVL151	Technician	Sandy Grenville		Site Visit D	oate 02/13/	2013		
	DAS, ser	nsor translators, and	peripheral equ	ipment operatio	ns ai	nd maintenance				
1		OAS instruments appintained?	ear to be in goo	d condition and	V					
2	Are all t	he components of th backup, etc)	e DAS operation	nal? (printers,	✓					
3		nalyzer and sensor s g protection circuitry		through	✓	Met sensors on	ly			
4		signal connections plintained?	rotected from th	e weather and	✓					
5	Are the	signal leads connecto	ed to the correct	DAS channel?	✓					
6	Are the grounde	DAS, sensor translated?	ors, and shelter	properly	✓					
7	Does the	e instrument shelter	have a stable po	wer source?	✓					
8	Is the in	strument shelter tem	perature contro	olled?	~					
9	Is the m	et tower stable and g	rounded?			Stable		Grounde	d	,
10	Is the sa	mple tower stable ar	nd grounded?			✓		✓		
11	Tower c	omments?								
Pai	rameter	N	Ianufacturer	Model		S/N		Cl	ient ID	
Cor	nputer)ell	D630	12200	unknowr		00	0477	
DA	S	[C	ampbell	CR3000		2508		00	0410	
Mo	dem	F	aven	V42221		0808338		06	462	
							4			
		additional explanati				y) regarding co	onditions li	sted above, or	any other fo	eatures,
1	ural or m			AND DESCRIPTION OF THE PARTY OF						
	ural or m				E E CLA					
	ural or m									
	ural or m									

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Site ID CVL151		Technic	ian	Sandy Grenville	Site Visit Date	02/13/2013		
Documentation								
Does the site have the requir					2			
Wind speed sensor	Yes	No	N/A	A Data logg		Yes	No 🗸	N/A
Wind direction sensor	H		✓	Data logg Data logg		H		∠
Temperature sensor	H	✓			rt recorder			✓
Relative humidity sensor			✓	Compute		<u></u>		
Solar radiation sensor			✓✓	Modem			✓	
Surface wetness sensor			V	Printer				
Wind sensor translator			✓	Zero air į	numn		✓	
Temperature translator			V	Filter flow	PROFESSION STREET, STR		✓	
Humidity sensor translator			✓	Surge pro				✓
Solar radiation translator			✓	UPS				
Tipping bucket rain gauge			✓		protection device			✓
Ozone analyzer	✓			Shelter he			✓	
Filter pack flow controller	✓			Shelter ai	r conditioner	✓		
Filter pack MFC power supply	. 🗆	✓						
Does the site have the requ	ired an	d most i	rece	nt OC documents and	d report forms?			
	Presei	(N. 1997)				Curre	nt	
Station Log	✓ v				la l	✓		
SRF	<u>~</u>	2000				✓		
ite Ops Manual	<u></u>		ne 20	007				
ASP	✓		v 200					
ield Ops Manual	✓		y 199					
alibration Reports	<u>~</u>	TO SECURE OF THE PARTY OF THE P	,			✓		
Ozone z/s/p Control Charts								
reventive maintenance schedu	ıl 🗀]						
1 Is the station log properly	comple	eted dur	ing o	every site visit? 🔽				
2 Are the Site Status Report	Forms	s being c	comp	oleted and				
current?				<u>. </u>				
3 Are the chain-of-custody f sample transfer to and fro	m lab?							
4 Are ozone z/s/p control chacurrent?	arts pro	operly c	omp	leted and	Control charts not us	sed		
Provide any additional explana					regarding conditi	ons listed a	above, o	or any
natural or man-made, that may					- A - A			
The site operations manual does	not app	y to the	curre	ently installed instrume	entation.		15 (55, 18)	

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Site II	CVL151	Technician	Sandy Grenville	Site Visit Date	02/13/2013	
1 I	Site operation procedures Has the site operator attended ourse? If yes, when and who		STNET training	Trained by J.B. And	erson during site upgra	ade
2 I	Ias the backup operator atte raining course? If yes, when	nded a formal				
	the site visited regularly on hedule?	the required T	uesday	✓		
	re the standard CASTNET of ollowed by the site operator?		cedures being	V		
5 Is	the site operator(s) knowled he required site activities? (in	geable of, and cluding docum	able to perform entation)			
<u>A</u>	re regular operational QA/Q	C checks perfe	ormed on meteor	ological instruments?		
QC C	heck Performed		Frequency		Compliant	
Multi	point Calibrations	V	Semiannually	1	✓	
Visua	l Inspections	V	Weekly	100 10 - 11 5 1 0 10 10 10 10 10 10 10 10 10 10 10 10	✓	
Trans	lator Zero/Span Tests (clima				✓	
Manu	al Rain Gauge Test	V	Nacros		✓	
Confi	rm Reasonableness of Curre		SALES CONTRACTOR OF AN ACCUSION OF		V	
Test S	Surface Wetness Response	V	N/A	T. W. 111/11/12 - 10.11 - 20.11	✓	
<u>A</u>	re regular operational QA/Q	C checks perf	ormed on the ozo	ne analyzer?		
QC C	heck Performed		Frequency		Compliant	
Multi	-point Calibrations	V	CONTRACTOR OF THE PARTY OF THE	1	✓	
Autor	natic Zero/Span Tests	V	Daily	Nacional Processor State of the Control of the Cont	V	
Manu	al Zero/Span Tests					
Autor	natic Precision Level Tests	_	Daily		<u> </u>	
Manu	al Precision Level Test					
Analy	zer Diagnostics Tests	V	A Commence of the Commence of		<u> </u>	
	e Filter Replacement (at inle		THE SHARE WAS ASSESSED.	(S	<u> </u>	
	e Filter Replacement (at anal		N/A		<u> </u>	
100000000000000000000000000000000000000	le Line Check for Dirt/Water		Control of the Contro		V	
Zero	Air Desiccant Check	V	Weekly		✓	
Sa	o multi-point calibration gas ample train including all filte o automatic and manual z/s/	rs?		□ Unknown		
3 A	omplete sample train including re the automatic and manua	ng all filters?		SSRF, logbook, call	-in	
Provid	eported? If yes, how? The any additional explanation or man-made, that may aff				ions listed above, or a	iny other features,

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Site	e ID	CVL151	Tecl	nician	Sandy Grenville		Site Visit Dat	te 02/13/2013	
	Site op	eration procedures							
1	Is the f	ilter pack being changed	l every	Tuesd	ay as scheduled?	V	Filter changed after	ernoons	
2	Are the	e Site Status Report Forr lly?	ns bei	ng com	pleted and filed	✓			
3	Are da schedu	ta downloads and backu led?	ps bei	ng perf	ormed as		No longer required	d	
4	Are ge	neral observations being	made	and re	corded? How?	✓	SSRF, logbook		
5	Are sit	e supplies on-hand and r 1?	epleni	shed in	a timely	✓			
6	Are sai	mple flow rates recorded	? Hov	7 ?		✓	SSRF, call-in		
7	Are san	mples sent to the lab on a	ı regul	ar sche	dule in a timely	✓			
8		ters protected from conta	amina	tion du	ring handling	✓	Clean gloves on a	and off	
9		e site conditions reported ions manager or staff?	l regul	arly to	the field	~			
QC	Check I	Performed		Fre	quency			Compliant	
N	Aulti-po	int MFC Calibrations		✓ Sen	niannually	me_en		V	
F	low Sys	tem Leak Checks		✓ Wee	ekly			✓	
F	ilter Pa	ck Inspection				********			
		te Setting Checks		✓ Wee	CONTRACTOR OF THE PROPERTY OF THE PARTY OF T	BLESSON:		V	
		heck of Flow Rate Roton		Wee	THE RESIDENCE PROPERTY OF THE PARTY OF THE P	20000	INCOME REPORT OF THE PARTY OF T	V	
		ilter Inspection/Replacen		CI Property	niannually	2016/27/2	✓		
S	Sample I	Line Check for Dirt/Wate	er	✓ Wee	ekly	W. S.		•	
	CONTRACTOR OF THE PARTY OF THE	additional explanation () an-made, that may affec		AND DESCRIPTION OF THE PERSON NAMED IN		90.0000400	y) regarding condi	itions listed above, or ar	y other features,

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
CAI	D150-Sandy	Grenville-02/14/2013				
1	2/14/2013	Computer	Dell	000306	D520	unknown
2	2/14/2013	DAS	Campbell	000421	CR3000	2530
3	2/14/2013	Elevation	Elevation	None	1	None
4	2/14/2013	Filter pack flow pump	Thomas	00462	107CA110	09883403-01-4
5	2/14/2013	flow rate	Tylan	000090	FC280SAV	AW99013048
6	2/14/2013	Infrastructure	Infrastructure	none	none	none
7	2/14/2013	MFC power supply	Teledyne	01517	CPR-1A	149
8	2/14/2013	Modem	Raven	06515	NL115	3875
9	2/14/2013	Ozone	ThermoElectron Inc	000624	49i A1NAA	1009241792
10	2/14/2013	Ozone Standard	ThermoElectron Inc	000364	49i A3NAA	0726124687
11	2/14/2013	Sample Tower	Aluma Tower	03538	Α	none
12	2/14/2013	Shelter Temperature	Campbell	none	107-L	none
13	2/14/2013	Siting Criteria	Siting Criteria	None	1	None
14	2/14/2013	Temperature	Climatronics	06648	100093	none
15	2/14/2013	Zero air pump	Werther International	06885	C 70/4	000814270

DAS Data Form 0.05 **DAS Time Max Error:** Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2530 CAD150 Sandy Grenville 02/14/2013 DAS Primary Das Date: 2 /14/2013 **Audit Date** 2 /14/2013 Datel **Parameter** DAS Mfg 12:26:14 12:26:11 Das Time: **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 45 **Audit Day** 45 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff:** Max Diff: 1.00000 0.00000 Slope **Intercept** 0.0002 0.0004 0.0002 0.0004 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 -0.0001 0.0000 0.0001 V V 7 0.1000 0.0998 0.1000 0.0002 7 0.3000 0.2997 0.2993 V V -0.0004 7 0.5000 0.4998 V V 0.00020.4996 7 0.7000 V V 0.0002 0.6995 0.6997 V V 7 0.9000 0.8994 0.8996 0.00027 0.9993 V V 0.0003 1.0000 0.9996

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Teo	chnician	Site Visit D	ate Param	eter	Owner ID	
Гуlan	AW990130)48	CAD150	Sa	ndy Grenville	02/14/2013	flow rat	е	000090	
Mfg	Teledyne				Mfg		BIOS		arameter Flow Rate	
SN/Owner ID 149 01517				Serial Number	103471	T	fer Desc. ne	er Desc. nexus		
Parameter MFC power supply				Tfer ID	01420					
					Slope	1.0	00000 Inte	rcept	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	rcept	0.00000	
					Cert Date	1/27	7/2012 Cor	rCoff	1.00000	
DAS 1:		DAS 2:		L	Cal Factor Z	ero	0.1	2		
A Avg % Diff:	A Max % Di	A Avg %	6Dif A Max	x % Di	Cal Factor F	ull Scale	1.2	1		
2.02%	2.15%				Rotometer R	eading:	1.3	5		
UseDescription:	Test type:	Input 1/n	n: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	DutputSigna	PctDifference:	
primary	pump off	0.000	0.000	-0.26	0.127	-0.02	1/m	1/m		
primary	leak check	0.000	0.000	-0.25	0.121	-0.01	1/m	l/m		
primary	test pt 1	1.506	1.530	2.54	1.270	1.50	l/m	l/m	-1.96%	
primary	test pt 2	1.509	1.533	2.54	1.268	1.50	l/m	l/m	-2.15%	
primary	test pt 3	1.509	1.530	2.54	1.268	1.50	1/m	l/m	-1.96%	
Sensor Comp	onent Leak Tes	st		Conditio	n		Status	pass		
Sensor Compo	onent Filter Azi	muth		Conditio	n 290 deg	Status	Status pass			
Sensor Component Filter Depth			Conditio	1.5 cm		Status	Status pass			
Sensor Component Filter Position			Conditio	n Good	Status	pass				
Sensor Component Moisture Present			Conditio	n No moisture p	Status	Status pass				
Sensor Component Rotometer Condition			Conditio	Clean and dry	Status	pass				
	onent System N			Conditio			Status			
Sensor Component Tubing Condition				on Good		Status pass				
Sensor Component Filter Distance			_	5.5 cm		Status pass				
bensor Comp	onent into Dio			Condido	3.5 5.71		Status	P 4400		

Ozone Data Form

Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	Date Para	ame	ter	Owner I	D
ThermoElectron Inc 1	009241792	CAD150	Sa	andy Grer	nville	02/14/20	Ozo	ne		000624	
Slope: 0.98806 Slope:		0.00000		Mfg		ThermoElectron Inc P		Par	arameter ozone		
Intercept 0.40998 Intercept		0.00000		Serial N	umber	49C-7310	04-373	Tfe	er Desc. C	zone transfe	r
CorrCoff 0.9	9997 CorrCoff	0.00000		Tfer ID		01100					
				Her ID		01100			,		
DAS 1:	DAS 2:	TD:C A M 0	/ D !	Slope			1.00121 I	nter	cept	-0.18	383
A Avg % Diff: A Ma 0.8%	1.1% A Avg %	6Dif A Max %	70 D1	Cert Da	te		1/2/2013	orr	Coff	1.00	0000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si	te:	Site Unit	:	PctDi	fference:	
primary	1	0.02	0.2				ppb				
primary	2	46.73	46.				ppb			-1.05%	
primary	3	66.60 85.16	66.70 85.24				ppb			-0.97% -0.87%	
primary primary	5	110.77	110				ppb ppb			-0.87%	
Sensor Component		110.77		n 1.3 pp		,.30 <u>j</u>		- Tag	pass	-0.4070	
Sensor Component	Cell B Noise		Conditio	1.5 pp	, D		Sta	us	pass		
Sensor Component	Cell B Tmp.		Conditio	on			Stat	tus	pass		
Sensor Component	Fullscale Voltage		Condition N/A			Status pa		pass			
Sensor Component	Inlet Filter Condition	n	Condition Clean			Stat	us	pass			
Sensor Component	Line Loss		Condition Not tested			Stat	us	pass			
Sensor Component	Offset	Condition 0.02				Stat	us	pass			
Sensor Component	Span	Condition 1.021			Status		pass				
Sensor Component	Cell B Freq.		Condition 82.8 kHz			Stat	tus	pass			
Sensor Component	System Memo		Condition		Status pas		pass				
Sensor Component	Sample Train		Condition Good		Status P		pass				
Sensor Component	Cell B Pressure		Condition				Stat	us	pass		
Sensor Component	Cell B Flow		Condition 0.75 lpm		Status		us	pass			
Sensor Component Cell A Tmp.			Condition 32.7 C			Stat	us	pass			
Sensor Component Cell A Pressure			Condition 737 mmHg			Stat	tus	pass			
Sensor Component Cell A Noise			Condition 0.9 ppb			Stat	tus	pass			
Sensor Component		Condition 84.9 kHz			Stat	tus	pass				
Sensor Component Cell A Flow			Conditio	Condition 0.75 lpm		Status		tus	pass		
Sensor Component Battery Backup			Conditio	lition N/A			Stat	tus	s pass		
Sensor Component Zero Voltage			Condition	n N/A			Stat	tus	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville CAD150 Temperature 06648 Climatronics none 02/14/2013 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** 0.08 0.13 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: 0.23 0.000 primary Temp Low Range 0.31 0.2 C -0.13C Temp Mid Range 25.24 25.22 0.000 25.3 0.1 primary C -0.02 primary Temp High Range 46.33 46.21 0.000 46.2 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 II	CAD150	Technician	Sandy Grenville	Site Visit Date	02/14/2013	
She	elter Make	Shelter Model	She	lter Size		
Ekt	0	8810	640	cuft		
ili dana			DESCRIPTION OF A STATE	NESSAMONAS ESTADAS ESTA		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Type A	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	Fair	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	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	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
none	CAD150	Sandy Grenville	02/14/2013	Shelter Temperature	none
DAS 2:		Mfg	Extech	Parameter She	Iter Temperatur
Max Er Abs Avg 0.14	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
	none DAS 2: Max Er Abs Avg	DAS 2: Max Er Abs Avg Err Abs Max Er	DAS 2: Max Er 0.14 DAS 2: Mfg Serial Number Tfer ID Slope	none CAD150 Sandy Grenville 02/14/2013 DAS 2: Max Er 0.14 Serial Number H232734 Tfer ID 01227 Slope 1.00433	none CAD150 Sandy Grenville 02/14/2013 Shelter Temperature DAS 2: Mfg Extech Parameter She Abs Avg Err Abs Max Er 0.14 Serial Number H232734 Tfer Desc. RTD Tfer ID 01227 Slope 1.00435 Intercept

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	21.81	21.80	0.000	21.9	С	0.06
primary	Temp Mid Range	21.89	21.88	0.000	21.9	С	0
primary	Temp Mid Range	22.68	22.67	0.000	22.5	С	-0.14

Field Systems Comments

1 Parameter: SiteOpsProcedures

The ozone analyzer sample train is leak checked by capping the inlet every two weeks.

2 Parameter: ShelterCleanNotes

The bottom of the shelter walls are very badly deteriorated. The floor and ceiling have been repaired.

3 Parameter: PollAnalyzerCom

Both the filter pack flow tubing and ozone sample line fold tightly against the tower hinge when the tower is lowered. This could eventually cause damage to the tubing.

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Site ID CAD150	Technician Sandy Grenville	Site Visit Date 02/1	4/2013
Site Sponsor (agency)	EPA	USGS Map	Caddo Valley
Operating Group	Ouachita Baptist University	Map Scale	
AQS#		Map Date	
Meteorological Type	Climatronics		
Air Pollutant Analyzer	Ozone	QAPP Latitude	34.1792
Deposition Measurement	dry, wet	QAPP Longitude	-93.0989
Land Use	woodland - mixed	QAPP Elevation Meters	71
Terrain	gently rolling	QAPP Declination	2.3
Conforms to MLM	Marginally	QAPP Declination Date	12/28/2004
Site Telephone	(870) 246-0030	Audit Latitude	34.179278
Site Address 1	DeGray Regulating Dam	Audit Longitude	-93.098755
Site Address 2	Route 390	Audit Elevation	78
County	Clark	Audit Declination	1.3
City, State	Arkadelphia, AR	Present	
Zip Code	71923	Fire Extinguisher	No inspection date
Time Zone	Central	First Aid Kit	
Primary Operator	Harell Beckwith	Safety Glasses	
Primary Op. Phone #	(870) 245-5239	Safety Hard Hat	
Primary Op. E-mail	beckwithh@obu.edu	Climbing Belt	
Backup Operator	Clark Kuyper	Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step 🔽	
Shelter Working Room ✓		odel 8810	Shelter Size 640 cuft
		are very badly deteriorated.	The floor and ceiling have been repaired.
	Notes Interstate 30 in Arkadelphia take exit 78 a	and turn west on route 7. Gos	outh on Lower Dam Pike, route 390
immed	diately west of the interstate. This road ru Continue for approximately 1 mile, the sit	ins parallel to the interstate for	approximately 1/2 mile and then turns
west.	Commo for approximately 1 mile, the sil	to this book the love just belove	action of the second of the se

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Site ID CAD150 Technician Sandy Grenville Site Visit Date 02/14/2013

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		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	27	
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	CAD150	Technician Sandy Gr	renville	Site Visit Date 02/14/2013
1		d speed and direction fluenced by obstruction	sensors sited so as to avo	oid 🔽	N/A
2	(i.e. win	d sensors should be m	as to minimize tower efformated atop the tower or 2x the max diameter of t	on a	N/A
3		tower and sensors plu		✓	N/A
4			ointed north or positione uch as buildings, walls, et	c?	
5	condition surface	ns? (i.e. ground below	sors sited to avoid unnature sensors should be nature l. Ridges, hollows, and are ided)	al	
6	Is the so	lar radiation sensor p	lumb?	•	N/A
7	Is it site light?	d to avoid shading, or	any artificial or reflected	d 🔽	N/A
8	Is the ra	in gauge plumb?		~	N/A
9	Is it site towers,		ffects from buildings, tre	ees,	N/A
10	Is the su facing n		sited with the grid surfac	e 🗸	N/A
11	Is it inc	lined approximately 3	0 degrees?	~	N/A
			n (photograph or sketch ffect the monitoring para		y) regarding conditions listed above, or any other features,

Fic	eld Sy	ystems Data l	Form				F-02058	-1500-S4-rev	001
Site	e ID	CAD150	Technician	Sandy Grenville		Site Visit Date	02/14/2013		
1		the meterological sen on, and well maintai		intact, in good	✓	Temperature only			
2		the meteorological s ng data?	ensors operationa	l online, and	✓	Temperature only			
3	Are the	e shields for the temp	perature and RH s	ensors clean?	✓				
4	Are the	e aspirated motors w	orking?		✓				
5	Is the s	olar radiation sensor	r's lens clean and i	free of	✓	N/A			
6	Is the s	urface wetness senso	or grid clean and u	indamaged?	✓	N/A			
7		e sensor signal and p on, and well maintai		, in good	✓	N/A			

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

Model

100093

S/N

none

Client ID

06648

Are the sensor signal and power cable connections protected ✓ N/A

Manufacturer

Climatronics

from the elements and well maintained?

Parameter

Temperature

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Site ID	CAD150	Technician S	andy Grenville	580 1125	Site Visit Date 02	2/14/2013	
Siting	Criteria: Are the n	ollutant analyzers and	l deposition ec	uipr	nent sited in accorda	ance with 40 CFR 58	3. Appendix E
Do the	sample inlets have	at least a 270 degree a		✓			
	ricted airflow?			✓			
Are the	e sample inlets 3 -	15 meters above the gr	ound?	V			
	e sample inlets > 1 meters from trees	meter from any major ?	r obstruction,	✓			
Polluta	nt analyzers and d	leposition equipment o	perations and	l mai	<u>intenance</u>		
	analyzers and equ	ipment appear to be in ained?	n good	✓			
	e analyzers and mo	onitors operational, on	-line, and	✓			
	oe ozone sample tu	be.			1/4 teflon by 12 meter	ers	
Descrit	be dry dep sample	tube.			3/8 teflon by 12 mete	rs	
	line filters used in e location)	the ozone sample line	? (if yes	~	At inlet only		
		ee of kinks, moisture,	and	✓			
obstruc							
Is the z	ero air supply des	iccant unsaturated?		V			
Are the	ere moisture traps	in the sample lines?		✓			
Is there clean?	e a rotometer in th	e dry deposition filter	line, and is it	V	Clean and dry	New At One Barner rest to be about a pr	Ontobe 2000 Proceedings and
Parameter		Manufacturer	Model		S/N	Clie	ent ID
Sample Tow	ver	Aluma Tower	A		none	035	38
/IFC power	supply	Teledyne	CPR-1A		149	015	17
Ozone	zone ThermoElectron Inc 49i A1NA				1009241792	000	624
Filter pack fl	Iter pack flow pump Thomas 107CA11				09883403-01-4	004	62
Zero air pun	np	Werther International	C 70/4		000814270	068	85
		ntion (photograph or sl y affect the monitoring		sary)	regarding condition	s listed above, or ar	y other features,
	pack flow tubing an	d ozone sample line fold	d tightly agains	t the	tower hinge when the	tower is lowered. Th	is could eventually

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Site	ID	CAD150	Technician	Sandy Grenville		Site V	isit Date	02/14	/2013			
	DAS, so	ensor translators,	and peripheral equi	pment operation	ıs aı	ıd mainter	nance					
1	Do the well ma	DAS instruments intained?	appear to be in goo	d condition and	✓							
2		the components of , backup, etc)	f the DAS operation	al? (printers,	✓							
3		analyzer and sensong protection circu	or signal leads pass uitry?	through		Met senso	ors only					
4		signal connection intained?	s protected from th	e weather and	✓							
5	Are the	signal leads conn	ected to the correct	DAS channel?	✓							
6	Are the ground		slators, and shelter	properly	✓							
7	Does th	e instrument shelt	ter have a stable po	wer source?	✓							
8	Is the i	nstrument shelter	temperature contro	lled?	✓							
		net tower stable ar				Stable <			Grou			
10	Is the s	ample tower stabl	e and grounded?			✓						
11	Tower	comments?				Sample to	wer is st	able but	t not ground	ded		
Par	ameter		Manufacturer	Model		S/N	Ī			Clie	nt ID	
Con	nputer		Dell	D520	123/133	unk	nown	Religion)		0003	306	
DAS	A Company		Campbell	CR3000	nesen	253	NAME OF THE OWNER.		PROGRAM THE	0004	SECTION	
Mod	lem		Raven	NL115		387	75			065	15	
		ESCHOOLSE HAVE BEEN STREET AND STREET	nation (photograph ay affect the monito			y) regardi	ing cond	litions l	isted above	e, or a	ny other f	eatures,
							V.S. S. S.	ZARAH KARA			es, nextura	

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Site ID	CAD150		Tech	nician	Sandy Grenv	ille	Site Visit Da	te 02/14/201	3	
<u>Documen</u>										
Does the	site have the requir					<u>nanuals</u>	<u>?</u>			
Wind speed		Yes	No	N/.		ata logg	ge r	Yes	No 🗸	N/.
Vind speed Vind direct		H		✓		ata loga				V
'emperatur		✓					rt recorder			V
	nidity sensor					ompute		~		
olar radiat				<u>✓</u>		Iodem				
	ness sensor			✓		rinter			П	V
	r translator			✓	Z	ero air	pump	~		
	e translator			✓			w pump		✓	
	nsor translator					urge pr				v
	ion translator			_ _		PS				V
ipping buc	ket rain gauge			V	L	ightnin	g protection devi	ice 🗆		v
zone analy		✓				helter h			✓	
ilter pack f	low controller		✓		SI	helter a	ir conditioner	~		
lter pack l	MFC power supply		✓							
Does the	e site have the requi	ired a	nd mo	st rece	nt QC docum	ients an	d report forms?			
		Pres	(A. W. S.)					Curr	ent	
ation Log			/					✓		
RF			/							
e Ops Ma	nual									
SP		[•	/	Nov 20	09			✓		
eld Ops M	lanual	•		July 19						
libration	Reports	[•	/	,				<u> </u>		
zone z/s/p	Control Charts	[
eventive r	naintenance schedu	ıl []	
Is the s	tation log properly	comp	leted o	during	every site visi	it? 🗸	Minimal information	on		
Are the	e Site Status Report t?	Forn	ıs beir	ig comj	oleted and	✓				
	chain-of-custody fo transfer to and from			rly use	d to documen	t 🗸				
Are ozo	one z/s/p control cha t?	arts p	roperl	ly comp	oleted and		Control charts no	t used		
	additional explana						y) regarding cond	litions listed	abov	e, or an
atural or n	nan-made, that may	affec	t the i	monito	ring paramet	ers:				
		200			CENTRAL CARROLLES	ST. N. CANE		ONE STATE OF THE S		, 100 (100 (100 (100 (100 (100 (100 (100

Field Systems Data Form F-02058-1500-S8-rev001 CAD150 Technician Sandy Grenville Site Visit Date 02/14/2013 Site ID 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 ~ Semiannually **Multipoint Calibrations** ~ N/A **Visual Inspections** ~ N/A **Translator Zero/Span Tests (climatronics)** ~ **Manual Rain Gauge Test** N/A **V** N/A **Confirm Reasonableness of Current Values** ~ **Test Surface Wetness Response** Are regular operational QA/QC checks performed on the ozone analyzer? **OC Check Performed Compliant** Frequency **Multi-point Calibrations** ~ ~ 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** ~ Every 2 weeks **In-line Filter Replacement (at inlet)** ~ N/A In-line Filter Replacement (at analyze ~ **V** Weekly Sample Line Check for Dirt/Water **V** ~ **Zero Air Desiccant Check** Weekly Unknown Do multi-point calibration gases go through the complete

complete sample train including all filters?

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

SSRF, call-in

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:

The ozone analyzer sample train is leak checked by capping the inlet every two weeks.

sample train including all filters?

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

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Site	e ID	CAD150	Tech	nician	Sandy Grenville		Site Visit Dat	02/14/2013			
	Site op	eration procedures									
	T . 41 . 6			0	1 1 1 10		Filter changed mo	riningo			
1	Is the I	ilter pack being changed o	every	Tuesa	ay as scheduled:		Filler Changed mo	minings			
2	Are the	e Site Status Report Form ly?	s bein	g com	pleted and filed	✓					
3	Are da schedu	ta downloads and backup led?	s bein	g perf	ormed as		No longer required	d			
4	Are ge	neral observations being n	nade :	and re	corded? How?	✓	SSRF				
5	Are sit	e supplies on-hand and re	plenis	hed in	a timely	✓					
6	Are sai	mple flow rates recorded?	How	?		✓	SSRF, logbook, ca	all-in			
7	Are san	mples sent to the lab on a ?	regula	ır sche	edule in a timely	✓					
8		ters protected from contaitipping? How?	minat	on du	ring handling	✓	One set of gloves	only			
9		e site conditions reported ions manager or staff?	regula	rly to	the field	✓					
QC	Check I	Performed		Fre	quency			Compliant			
N	Aulti-po	int MFC Calibrations	[∠ Sen	niannually			✓			
		tem Leak Checks	[Weekly				✓			
F	ilter Pa	ck Inspection				*******					
F	low Rat	e Setting Checks		Wee	THE PROPERTY OF STREET PARTY OF THE PARTY OF			V			
		heck of Flow Rate Rotome		✓ Wee	Control of the Contro	2000000	INCOME DE LA CONTRACTION DEL CONTRACTION DE LA C	▽			
		ilter Inspection/Replaceme		MOLECULAR PROPERTY.	niannually	E E HE TOTAL					
S	ample I	Line Check for Dirt/Water		∠ Wee	ekly	162		V			
	CONTRACTOR OF THE PARTY OF THE	additional explanation (plan-made, that may affect	_			90.000.000	y) regarding condi	itions listed above, or any oth	er features,		

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
ALC	C188-Sandy	Grenville-02/15/2013				
1	2/15/2013	DAS	Campbell	000422	CR3000	2523
2	2/15/2013	Elevation	Elevation	None	1	None
3	2/15/2013	Filter pack flow pump	Thomas	01040	107CA110	000010887
4	2/15/2013	Flow Rate	Apex	000684	AXMC105LPMDPCV	54761
5	2/15/2013	Infrastructure	Infrastructure	none	none	none
6	2/15/2013	Modem	Raven	06583	H4223-C	08443555843
7	2/15/2013	Ozone	ThermoElectron Inc	000689	49i A1NAA	1030244802
8	2/15/2013	Ozone Standard	ThermoElectron Inc	000363	49i A3NAA	0726124691
9	2/15/2013	Sample Tower	Aluma Tower	000136	В	none
10	2/15/2013	Shelter Temperature	Campbell	none	107-L	none
11	2/15/2013	Siting Criteria	Siting Criteria	None	1	None
12	2/15/2013	Temperature	RM Young	02997	41342VC	missing
13	2/15/2013	UPS	APC	06794	RS900	unknown
14	2/15/2013	Zero air pump	Werther International	06940	C 70/4	000821897

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2523 ALC188 Sandy Grenville 02/15/2013 DAS Primary Das Date: 2 /15/2013 **Audit Date** 2 /15/2013 Datel Parameter DAS Mfg 11:05:17 Das Time: 11:05:17 **Audit Time** Tfer Desc. Source generator (D 15510194 **Serial Number** Das Day: 46 **Audit Day** 46 Tfer ID 01320 **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** 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 0.0003 0.0000 -0.0001 0.0002 V V 7 0.1000 0.0999 0.0999 0.00007 0.3000 0.2997 0.2998 V V 0.0001 7 0.5000 0.4997 V V 0.00000.4997

0.6996

0.8995

0.9994

V

V

V

V

V

V

0.0000

0.0000

0.0000

7

7

7

0.7000

0.9000

1.0000

0.6996

0.8995

0.9994

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Teo	chnician	Site Visit D	ate Param	eter	Owner ID
Apex	54761		ALC188	Sa	ndy Grenville 02/15/201		Flow R	ate	000684
					Mfg Serial Number	BIOS 103471		arameter Flo	
					Tfer ID	01420			
					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	er Desc. BIOS cell	
					Tfer ID	01410			
					Slope	1.00000 Int		ercept	0.00000
					Cert Date	1/27	/2012 Cor	rCoff	1.00000
DAS 1: A Avg % Diff: 3.75%	A Max % Di 3.87%	DAS 2: A Avg %	6Dif A Max	x % Di	Cal Factor Z Cal Factor F Rotometer R	ull Scale	0.9		
UseDescription	: Test type:	Input 1/n	n: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference:
primary	pump off	0.000	0.000	0.00	0.000	0.00	l/m	1/m	
primary	leak check	0.000	0.000	0.00	0.002	0.01	1/m	l/m	
primary	test pt 1	1.533	1.546	1.53	1.521	1.49	l/m	1/m	-3.62%
primary	test pt 2	1.535	1.548	1.53	1.524	1.49	l/m	1/m	-3.75%
primary Sensor Comp	test pt 3 onent Leak Tes	1.536	1.550	1.53 Conditio	1.523	1.49	1/m Status	1/m pass	-3.87%
_	onent Filter Azi			Condition 190 deg		Status			
	onent Filter Dep			Conditio			Status		
	onent Filter Pos			Conditio			Status	pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture p	resent	Status	pass	
Sensor Comp	onent Rotomete	er Conditio	on	Conditio	n Clean and dry		Status	pass	
Sensor Comp	onent System N	Memo		Conditio	n		Status	pass	
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass	
Songon Comp	onent Filter Dis	tance		Conditio	5.5.cm		Status	nass	

Ozone Data Form

Name	Mfg S	erial Number Ta	Site	Tec	chnician		Site Visi	t Date 1	Parame	eter	Owner ID
DAS 1:	ThermoElectron Inc 1	030244802	ALC188	Sa	andy Grer	rville	02/15/20)13	Ozone		000689
DAS 1: DAS 2: Slope 1.00121 Intercept -0.16383	•	*		-	Ü	lumber				_	
DAS 1:	CorrCoff 0.9	9998 CorrCoff	0.00000			umber				cr Besc.	
A Avg % Diff: A Max % Di	DAS 1.	DAS 2:						4 00404	 	, [0.40202
UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PettDifference: primary 1 -0.01 0.17 -0.43 ppb 1.06% primary 2 31.04 31.18 31.51 ppb 1.06% primary 3 50.60 50.72 51.10 ppb 0.75% primary 4 81.60 81.68 82.10 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.78% Sensor Component Cell B Noise Condition O.8 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Condition Condition Condition Status pass Sensor Component Line Loss Condition Condition Condition Condition Status pass Sensor Component Cell B Freq. Condition Condit			6Dif A Max %	% Di	•				l I	-	
primary 1 -0.01 0.17 -0.43 ppb 1.06%	0.8%	1.1%			Cert Da	te		1/2/2013	Corr	Coff	1.00000
primary 2 31.04 31.18 31.51 ppb 1.06% primary 3 50.60 50.72 51.10 ppb 0.57% primary 4 81.60 81.68 82.10 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.78% Sensor Component Cell B Tmp. Condition Status pass Sensor Component Fullscale Voltage Condition NVA Status pass Sensor Component Inlet Filter Condition Condi		ConcGroup:							Unit:	PctDif	ference:
primary 3 50.60 50.72 51.10 ppb 0.75% primary 4 81.60 81.68 82.10 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.78%		1									1.000
primary 4 81.60 81.68 82.10 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.51% primary 5 100.95 101.01 101.80 ppb 0.58% Sensor Component Cell B Noise Condition 0.8 ppb Status pass Sensor Component Fullscale Voltage Condition NVA Status pass Sensor Component Inlet Filter Condition Condition VIA Status pass Sensor Component Line Loss Condition - 1 % Status pass Sensor Component Unite Loss Condition - 2.20 Status pass Sensor Component Offset Condition - 0.20 Status pass Sensor Component Span Condition - 1.029 Status pass Sensor Component System Memo Condition See comments 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 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Pressure Condition 0.6 ppb Status pass Sensor Component Cell A Prescoure Condition 0.6 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 A Freq. Condition 0.71 lpm Status pass	•									_	
Sensor Component Cell B Noise Condition O.8 ppb O.78%	1 1	-						• •			
Sensor Component Cell B Noise Condition O.8 ppb Status pass	•							• •			
Sensor Component Cell B Tmp. Sensor Component Fullscale Voltage Condition Condition			100.95				.80				0.78%
Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition < 1 % Status pass Sensor Component Offset Condition -0.20 Status pass Sensor Component Span Condition 1.029 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 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 0.72 lpm Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Pressure Condition 0.6 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 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	0.8 pp	b			Status	pass	
Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition < 1 % Status pass Sensor Component Offset Condition -0.20 Status pass Sensor Component Span Condition 1.029 Status pass Sensor Component Cell B Freq. Condition 85.8 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 Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition N/A Status pass Sensor	Sensor Component	Cell B Tmp.		Conditio	on				Status	pass	
Sensor Component Line Loss Condition < 1 % Status pass Sensor Component Offset Condition -0.20 Status pass Sensor Component Span Condition 1.029 Status pass Sensor Component Cell B Freq. Condition Ses 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 0.72 lpm Status pass Sensor Component Cell A Trap. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Freq. Condition 85.5 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 -0.20 Status pass Sensor Component Span Condition 1.029 Status pass Sensor Component Cell B Freq. Condition 85.8 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 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 kHz Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Flow 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 1.029 Status pass Sensor Component Cell B Freq. Condition 85.8 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 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 85.5 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	ent Line Loss			on < 1 %				Status	pass	
Sensor Component Cell B Freq. Condition 85.8 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 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 0.71 lpm Status pass Sensor Component Cell A Flow Condition N/A 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 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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	ondition 1.029 State			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 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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.		Condition 85.8 kHz				Status	us pass		
Sensor Component Cell B Flow Condition Status pass Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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	System Memo		Condition See comments			Status	s pass			
Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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		Condition Good				Status	pass		
Sensor Component Cell A Tmp. Condition 32.1 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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 l	om			Status	pass	
Sensor Component Cell A Noise Condition 0.6 ppb Status pass Sensor Component Cell A Freq. Condition 85.5 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	32.1 C)			Status	pass	
Sensor Component Cell A Freq. Condition 85.5 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	731 m	ımHg			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	0.6 pp	b			Status	pass	
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Conditio	n 85.5 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 N/A				Status	pass	
	Sensor Component	Zero Voltage		Condition	N/A				Status	pass	

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg ALC188 Sandy Grenville Temperature 02997 RM Young 02/15/2013 missing 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** 0.31 0.36 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: 0.05 0.000 0.23 primary Temp Low Range 0.13 0.4 \mathbf{C} C Temp Mid Range 25.44 25.41 0.000 25.7 0.33 primary C primary Temp High Range 47.54 47.42 0.000 47.8 0.36 Sensor Component | Shield **Status** pass **Condition** Moderately clean Sensor Component Blower Status Switch **Condition** Not functioning **Status** Fail **Sensor Component** Blower **Condition** Functioning **Status** pass Sensor Component | System Memo Condition Status pass

Infrastructure Data For

Site ID ALC188 Technician Sandy Grenville Site Visit Date 02/15/2013

Shelter Make	Shelter Model	Shelter Size	
Shelter One	8128-2311	1024 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

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	ALC188	Sandy Grenville	02/15/2013	Shelter Temperature	none
DAS 1:	DAS 2:		Mfg	Extech	Parameter She	lter Temperatur
Abs Avg Err Abs	6 Max Er Abs Avg 0.93	Err Abs Max Er	Serial Number	H232734	Tfer Desc. RTI)
			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	22.94	22.93	0.000	23.9	C	0.93
primary	Temp Mid Range	23.25	23.23	0.000	23.5	С	0.28
primary	Temp Mid Range	23.58	23.56	0.000	23.6	C	0.07

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator uses the same gloves to remove and install the filter pack.

2 Parameter: SitingCriteriaCom

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

3 Parameter: ShelterCleanNotes

The site is clean and neat.

4 Parameter: PollAnalyzerCom

The site was revisited on 3/3/2013 to complete the ozone performance evaluation. The level 2 ozone standard malfunctioned during the audit visit performed on 2/15/213.

5 Parameter: MetSensorComme

The temperature shield is pointing south and not north as stated in the QAPP. This condition was observed and reported during the previous site audit visits in February 2009 and 2011.

F-02058-1500-S1-rev001

Site ID ALC188	Technician Sandy Grenville	Site Visit Date 02/1	5/2013		
Site Sponsor (agency)	EPA	USGS Map	Dallardsville		
Operating Group	Alabama-Coushatta Environmental Gr	Map Scale			
AQS#	48-373-9991	Map Date			
Meteorological Type	R.M. Young				
Air Pollutant Analyzer	Ozone	QAPP Latitude	30.4210		
Deposition Measurement	dry	QAPP Longitude	-94.4045		
Land Use	woodland - mixed	QAPP Elevation Meters	101		
Terrain	gently rolling	QAPP Declination	3.8		
Conforms to MLM	Yes	QAPP Declination Date	9/16/2005		
Site Telephone	(936) 563-2973	Audit Latitude	30.701577		
Site Address 1	Poncho Rd.	Audit Longitude	-94.674011		
Site Address 2	571 Park Rd. 56	Audit Elevation	105		
County	Polk	Audit Declination	2.5		
City, State	Livingston, TX	Present			
Zip Code	77351	Fire Extinguisher	Inspected Feb 2002		
Time Zone	Central	First Aid Kit			
Primary Operator	Michelle Battise	Safety Glasses			
Primary Op. Phone #	(936) 563-1146	Safety Hard Hat			
Primary Op. E-mail	battise_michelle@hotmail.com	Climbing Belt			
Backup Operator	Carlene Bullock	Security Fence			
Backup Op. Phone #	(936) 563-4009	Secure Shelter			
Backup Op. E-mail	carlenebullock@eastex.net	Stable Entry Step			
Shelter Working Room ✓	Make Shelter One M	odel 8128-2311	Shelter Size 1024 cuft		
Shelter Clean	Notes The site is clean and neat.				
	Notes				
for Ala	Livingston proceed east on route 190 appabama-Coushatta Tribe and the Indain Vil	lage. Continue past the facility	and campground by the small lake on		
	ft. Just past the campground entrance, tu first fork and left at the second. You will		ue approximately u.o miles bearing right		

F-02058-1500-S2-rev001

Site ID ALC188 Technician Sandy Grenville Site Visit Date 02/15/2013

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		
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		v
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		✓

Siting Distances OK

Siting Criteria Comment

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

F-02058-1500-S3-rev001

being i 2 Are wi (i.e. win horizon tower i 3 Are the 4 Are the avoid r 5 Are ter conditi surface standir	nd speed and direction and speed by obstruction of sensors mounted so and sensors should be montally extended boom >2 and the prevailing wind	ons? as to minimize t			N/A				
being i 2 Are wi (i.e. win horizon tower i 3 Are the 4 Are the avoid r 5 Are ter conditi surface standir	nfluenced by obstruction d sensors mounted so and sensors should be montally extended boom >2	ons? as to minimize t			N/A				
(i.e. win horizon tower i 3 Are the avoid r 5 Are ter conditis surface standing stan	nd sensors should be montally extended boom >2		ower effects?						
4 Are the avoid r 5 Are ter conditi surface standing				✓	N/A				
avoid r 5 Are ter conditi surface standir	Are the tower and sensors plumb?				N/A				
conditi surface standir	e temperature shields po radiated heat sources su		CONTRACTOR OF THE PROPERTY OF		Shields pointing south				
6 Is the s	mperature and RH sens ons? (i.e. ground below e and not steeply sloped ng water should be avoid	sensors should . Ridges, hollow	be natural	V					
	solar radiation sensor pl	lumb?		✓	N/A				
7 Is it sit light?	ed to avoid shading, or	any artificial or	reflected	✓	N/A				
8 Is the r	ain gauge plumb?			✓	N/A				
9 Is it sit towers.	ed to avoid sheltering ef , etc?	ffects from buil	dings, trees,	✓	N/A				
10 Is the s	surface wetness sensor s north?	ited with the gr	id surface	✓	N/A				
11 Is it in	clined approximately 30	0 degrees?		✓	N/A				
	y additional explanation man-made, that may af				y) regarding conditions listed above, or any other features,				
	ature shield is pointing so e audit visits in February 2		n as stated in the	QAF	PP. This condition was observed and reported during the				

ALC188	Technician	Sandy Grenville	Site Visit Date 02/1	5/2013			
Do all the metero condition, and we	logical sensors appear to b ll maintained?	e intact, in good	Temperature only				
Are all the meteoreporting data?	rological sensors operation	al online, and	Temperature only				
Are the shields fo	r the temperature and RH	sensors clean?					
Are the aspirated	motors working?						
Is the solar radiat scratches?	ion sensor's lens clean and	free of	N/A				
Is the surface wet	ness sensor grid clean and	undamaged?	✓ N/A				
Are the sensor sig condition, and we	nal and power cables intacall maintained?	ct, in good					
	mal and power cable connors and well maintained?	ections protected					
ırameter	Manufacturer	Model	S/N	Client ID			
emperature	RM Young	41342VC	missing	02997			

F-02058-1500-S5-rev001

Site ID	ALC188	Technician	Sandy Grenville		Site Visit Date 02/	15/2013	
Sitin	o Criteria: Are th	ne pollutant analyzers ar	ıd denosition eau	inme	nt sited in accordan	ce with 40 CFR	58 Appendix E
Do tl		ave at least a 270 degree		/			
Are	the sample inlets .	3 - 15 meters above the §	ground?	7			
	the sample inlets : 20 meters from tr	> 1 meter from any majorees?	or obstruction,	7			
Pollu	ıtant analyzers an	nd deposition equipment	operations and 1	naint	<u>enance</u>		
	he analyzers and dition and well ma	equipment appear to be intained?	in good	/			s de la companya de l
	the analyzers and rting data?	monitors operational, o	n-line, and	7			
Desc	ribe ozone sample	e tube.		1/	4 teflon by 12 meters		
Describe dry dep sample tube.				3/	8 teflon by 12 meters		
	Are in-line filters used in the ozone sample line? (if yes indicate location)				inlet		
	sample lines clean	n, free of kinks, moisture	, and	/			
Is th	e zero air supply	desiccant unsaturated?		/			
Are	there moisture tra	aps in the sample lines?	Ŀ	/			
Is th		n the dry deposition filte	r line, and is it	C	ean and dry		
Paramet	er	Manufacturer	Model		S/N	C	lient ID
ample T	ower	Aluma Tower	В	emass.	none	00	00136
zone		ThermoElectron Inc	49i A1NAA		1030244802	00	00689
ilter pac	k flow pump	Thomas	107CA110		000010887	0.	1040
Zero air p	ump	Werther Internationa	al C 70/4		000821897	06	6940

The site was revisited on 3/3/2013 to complete the ozone performance evaluation. The level 2 ozone standard malfunctioned during the audit visit performed on 2/15/213.

F-02058-1500-S6-rev001

Site	D O	ALC188	Technician	Sandy Grenville	·	Site Visit	Date 02/15/20	13	
	DAS, ser	nsor translators, and p	peripheral equi	pment operation	ns ai	nd maintenan	<u>ce</u>		
1		OAS instruments appentained?	ar to be in good	l condition and	✓				
2		he components of the backup, etc)	DAS operation	al? (printers,	✓				
3	3 Do the analyzer and sensor signal leads pass through lightning protection circuitry?					Met sensors o	only		
4	4 Are the signal connections protected from the weather and well maintained?								
5	Are the	signal leads connected	to the correct	DAS channel?	✓				
6	6 Are the DAS, sensor translators, and shelter properly grounded?								
7	Does the	instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the in	strument shelter temp	lled?	✓					
9						Stable 🗸		Grounded	
10 11		mple tower stable and omments?	rgrounded:			V			
Par	ameter	M	anufacturer	Model		S/N		Cli	ient ID
DAS	S	Ca	mpbell	CR3000	27201	2523		000	0422
Mod	dem	Ra	ven	H4223-C		08443	555843	068	583
UPS		AF	C	RS900	nesen	unknov	wn	067	794
	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	ALC188		Tech	nician	Sandy Grenville	241 11 10 23	Site Visit Date	02/15/2013	3	
<u>Documer</u>	<u>ntation</u>									
Does the	site have the require	ed ins	trum	ent and	equipment man	uals?				
		Yes	No	N/				Yes	No	N/A
Wind speed				✓		logg			V	
Wind direct		H		✓		logg				V
Temperatur			✓				rt recorder			V
	midity sensor			✓		puter	C			
Solar radiat				✓						
Surface wet				✓					V	
Wind sensor		H		>			oump		✓	
	e translator ensor translator			✓			v pump otector			✓
	ion translator			✓		e pro	nector		✓	
	cket rain gauge			✓		tning	protection device			✓
Ozone analy				_		ter he			✓	
	flow controller	~					r conditioner		✓	$-\overline{\Box}$
	MFC power supply						- CO. C.			
	e site have the requi			oct roco	nt OC dogument	te one	d ranget forms?			
Does th	e site have the requi	581165		JSt Tece	nt QC document	is am	a report forms:			
G: T		Pres						Curre	nt	
Station Log			/					✓		
SSRF	1		/	_				✓		
Site Ops Ma HASP	inuar		S1 2 2 3 3 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Oct 200						
Field Ops M	[onuol		_	Nov 20	10					
Calibration								XXX		
	Control Charts							H		
	naintenance schedu									
					91000000000000000000000000000000000000					
1 Is the s	tation log properly	comp	leted	during	every site visit?	V	Minimal information			
2 Are the curren	e Site Status Report t?	Forn	ıs beiı	ng com	pleted and	✓				
	e chain-of-custody fo transfer to and from			rly use	d to document	✓				
4 Are oze curren	one z/s/p control cha t?	arts p	roper	ly comp	oleted and	✓ (Control charts not us	sed		
	additional explanation						regarding condition	ions listed	above,	or any o
	,				9.	1000				

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Site ID ALC188	Technician	Sandy Grenville	Site Visit Date 02/15/2013						
Site operation procedures 1 Has the site operator attended a course? If yes, when and who in 2 Has the backup operator attend training course? If yes, when an 3 Is the site visited regularly on the schedule? 4 Are the standard CASTNET operator followed by the site operator? 5 Is the site operator(s) knowledged the required site activities? (including the standard course).	formal CAS' structed? ed a formal C d who instructer Tue crational processible of, and a	TNET training CASTNET cted? lesday cedures being shele to perform In the perform							
Are regular operational QA/QC	checks perfo	rmed on meteorolog	gical instruments?						
QC Check Performed		Frequency	Compliant						
Multipoint Calibrations	✓	Semiannually	✓						
Visual Inspections	✓	N/A	✓						
Translator Zero/Span Tests (climatro	onics)	N/A	✓						
Manual Rain Gauge Test	V	N/A	V						
Confirm Reasonableness of Current	Values 🔽	N/A	V						
Test Surface Wetness Response	~	N/A	✓						
Are regular operational QA/QC	checks perfo	rmed on the ozone a	analyzer?						
QC Check Performed		Frequency	Compliant						
Multi-point Calibrations	V	Semiannually	V						
Automatic Zero/Span Tests	✓	Daily	V						
Manual Zero/Span Tests	∠	As needed							
Automatic Precision Level Tests		Daily							
Manual Precision Level Test		As needed							
Analyzer Diagnostics Tests	✓	Weekly Every 2 weeks	✓						
In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyz		N/A	▽						
	.e	Weekly	✓						
Zero Air Desiccant Check									
1 Do multi-point calibration gases go through the complete sample train including all filters? 2 Do automatic and manual z/s/p gasses go through the complete sample train including all filters? 3 Are the automatic and manual z/s/p checks monitored and reported? If yes, how? Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:									

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Site	D ID	ALC188	Tecl	mician	Sandy Grenville		Site Visit Date	02/15/2013			
	Site o	peration procedures									
1		filter pack being change	d every	Tuesd	av as scheduled?	V	Filter changed mor	rnings, 80 % of the time			
	is the	Thier pack being change	u cvery	Tuesa			Times enanged men	7ge, ee 7e er alle alle			
2	correctly?										
3	Are d sched	ata downloads and backuuled?	ıps bei	ng perf	ormed as		No longer required				
4	Are g	eneral observations being	g made	and re	corded? How?	✓	SSRF				
5	Are si	ite supplies on-hand and on?	repleni	shed in	a timely	✓					
6	Are s	ample flow rates recorded	d? Hov	?		✓	SSRF, call-in				
7	Are sa	amples sent to the lab on on?	a regul	ar sche	dule in a timely	✓					
8		Iters protected from cont	amina	tion du	ring handling	✓	One set of gloves only				
9	Are tl	he site conditions reported tions manager or staff?	d regul	arly to	the field	✓					
QC	Check	Performed		Fre	quency			Compliant			
N	Iulti-p	oint MFC Calibrations		PESSON AND	niannually	701		V			
F	low Sy	stem Leak Checks		Wee	ekly	a DV ST-TEXT		<u>V</u>			
		ack Inspection				******					
		ate Setting Checks		Wee	COLUMN TO SERVICE A SERVIC	The Park		▽			
		Check of Flow Rate Rotor		Wee	THE RESIDENCE OF THE PARTY OF T	22.00		✓✓			
		Filter Inspection/Replace		✓ Sen	niannually	E E HORT AS					
		Line Check for Dirt/Wat									
		y additional explanation (man-made, that may affe					y) regarding condit	tions listed above, or any other featu	res,		
The s	site ope	erator uses the same gloves	s to rem	ove and	d install the filter p	ack					

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
MAC	C426-Eric I	Hebert-03/01/2013				_
1	3/1/2013	Computer	Toshiba	90934	Terca	87074381H
2	3/1/2013	DAS	Environmental Sys Corp	3027	8832	A3027
3	3/1/2013	Elevation	Elevation	None	1	None
4	3/1/2013	Filter pack flow pump	Thomas	none	107CAB11A	109500000033
5	3/1/2013	Flow Rate	Tylan	02023	FC280SAV	AW710253
6	3/1/2013	Infrastructure	Infrastructure	none	none	none
7	3/1/2013	Met tower	Climatronics	none	illegible	illegible
8	3/1/2013	MFC power supply	Tylan	03645	RO-32	FP9605011
9	3/1/2013	Modem	US Robotics	none	28.8 fax modem	1275
10	3/1/2013	Ozone	ThermoElectron Inc	none	49i A3NAA	CM08460049
11	3/1/2013	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	0733726104
12	3/1/2013	Precipitation	Climatronics	01324	100508-2	illegible
13	3/1/2013	Printer	Hewlett Packard	none	842C	unknown
14	3/1/2013	Relative Humidity	Rotronic	none	MP 601A	52064
15	3/1/2013	Sample Tower	Aluma Tower	none	В	none
16	3/1/2013	Shelter Temperature	ARS	60	none	none
17	3/1/2013	Siting Criteria	Siting Criteria	None	1	None
18	3/1/2013	Solar Radiation	Licor	none	LI-200	PY98205
19	3/1/2013	Temperature	RM Young	none	41342	15105
20	3/1/2013	Temperature2meter	RM Young	none	41342	15104
21	3/1/2013	Wind Direction	Climatronics	none	100076	1484
22	3/1/2013	Wind Speed	Climatronics	90924	100075	1515
23	3/1/2013	Zero air pump	Werther International	none	PC70/4	000665778

DAS Data Form

DAS Time Max Error:

0.45

Mfg	Serial Number Site To		Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	A3027	MAC426	Eric Hebert	03/01/2013	DAS	Primary
Das Date: 3 Das Time: Das Day:	/1 /2013 Audit 9:18:35 Audit 60 Audit	Fime 9:19:02	Mfg Serial Number	Datel 4000392	Parameter Tfer Desc.	DAS Source generator (D
Low Channel:	High C	hannel:	Tfer ID	01321		
Avg Diff: M 0.0002	Avg Di 0.0004	Max Diff: 0.0001 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 I	DVM Outr	ut DAS Output	InputUnit	OutputUnit	Difference	

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
8	0.0000	0.0000	-0.0001	V	V	-0.0001
8	0.1000	0.1000	0.0998	V	V	-0.0002
8	0.3000	0.3000	0.2997	V	V	-0.0003
8	0.5000	0.5000	0.4999	V	V	-0.0001
8	0.7000	0.7000	0.6996	V	V	-0.0004
8	0.9000	0.9001	0.8998	V	V	-0.0003
8	1.0000	1.0001	0.9998	V	V	-0.0003
13	0.0000	0.0000	0.0000	V	V	0.0000
13	0.1000	0.1000	0.0999	V	V	-0.0001
13	0.3000	0.3000	0.2999	V	V	-0.0001
13	0.5000	0.5000	0.4999	V	V	-0.0001
13	0.7000	0.7000	0.6999	V	V	-0.0001
13	0.9000	0.9001	0.8999	V	V	-0.0002
13	1.0000	1.0001	0.9999	V	V	-0.0002

Flow Data Form

Mfg Serial Nur		Number Ta Site			chnician	Site Visit I	Date Param	eter	Owner ID		
Tylan AW710253		}	MAC426		c Hebert	03/01/2013 Flo		ate	02023		
Mfg SN/Owner ID	Tylan FP96	n 03645				Mfg Serial Number	BIOS 122974			ameter Flow Rate r Desc. BIOS 220-H	
Parameter	MFC	power sup	oply			Tfer ID	01416				
						Slope	1.	00000 Inte	ercept	0.00000	
						Cert Date	1/3	8/2013 Cor	rCoff	1.00000	
OAS 1: A Avg % Diff: 0.85%	A Ma	x % Di 0.94%	DAS 2: A Avg %I	Dif A Max	: % Di	Cal Factor Z Cal Factor F Rotometer R	ull Scale	5.5 1.5			
UseDescription:	Те	st type:	Input 1/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignall	PctDifference	
primary	pump	off	0.000	0.000	-0.04	-0.0140	-0.02	l/m	l/m		
primary	leak o	check	0.000	0.000	-0.01	0.0170	0.01	1/m	l/m		
primary	test p	t 1	0.000	1.486	1.36	1.3610	1.50	l/m	l/m	0.94%	
primary	test p	t 2	0.000	1.488	1.36	1.3610	1.50	l/m	l/m	0.82%	
primary	test p	t 3	0.000	1.488	1.36	1.3610	1.50	l/m	l/m	0.78%	
Sensor Compe	onent	Leak Tes	t		Condition	n		Status	pass		
Sensor Compe	onent	Filter Aziı	muth		Condition	180 deg		Status	pass		
Sensor Compo	onent	Filter Depth			Condition	n - 3.5 cm	Status		Fail		
Sensor Compo	onent	Filter Pos	Filter Position			n Poor	Status Fai		Fail	Fail	
Sensor Compo	onent	Moisture	Moisture Present			n No moisture p	esent	Status	pass		
Sensor Component		Rotomete	Rotometer Condition			n Clean and dry		Status	pass		
Sensor Component S		System N	/lemo		Condition	n See comments	3	Status	pass		
Sensor Component Tul		Tubing C	ondition		Condition	n Good		Status pass			
Sensor Component F		Filter Dist	tance		Condition	7.0 cm		Status	pass		

Ozone Data Form

Siope: 1.03139	Mfg Se	erial Number Ta	Site T		Technician		Site Visit Date		Parameter		Owner ID	
DAS 1:	ThermoElectron Inc	CM08460049	MAC426 Er		ic Hebert	c Hebert		03/01/2013			none	
A Neg % Diff: A Max % Di	Intercept 1.4	4173 Intercept	0.00000	0	Serial Number		517112175					
UseDescription: ConcGroup: Tfer Raw: Tfer Corr: Site: Site Unit: PettDifference: primary 1 -0.14 -0.32 1.26 ppb -0.74 -0.32 1.26 ppb -0.74 -0.32 1.26 ppb -0.74 -0.32 1.26 ppb -0.74 -0.32 1.26 ppb -0.74 -0.32 primary 2 37.17 37.08 39.57 ppb -0.72 primary 3 53.20 53.16 56.25 ppb 5.81 -0.					Slope			0.9972	0 Inter	rcept	0.18428	
primary			6Dif A Max (% Di	Cert Da	ite		1/2/201	3 Corr	·Coff	1.00000	
primary 2 37.17 37.08 39.57 ppb 6.72% primary 3 53.20 53.16 56.25 ppb 5.81% primary 4 82.02 82.06 85.84 ppb 4.61% primary 5 110.54 110.66 115.80 ppb 4.64% Sensor Component Cell B Noise Condition 0.9 kHz Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Inlet Filter Condition		ConcGroup:							Unit:	PctDif	fference:	
primary 3 53.20 53.16 56.25 ppb 5.81% primary 4 82.02 82.06 85.84 ppb 4.61% primary 5 110.54 110.66 115.80 ppb 4.64% Sensor Component Cell B Noise Condition 0.9 kHz Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Line Filter Condition Condition N/A Status pass Sensor Component Unite Filter Condition Condition N/A Status pass Sensor Component Unite Filter Condition Condition N/A Status pass Sensor Component Unite Filter Condition Condition N/A Status pass Sensor Component Unite Filter Condition Condition N/A Status pass Sensor Component Offset Condition 1.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Span Condition 97.9 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Cell B Freq. Condition Good Status pass Sensor Component Cell B Fressure Condition Status pass Sensor Component Cell B Flow Condition 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 7.31 mmHg Status pass Sensor Component Cell A Pressure Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 0.72 lpm Status pass Sensor Component Cell A Freq. Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 0.72 lpm Status pass Sensor Component Cell A Freq. Condition 0.72 lpm Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass		1									6.7204	
primary 4 82.02 82.06 85.84 ppb 4.61% primary 5 110.54 110.66 115.80 ppb 4.64% Sensor Component Cell B Noise Condition 0.9 kHz Status pass Sensor Component Tell scale Voltage 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 1.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.9 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 731 mmHg Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Pressure Condition 1.38.4 kHz Status pass Sensor Component Cell A Freq. Condition 93.4 kHz Status pass Sensor Component Cell A Freq. Condition 1.38.4 kHz Status pass Sensor Component Cell A Freq. Condition 1.38.4 kHz Status pass Sensor Component Cell A Freq. Condition 1.72 lpm Status pass Sensor Component Cell A Freq. Condition 1.72 lpm Status pass Sensor Component Cell A Freq. Condition 1.72 lpm Status pass Sensor Component Cell A Freq. Condition 1.72 lpm Status pass Sensor Component Cell A Freq. Condition 1.72 lpm Status pass	-											
Sensor Component Cell B Noise Condition O.9 kHz Status pass	-											
Sensor Component Cell B Noise Condition O.9 kHz Status pass	1											
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 1.02 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.9 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 O.72 lpm Status pass Sensor Component Cell A Tmp. Condition O.72 lpm Status pass Sensor Component Cell A Pressure Condition O.73 lmmHg Status pass Sensor Component Cell A Pressure Condition O.8 ppb Status pass Sensor Component Cell A Noise Condition O.8 ppb Status pass Sensor Component Cell A Freq. Condition O.8 kHz Status pass Sensor Component Cell A Freq. Condition O.72 lpm Status pass Sensor Component Cell A Freq. Condition O.72 lpm Status pass Sensor Component Cell A Freq. Condition O.72 lpm Status pass Sensor Component Cell A Freq. Condition O.72 lpm Status pass Sensor Component Cell A Flow Condition O.72 lpm Status pass Sensor Component Cell A Flow Condition O.72 lpm Status pass			110.01				.00	PPC	Status	pass	110170	
Sensor Component Inlet Filter Condition 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 1.016 Status pass Sensor Component Cell B Freq. 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 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Freq. Condition 0.72 lpm Status pass Sensor Component Cell A Fiow Condition 0.72 lpm Status pass Sensor Component Cell A Flow Condition N/A Status pass	Sensor Component	Cell B Tmp.		Conditio	on				Status	pass		
Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition -1.2 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.9 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition O.72 lpm Status pass Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 83.4 kHz Status pass Sensor Component Cell A Freq. Condition 0.72 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 1.016 Status pass Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.9 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 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Freq. Condition 0.72 lpm Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass	Sensor Component	Inlet Filter Condition	on	Condition Clean					Status	tus pass		
Sensor Component Span Condition 1.016 Status pass Sensor Component Cell B Freq. Condition 97.9 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 0.72 lpm Status pass Sensor Component Cell A Tmp. Condition 731 mmHg Status pass Sensor Component Cell A Pressure Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition N/A Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Line Loss		Condition Not tested					Status	pass		
Sensor Component Cell B Freq. Condition 97.9 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 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Offset		Condition -1.2				Status	tus 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 B Flow Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Span		Condition 1.016				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 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Freq.		Condition 97.9 kHz				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 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	System Memo		Condition				Status	pass			
Sensor ComponentCell B FlowCondition0.72 lpmStatuspassSensor ComponentCell A Tmp.Condition36.7 CStatuspassSensor ComponentCell A PressureCondition731 mmHgStatuspassSensor ComponentCell A NoiseCondition0.8 ppbStatuspassSensor ComponentCell A Freq.Condition83.4 kHzStatuspassSensor ComponentCell A FlowCondition0.72 lpmStatuspassSensor ComponentBattery BackupConditionN/AStatuspass	Sensor Component	Sample Train		Condition Good				Status	pass			
Sensor Component Cell A Tmp. Condition 36.7 C Status pass Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Pressure		Condition					Status	pass		
Sensor Component Cell A Pressure Condition 731 mmHg Status pass Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell B Flow		Condition 0.72 lpm					Status	pass		
Sensor Component Cell A Noise Condition 0.8 ppb Status pass Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Tmp.		Condition 36.7 C				Status	pass			
Sensor Component Cell A Freq. Condition 83.4 kHz Status pass Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Pressure		Condition	731 m	nmHg			Status	pass		
Sensor Component Cell A Flow Condition 0.72 lpm Status pass Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Noise		Condition	0.8 pp	b			Status	pass		
Sensor Component Battery Backup Condition N/A Status pass	Sensor Component	Cell A Freq.		Condition	Condition 83.4 kHz				Status	pass		
	Sensor Component	Cell A Flow	Conditio	Condition 0.72 lpm				Status	pass			
Sensor Component Zero Voltage Condition N/A Status pass	Sensor Component	Battery Backup	Conditio	ndition N/A				Status	pass			
	Sensor Component	Zero Voltage		Condition	on N/A				Status	pass		

Wind Speed Data Form Mfg Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Wind Speed 90924 MAC426 Eric Hebert 03/01/2013 Climatronics 1515 Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (h Serial Number 01262 Tfer ID 0.00000 1.00000 **Slope Intercept** 2341 Prop or Cups SN 0.2 **to** 0.2 **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: Output V: Diff/ % Diff: Difference: Input m/s: DAS m/s: 00000 0 0.20 0.0000 0.2 0.00 primary 00000 50 1.40 0.0000 1.4 0.00 primary primary 00000 100 2.57 0.0000 2.6 0.03 4.22 0.0000 4.2 -0.02 00000 170 primary 6.1 primary 00000 250 6.10 0.0000 0.00% 11.97 0.0000 12.0 0.25% primary 00000 500 00000 800 19.02 0.0000 19.0 -0.11% primary primary 00000 2000 47.22 0.0000 47.2 -0.04% Sensor Component | System Memo Status pass **Condition** 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 **Status** pass Condition

Wind Direction Data Form Mfg Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Wind Direction Climatronics 1484 MAC426 Eric Hebert 03/01/2013 none Mfg RM Young Parameter wind direction Serial Number Tfer Desc. wind direction wheel 01266 Tfer ID 3945 Vane SN: C. A. Align. deg. true: 358 7 VaneTorque to Ushikata Parameter wind direction Mfg **Serial Number** 190037 Tfer Desc. transit Tfer ID 01265 1.00000 0.00000 Slope **Intercept Cert Date** 1/4/2011 CorrCoff 1.00000 **DAS 1: DAS 2: Orientation** Orientation **Linearity: Linearity:** 1.4 1.5 Abs Avg Err 2 5 Abs Max Er UseDescription: TferID: Input Raw: Linearity Output V: Output Deg.: Difference: Change: Error: 2 01265 88 0.0000 86 primary 01265 168 0.0000 168 0 0 primary 01265 178 0.0000 177 1 1 primary 2 0.0000 266 2 primary 01265 268 2 360 2 primary 01265 358 0.0000**~** 0 3 01266 0 0.00000 48 primary **V** 01266 45 0.000040 5 40 -5 primary **V** 4 90 0.0000 86 1 primary 01266 46 **V** 132 3 1 01266 135 0.000046 primary **~** 3 0 primary 01266 180 0.0000 177 45 **V** 01266 225 0.0000 221 4 44 -1 primary **~** 01266 270 0.0000 266 4 45 0 primary **~** 01266 315 0.0000 312 3 46 1 primary Sensor Component | Mast Condition Good **Status** pass Sensor Component | Condition Condition Good Status pass Sensor Component | Sensor Heater **Condition** Functioning Status pass

Condition Plumb

Condition | See comments

Condition Fair

Condition

Status pass

Status pass

Status pass

Status pass

Sensor Component | Sensor Plumb

Sensor Component | Vane Condition

Sensor Component | System Memo

Sensor Component Torque

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young Eric Hebert Temperature 15105 MAC426 03/01/2013 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 **Cert Date** CorrCoff Abs Avg Err Abs Max Er **Abs Max Er** 0.31 0.34 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.06 0.0000 0.20 primary Temp Low Range -0.18 \mathbf{C} 0.26 C Temp Mid Range 24.45 24.40 0.0000 24.73 0.33 primary C 0.34 primary Temp High Range 43.30 43.11 0.000043.45 Condition Moderately clean Sensor Component | Shield **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 Site **Owner ID** RM Young 15104 MAC426 Eric Hebert 03/01/2013 Temperature2meter none Mfg Extech **Parameter** Temperature Tfer Desc. RTD **Serial Number** H232679 01228 Tfer ID **Slope** 1.00732 **Intercept** -0.12380 **DAS 1: DAS 2:** 1/12/2013 1.00000 CorrCoff Abs Avg Err Abs Max Er Abs Avg Err Abs Max Er **Cert Date** 0.33 0.43 Test type: UseDescription: InputTmpRaw | InputTmpCorrected: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: 0.0000 primary Temp Low Rang -0.18-0.06 0.17 C 0.23 Temp Mid Range 24.45 24.40 0.0000 24.74 C 0.34 primary 43.54 C primary Temp High Rang 43.30 43.11 0.0000 0.43 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 Sensor Component | Shield **Condition** Moderately clean **Status** pass

Humidity Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site Eric Hebert Relative Humidity Rotronic 52064 MAC426 03/01/2013 none Mfg Rotronic **Parameter** Relative Humidity Tfer Desc. Hygroclip **Serial Number** 124432 01225 Tfer ID 0.00000 Slope 1.00000 **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 2.2 Abs Avg Err 14.9 27.4 2.2 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 34.8 0.0000 27.4 primary 32.8 60.2 RH Low Range 60.0 2.4 primary Hygroclip 52.9 52.9 0.000055.3 primary RH High Range Hygroclip 93.6 91.1 93.6 0.0000 95.8 2.2 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 Status pass Condition Clean Condition Moderately clean Sensor Component Shield **Status** pass

Solar Radiation Data Form Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Mfg PY98205 Eric Hebert Solar Radiation Licor MAC426 03/01/2013 none Mfg **Eppley** Parameter solar radiation Tfer Desc. SR transfer translat 10765 **Serial Number** 01246 Tfer ID 0.00000 Slope 1.00000 **Intercept 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 9.2% 0.0% 0.0% 6.8% UseDescription: Measure Date MeasureTime Tfer Corr: PctDifference: DAS w/m2: 10:00 223 7.2% primary 3/1/2013 239 9.2% 3/1/2013 11:00 251 274 primary primary 3/1/2013 12:00 234 257 9.8% 201 1.5% primary 3/1/2013 13:00 204 3/1/2013 14:00 191 212 11.0% primary primary 3/1/2013 15:00 92 87 -5.4% Sensor Component | Sensor Level **Condition** Level Status pass Sensor Component | Sensor Clean **Status** pass **Condition** Clean Sensor Component | Properly Sited **Condition** Properly sited Status pass Sensor Component | System Memo **Status** pass Condition

Precipitation Data Form

Mfg		Serial N	Number Ta	Site	ŗ	Teo	chnician		Site	Visit Date	Param	eter		Owner ID
Climatronics		illegible)	MAC426		Eri	c Hebert		03/0	01/2013	Precipit	ation		01324
							Mfg		PMF)	Pa	aramo	eter Pre	ecipitation
DAS 1: A Avg % Diff	f• A M	ах % Г	DAS 2:	aDif All	Max % Di		Serial Nur	nber		06134-50	Ti	fer Do	esc. 250	0ml graduate
6.0%		8.0			VIUA /UDI		Tfer ID		0125	50			_	
							Slope			1.0000	0 Inte	rcept		0.00000
							Cert Date			9/5/200	Cor	rCoff	•	1.00000
UseDesc.	Test	type:	TferVolume:	Iteration:	TimePerTi	p:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Ur	nit: Tí	erUnit	s:PctDifference
primary	tip che	eck	10 manual	1	2 sec		1.00	1.0	00	mm	mm		ml	
primary	test 1		231.5	1	10 sec		5.00	4.3		mm	mm		ml	-4.0%
primary	test 2		231.5	2	10 sec		5.00	4.0	60	mm	mm		ml	-8.0%
Sensor Com	ponen	Syste	m Memo		Condi	itio	See com	ments	;		Status	pass		
Sensor Com	ponen	t Senso	or Heater		Condi	itio	n Function	ing			Status	pass		
Sensor Com	ponen	t Prope	erly Sited		Condi	itio	See com	ments	i		Status	pass		
Sensor Com	ponen	t Gaug	e Drain Scree	en	Condi	itio	n Not insta	lled			Status	Fail		
Sensor Com	ponen	t Level			Condi	itio	Level				Status	pass		
Sensor Com	ponen	t Gaug	e Clean		Condi	itio	n Clean				Status	pass		
Sensor Com	ponen	t Funne	el Clean		Condi	itio	n Clean				Status	pass		
Sensor Com	ponen	t Cond	ition		Condi	itio	n Good				Status	pass		
Sensor Com	ponen	t Gaug	e Screen		Condi	itio	n Installed				Status	Fail		

Infrastructure Data For

Sit	e ID	MAC426	Technician	Eric Hebert	Site Visit Date	03/01/2013	
	Shelter M	ake	Shelter Model		Shelter Size		
	custom		N/A		1536 cuft		
	MESTERNAL SERVICE		AND ASSESSMENT BY	25272185A0275 23973	GASTAS START OF STARTS AND AN		

Sensor Component	Shelter Roof	Condition	Fair	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	Good	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	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
ARS	none	MAC426	Eric Hebert	03/01/2013	Shelter Temperature	60
DAS 1:	DAS 2:		Mfg	Extech	Parameter Shel	ter Temperatur
Abs Avg Err Abs	1.40 Abs Avg	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	CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	23.71	23.66	0.000	24.5	C	0.79
primary	Temp Mid Range	23.51	23.46	0.000	24.9	С	1.4
primary	Temp Mid Range	23.67	23.62	0.000	24.4	С	0.75

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazaı	d Problem
Flow Rate The filter attachment pl	MAC426 late is mounted t	Eric Hebert oo high in the enclo	03/01/2013 sure resulting in	Filter Position the filter being reco	Tylan essed in the enclo	3705 sure and not expo	sed in the	✓ e standard
geometric orientation. Precipitation	MAC426	Eric Hebert	03/01/2013	Properly Sited	Climatronics	3701		✓
Objects violate the 45 d	legree rule for th	e tipping bucket rai	n gage.					

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operators are very knowledgeable with air quality monitoring. They are doing a very good job with site activities and filter handling.

2 Parameter: SitingCriteriaCom

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

3 Parameter: ShelterCleanNotes

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

F-02058-1500-S1-rev001

Site ID	MAC426		Technician Eric Hebe	ert	Site Visit Da	ate 03/0	1/2013	
Site Sponsor	(agency)	NPS			USGS Map		Rhoda	
Operating G		NPS			Map Scale			
AQS#		21-061-0	501		Map Date			
Meteorologic	al Tyne	Climatron						
Air Pollutant		23807778	O2, NOy, Hg, IMPROVE,	PM	QAPP Latitude		37.2806	
		dry, wet,		, 1 101			-86.2639	
Deposition M	ieasurement				QAPP Longitude		236	
Land Use			e, woodland - mixed		QAPP Elevation M			
Terrain		rolling			QAPP Declination		3	
Conforms to	MLM	Marginall	y Kanananan		QAPP Declination	Date	12/27/2004	
Site Telephor	ne	(270) 758	3-2136		Audit Latitude			37.131794
Site Address	1	Alfred Co	ok Road		Audit Longitude			-86.142953
Site Address	2				Audit Elevation			230
County		Edmonso	n		Audit Declination		-4.0	
City, State		Smiths G	rove, KY		Pı	resent		
Zip Code		42171			Fire Extinguisher	✓	inspected Augus	st 2010
Time Zone		Eastern			First Aid Kit	✓		
Primary Ope	erator	Jonathan	Jernigan	A COLOR OF THE PARTY OF THE PAR	Safety Glasses			
Primary Op.	Phone #	(270) 758	3-2146		Safety Hard Hat			
Primary Op.	E-mail	jonathan_	jernigan@nps.gov		Climbing Belt	✓		
Backup Oper	rator	Bob Cars	on		Security Fence	✓		
Backup Op.	Phone #	(270) 758	3-2136		Secure Shelter	✓		
Backup Op.	E-mail	bob_cars	on@nps.gov		Stable Entry Step	✓		
Shelter Worl	king Room ✓	Make	custom	Mo	odel N/A		Shelter Size	1536 cuft
Shelter Clear		Notes	The shelter is well mainta	ained,	clean, neat, and well	organized	d.	
Site OK	THE RESERVE OF THE PARTY OF THE	Notes					COCHO DE MANORES DE LA COCHO DEL COCHO DE LA COCHO DEL COCHO DE LA	
Driving Dire	259, c Take	or Brownsy the 2nd let	reen go east on 31W. Tu rille Road. Continue appr it past the church on the la it onto Alfred Cook Road.	oximat eft onto	ely 1 mile, just past two Chaumount Road.	vo church Then take	nes (one on each e the first left onto	side of the road).

F-02058-1500-S2-rev001

Site ID MAC426 Technician Eric Hebert Site Visit Date 03/01/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km		<u> </u>
Major industrial complex	10 to 20 km		
City > 50,000 population	40 km	35 km	
City 10,000 to 50,000 population	10 km		V
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		V
Feedlot operations	500 m		V
Intensive agricultural ops (including aerial spraying)	500 m		
Limited agricultural operations	200 m	10 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

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

Field S	ystems	Data	Form
	, Declaro	- utu	

F-02058-1500-S3-rev001

Site	ID	MAC426	Technician Eric Hebert		Site Visit Date 03/01/2013
1		d speed and direct fluenced by obstru	tion sensors sited so as to avoid actions?		
2	(i.e. wind horizont	d sensors should b	d so as to minimize tower effect be mounted atop the tower or o om >2x the max diameter of the wind)	n a	
3	Are the	tower and sensors	plumb?	~	
4			ds pointed north or positioned es such as buildings, walls, etc?		
5	condition surface a	ns? (i.e. ground be	sensors sited to avoid unnaturallelow sensors should be naturalloped. Ridges, hollows, and area		
6	Is the so	lar radiation sens	or plumb?	~	
7	Is it sited light?	l to avoid shading	s, or any artificial or reflected	✓	
8	Is the ra	in gauge plumb?		✓	
9	Is it sited towers, o		ng effects from buildings, trees	s, 🗆	45 degree rule violation
10	Is the su facing n		sor sited with the grid surface	V	N/A
11	Is it incl	lined approximate	ely 30 degrees?	✓	N/A
			ation (photograph or sketch if ny affect the monitoring param		y) regarding conditions listed above, or any other features,

ield S	Systems Dat	ta Form			F-	02058-	1500-S4-rev0
ite ID	MAC426	Technician	Eric Hebert		Site Visit Date 03/01/2	2013	
	the meterological tion, and well mai	l sensors appear to be intained?	intact, in good				
	ll the meteorologic ting data?	cal sensors operational	online, and	V			
Are tl	ne shields for the t	temperature and RH so	ensors clean?	V			
Are tl	he aspirated moto	rs working?		V			
Is the		ensor's lens clean and f	ree of	V			
Is the	surface wetness s	ensor grid clean and u	ndamaged?	✓	I/A		
	he sensor signal ar tion, and well mai	nd power cables intact, ntained?	in good	✓			
	he sensor signal ar the elements and	nd power cable connectwell maintained?	tions protected	✓			
aramete	r	Manufacturer	Model		S/N		Client ID
et tower		Climatronics	illegible		illegible		none
ind Direc	ction	Climatronics	100076		1484		none
olar Radi	ation	Licor	LI-200		PY98205		none
elative H	umidity	Rotronic	MP 601A		52064		none
ecipitatio	on	Climatronics	100508-2		illegible		01324
emperatu	ire	RM Young	41342		15105	Į.	none
emperatu	ire2meter	RM Young	41342		15104	[none
Marine Company			THE RESERVE OF THE PARTY OF THE	1000000	1515		A TOTAL OF THE PARTY OF THE PAR

Field Systems Data Form F-02058-1500-S5-rev001 MAC426 Site Visit Date 03/01/2013 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 10 meters Describe dry dep sample tube. 3/8 teflon by 12 meters **V** 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? Clean and dry Is there a rotometer in the dry deposition filter line, and is it clean? Manufacturer S/N **Client ID Parameter** Model Sample Tower Aluma Tower В none none CM08460049 Ozone ThermoElectron Inc 49i A3NAA none Thomas 107CAB11A 109500000033 none Filter pack flow pump MFC power supply Tylan RO-32 FP9605011 03645 PC70/4 Werther International 000665778 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:

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rs, and peripheral equints appear to be in good to the DAS operation ensor signal leads passificultry? tions protected from the onnected to the correct ranslators, and shelter helter have a stable power ter temperature controller and grounded?	d condition and nal? (printers, through ne weather and DAS channel? properly wer source?	> > (Met sensors only			
ts of the DAS operation ensor signal leads pass ircuitry? tions protected from the onnected to the correct ranslators, and shelter helter have a stable pow	through the weather and DAS channel? properly wer source?		Met sensors only			
ensor signal leads pass ircuitry? tions protected from the connected to the correct ranslators, and shelter helter have a stable power ter temperature contro	through e weather and DAS channel? properly wer source?		Met sensors only			
ircuitry? tions protected from the connected to the correct ranslators, and shelter helter have a stable pow	DAS channel? properly wer source?		Met sensors only			
onnected to the correct ranslators, and shelter helter have a stable pov ter temperature contro	DAS channel? properly wer source?	> > >				
ranslators, and shelter helter have a stable pov ter temperature contro	properly wer source?	>				
helter have a stable pov ter temperature contro	wer source?	~				
ter temperature contro						
	olled?	✓				
e and grounded?						
			Stable	Gro	ounded	
able and grounded?			V			
Manufacturer	Model		S/N		Client ID	
Toshiba	Terca	1122011	87074381H		90934	
Environmental Sys	S Corp 8832	20,000,000	A3027		3027	
US Robotics	28.8 fax m	node	m 1275		none	
Hewlett Packard	842C		unknown		none	
	Toshiba Environmental Sys US Robotics Hewlett Packard	Toshiba Terca Environmental Sys Corp 8832 US Robotics 28.8 fax n Hewlett Packard 842C Ination (photograph or sketch if necession)	Toshiba Terca Environmental Sys Corp 8832 US Robotics 28.8 fax mode Hewlett Packard 842C	Toshiba Terca 87074381H Environmental Sys Corp 8832 US Robotics 28.8 fax modem 1275 Hewlett Packard 842C unknown unation (photograph or sketch if necessary) regarding conditions.	Toshiba Terca 87074381H Environmental Sys Corp 8832 US Robotics 28.8 fax modem 1275 Hewlett Packard 842C unknown unation (photograph or sketch if necessary) regarding conditions listed about 1275	Toshiba Terca 87074381H 90934 Environmental Sys Corp 8832 A3027 3027 US Robotics 28.8 fax modem 1275 none Hewlett Packard 842C unknown none

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Site ID MAC426		Tech	nician	Eric Hebert		Site Visit Da	te 03/01/	2013		
Documentation										
	. J !		4			.9				
Does the site have the requir	Yes	<u>Strume</u> No	ent and N/.		<u>namuais</u>	<u>8.6.</u> Se	Ye	.	No	N/A
Wind speed sensor	✓		1 \ /,		ata log	ger	Į.			IN/A
Vind direction sensor	V				ata log					~
emperature sensor	✓					art recorder	V	•		
elative humidity sensor		✓			omput]	V	
olar radiation sensor	✓				Iodem				V	
rface wetness sensor		✓			rinter]		
ind sensor translator	✓				ero air	pump			✓	
mperature translator		✓				w pump			V	
umidity sensor translator			_ _			otector				✓
olar radiation translator	✓				PS		С			✓
pping bucket rain gauge	V			L	ightnin	g protection devi	ice 🗆		V	
zone analyzer	✓			\mathbf{S}	helter h	neater]	V	
lter pack flow controller	✓			S	helter a	ir conditioner			✓	
ter pack MFC power supply	✓									
Does the site have the requi	ired a	and mo	st rece	nt OC docun	ients ar	nd report forms?				
	Pres	10.755						urre	nt	
ation Log			DotoVia	nu/2		1		ui i e	110	
RF		✓	DataVie	ew2						
e Ops Manual		✓						V		
SP								Ä		
ld Ops Manual								П		
libration Reports		_ _						✓		
one z/s/p Control Charts										
ventive maintenance schedu	d									
Is the station log properly	comp	pleted o	luring	every site vis	it? 🗸	DataView				
Are the Site Status Report	Fori	ms beir	ig comj	pleted and	✓					
current?										
Are the chain-of-custody for sample transfer to and from			rly used	d to documen	it 🗸					
Are ozone z/s/p control chacurrent?	arts p	oroperl	y comp	oleted and		Control charts no	t used			
ovide any additional explana	tion	(nhoto	ranh c	or sketch if n	ocessar	v) regarding con	ditions lie	sted c	hove	or any o
tural or man-made, that may						, , regarding con	artions ils	acu a	ibove,	or any C
								ELLES.		

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Site ID MAC426 Technic	cian Eric Hebert	Site Visit Date 03/01/201	3
Site operation procedures			
1 Has the site operator attended a forma course? If yes, when and who instructe		Receives training every 6 mor	nths during calibration visits
2 Has the backup operator attended a fortraining course? If yes, when and who		Receives training every 6 mor	ths during calibration visits
3 Is the site visited regularly on the require schedule?	red Tuesday		
4 Are the standard CASTNET operational flollowed by the site operator?	al procedures being	V	
5 Is the site operator(s) knowledgeable of the required site activities? (including d	, and able to perform ocumentation)		
Are regular operational QA/QC checks	performed on meteo	prological instruments?	
QC Check Performed	Frequency		Compliant
Multipoint Calibrations	✓ Semiannua	lly	
Visual Inspections	Weekly		✓
Translator Zero/Span Tests (climatronics)	□ N/A		
Manual Rain Gauge Test	✓ Monthly		✓
Confirm Reasonableness of Current Values	Weekly		
Test Surface Wetness Response	✓ N/A		
Are regular operational OA/OC checks	performed on the oz	one analyzer?	
QC Check Performed	Frequency		Compliant
Multi-point Calibrations	✓ Monthly, qu	arterly, semiannually	
Automatic Zero/Span Tests	Daily		
Manual Zero/Span Tests	✓ Every 2 we	eks	
Automatic Precision Level Tests	✓ Daily		
Manual Precision Level Test			
Analyzer Diagnostics Tests	✓ Alarm value	s only	✓
In-line Filter Replacement (at inlet)	✓ Every 2 we	eks	
In-line Filter Replacement (at analyze	N/A		✓
Sample Line Check for Dirt/Water			
Zero Air Desiccant Check	Weekly		
 Do multi-point calibration gases go throsample train including all filters? Do automatic and manual z/s/p gasses g complete sample train including all filters. Are the automatic and manual z/s/p chereported? If yes, how? 	o through the	✓ DataView	
Provide any additional explanation (photogratural or man-made, that may affect the model)			l above, or any other features,

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Site	ID	MAC426	Tech	nician	Eric Hebert		Site Visit Da	te 03/01/2013	
	Site or	peration procedures							
1	Is the	filter pack being chang	ed every	Tuesda	y as scheduled?	V	Filter changed mo	ornings (90%)	
2	Are the	ne Site Status Report Fo	rms beii	ng comp	oleted and filed	✓			
3	Are da	ata downloads and backuled?	cups beii	ng perfo	ormed as		No longer require	d	
4	Are go	eneral observations beir	ng made	and red	corded? How?	✓	SSRF, logbook		
5	Are si fashio	te supplies on-hand and n?	l repleni	shed in	a timely	✓			
6	Are sa	ample flow rates record	ed? How	?		✓	SSRF		
7	Are sa fashio	amples sent to the lab or on?	ı a regul	ar sche	dule in a timely	✓			
8		lters protected from con hipping? How?	ntaminat	ion dui	ing handling	✓	Clean gloves on a	and off	
9		ne site conditions report tions manager or staff?	ed regul	arly to	the field				
QC	Check	Performed		Free	quency			Compliant	
N	Iulti-po	oint MFC Calibrations		✓ Sem	iannually	DE-C1		✓	
F	low Sy	stem Leak Checks		Wee	kly			✓	
F	ilter Pa	ack Inspection				1491121			
F	low Ra	nte Setting Checks		Wee	CONTRACTOR OF THE PARTY OF THE	MITTO VI		V	
		Check of Flow Rate Rote		Wee		are to the		V	
		Filter Inspection/Replac		Sem	iannually and as	nee	ded	V	
S	ample	Line Check for Dirt/Wa	ater						
		y additional explanation man-made, that may aff				sary	y) regarding cond	itions listed above, or an	y other features,
The s	site ope	rators are very knowledge	eable witl	n air qua	ality monitoring. T	hey	y are doing a very o	good job with site activities	and filter handling.

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
СНЕ	E185-Eric H	lebert-03/03/2013				
1	3/3/2013	DAS	Environmental Sys Corp	73955	8832	A0656-b
2	3/3/2013	Elevation	Elevation	None	1	None
3	3/3/2013	Filter pack flow pump	Thomas	00498	107CAB18	0000110
4	3/3/2013	Flow Rate	Apex	000641	AXMC105LPMDPCV	116
5	3/3/2013	Infrastructure	Infrastructure	none	none	none
6	3/3/2013	Met tower	Universal Tower	03662	unknown	none
7	3/3/2013	Modem	Raven	06459	V4221-V	0808452827
8	3/3/2013	Ozone	Monitor Labs, Inc.	54901	ML9811	191
9	3/3/2013	Precipitation	Texas Electronics	04714	TR-525i-HT	30094-202
10	3/3/2013	Printer	Hewlett Packard	none	6500A	unknown
11	3/3/2013	Relative Humidity	Rotronic	06385	MP 101A-C5	31161
12	3/3/2013	Sample Tower	Aluma Tower	000054	В	AT-81213-T12
13	3/3/2013	Shelter Temperature	unknown	none	none	015
14	3/3/2013	Shield (10 meter)	RM Young	04620	Aspirated 43408	none
15	3/3/2013	Shield (2 meter)	RM Young	04680	Aspirated 43408	none
16	3/3/2013	Siting Criteria	Siting Criteria	None	1	None
17	3/3/2013	Solar Radiation	Licor	04009	LI-200	illegible
18	3/3/2013	Solar Radiation Translator	RM Young	06630	70101-X	none
19	3/3/2013	Solar Radiation Translator	RM Young	02533	70101-X	none
20	3/3/2013	Surface Wetness	RM Young	06313	58101	none
21	3/3/2013	Temperature	RM Young	04945	41342VC	8897
22	3/3/2013	Temperature2meter	RM Young	06244	41342VC	12791
23	3/3/2013	Wind Direction	RM Young	04865	AQ05305	58321wdr
24	3/3/2013	Wind Direction	RM Young	04335	AQ05305V	34948wdr
25	3/3/2013	Wind Speed	RM Young	04335	AQ05305V	34948wsp
26	3/3/2013	Zero air pump	Ecotech	none	8301LC	01-0658

DAS Data Form 0.03 **DAS Time Max Error:** Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg **Environmental Sys** A0656-b CHE185 Eric Hebert 03/03/2013 DAS Primary Das Date: 3 /3 /2013 **Audit Date** 3 /3 /2013 Datel **Parameter** DAS Mfg 10:00:02 10:00:00 Das Time: **Audit Time** Tfer Desc. Source generator (D 4000392 **Serial Number** Das Day: 62 **Audit Day** 62 Tfer ID 01321 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 Slope **Intercept** 0.0010 0.0011 0.0010 0.0011 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 6 0.0000 0.0000 -0.0009 -0.0009 V V 6 0.1000 0.1000 0.0991 -0.0009 6 0.3000 0.3000 0.2991 V V -0.0009 6 0.5000 0.4990 V V -0.0010 0.5000 0.7000 V V -0.0011 6 0.7001 0.6990 V V 6 0.9000 0.9001 0.8990 -0.0011 6 0.9991 V V -0.0010 1.0000 1.0001

Flow Data Form

Иfg	Serial Nun				chnician		Date Paran		Owner ID
pex	116		CHE185	Eri	c Hebert	03/03/201	Flow R	ate	000641
					Mfg	BIOS	P	arameter Flo	w Rate
					Serial Number	122974	Т	fer Desc. BIG	OS 220-H
					Tfer ID	01416			
					Slope	1.	.00000 Int	ercept	0.00000
					Cert Date			rCoff	1.00000
					Cert Date	17	0/2010	TCOII	1.00000
DAS 1:		DAS 2:			Cal Factor Z		-0.0		
A Avg % Diff: A		A Avg %I	Dif A Max	% Di	Cal Factor F		5.17		
1.38%	1.65%				Rotometer R	eading:	1	.5	
UseDescription:	Test type:	-	Input STP:	-		-	InputUnit:	<u> </u>	PctDifference
	oump off	0.000	0.000	0.00	0.0000	-0.02	l/m	1/m	
	eak check	0.000	0.000	0.01	0.0010	-0.01	l/m	1/m	
	est pt 1	0.000	1.525	1.48	1.4650	1.50	l/m	1/m	-1.65%
	est pt 2	0.000	1.518	1.48	1.4650	1.50	l/m	l/m	-1.17%
primary to	est pt 3	0.000	1.520	1.48	1.4650	1.50	l/m	1/m	-1.31%
Sensor Compon	Leak Tes	st		Conditio	n		Status	pass	
Sensor Compon	ent Filter Azi	muth		Conditio	n 180 deg		Status	pass	
Sensor Compon	ent Filter De	pth		Conditio	n - 1.0 cm		Status	Fail	
Sensor Compon	ent Filter Pos	sition		Conditio	n Poor		Status	Fail	
Sensor Compon	nent Moisture	Present		Conditio	n No moisture p	resent	Status	pass	
Sensor Compon	nent Rotomete	er Condition		Conditio	Clean and dry		Status	pass	
Sensor Compon	ent System M	Memo		Conditio	n See comments	S	Status	pass	
Sensor Compon				Conditio			Status	pass	
Sensor Compon				Conditio	n 5.0 cm		Status	pass	

Ozone Data Form

Mfg	Serial Number Ta	Site	Tec	chnician		Site Visi	t Date	Parame	eter	Owner ID)
Monitor Labs, Inc.	191	CHE185	Eri	ic Hebert		03/03/20)13	Ozone		54901	
Slope: 0.9	99014 Slope:	0.00000		Mfg		ThermoE	lectron I	nc Pa	rameter	zone	
•	27140 Intercept	0.00000	=	Serial N	umber	5171121	75	Tf	er Desc.	zone primary	stan
CorrCoff 0.9	99990 CorrCoff	0.00000)	Tfer ID		01111					
DAS 1:	DAS 2:			Slope			0.99720	Inter	rcent	0.184	128
A Avg % Diff: A Ma		6Dif A Max 9		Cert Da	to		1/2/2013		•	1.000	
3.4%	6.5%			CCITDA			.,_,_,	Corr	Con		
UseDescription:	ConcGroup:	Tfer Raw:	Tfer C		Si			Unit:	PctDi	fference:	
primary	1 2	0.08 28.46	-0.1 28.3		30.		ppb			6.53%	
primary primary	3	55.31	55.2		57.		ppb ppb			3.71%	
primary	4	82.86	82.9		85.		ppb ppb			2.70%	
primary	5	101.81	101.		102		ppb ppb			0.48%	
Sensor Component		101.01	Conditio		102	.10		Status	pass	0.1070	
1]
Sensor Component	Cell B Trilp.		Conditio					Status	pass		_
Sensor Component	Fullscale Voltage		Conditio	n N/A				Status	pass		
Sensor Component	Inlet Filter Condition	on	Conditio	Clean				Status	pass]
Sensor Component	Line Loss		Conditio	Not tes	sted			Status	pass]
Sensor Component	Offset		Conditio	0.06				Status	pass]
Sensor Component	Span		Conditio	n 1.024				Status	pass		
Sensor Component	Cell B Freq.		Conditio	on				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	on				Status	pass		
Sensor Component	Cell A Tmp.		Conditio	37.9 C	;			Status	pass]
Sensor Component	Cell A Pressure		Conditio	701 m	mHg			Status	pass]
Sensor Component	Cell A Noise		Conditio	n N/A				Status	pass]
Sensor Component	Cell A Freq.		Conditio	42 kHz	7			Status	pass]
Sensor Component	Cell A Flow		Conditio	0.5 lpn	n			Status	pass]
Sensor Component	Battery Backup		Conditio	n N/A				Status	pass		
Sensor Component	Zero Voltage		Conditio	n N/A				Status	pass]

Wind Speed Data Form Mfg Serial Number Ta Site **Technician** Site Visit Date Parameter Owner ID CHE185 Wind Speed 04335 RM Young 34948wsp Eric Hebert 03/03/2013 Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (h Serial Number 01262 Tfer ID 0.00000 1.00000 **Slope Intercept** N/A Prop or Cups SN 0.9 **to** 1.1 **Prop or Cups Torque Cert Date** 1/13/2010 CorrCoff 1.00000 **Prop Correction Fact** 0.0049 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** 0.12 0.48% Abs Avg Err 0.30 0.74% Abs Max Er UseDescription: InputDevice: Input RPM: Output V: Diff/ % Diff: Difference: Input m/s: DAS m/s: none 0 0.20 0.0000 -0.1-0.30primary 01262 200 0.98 0.9 -0.08 primary 0.0000 primary 01262 400 1.96 0.0000 1.9 -0.06 3.92 3.9 -0.02 01262 800 0.0000 primary 5.9 primary 01262 1200 5.88 0.0000 0.34% 11.76 0.0000 11.8 primary 01262 2400 0.34% 01262 4000 19.60 0.0000 19.7 0.51% primary primary 01262 9400 46.06 0.0000 46.4 0.74% 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 Status Fail Condition

Wind Direction Data Form

Sensor Component System Memo

Mfg	Serial Numbe	er Ta Site		Technician	Site Visi	t Date Paran	neter	Owner ID
RM Young	34948wdr	CHE185		Eric Hebert	03/03/20	013 Wind E	Direction	04335
				Mfg Serial Nun Tfer ID	Ushikata 190037 01265		Parameter v	vind direction
Vane SN: N/A VaneTorque	15 to 30	C. A. Align. de	g. true: 360	Slope Cert Date		1/4/2011 Co	ercept rrCoff	0.00000
				Mfg	RM Your	ng P	arameter V	vind direction
				Serial Nun	nber	Т	fer Desc. v	vind direction wheel
				Tfer ID	01266			
D.	AS 1:	D A	AS 2:					
0	rientation Lin	nearity: Or	ientation	Linearity:				
Abs Avg Err	0.5	1.0						
Abs Max Er	2	3						
UseDescription:	TferID:	Input Raw:	Linearity	Output V:	Output Deg.:	Difference:	Change:	Error:
primary	01266	0	V	0.0000	2	2	48	3
primary	01266	45	V	0.0000	44	1	42	-3
primary	01266	90	V	0.0000	90	0	46	1
primary	01266	135	V	0.0000	135	0	45	0
primary	01266	180	V	0.0000	180	0	45	0
primary	01266	225	V	0.0000	225	0	45	0
primary	01266	270	V	0.0000	270	0	45	0
primary	01266 01265	315 90		0.0000	314 90	0	44	-1
primary primary	01265	180		0.0000	180	0		0
primary	01265	270		0.0000	270	0		0
primary	01265	360		0.0000	2	2		2
Sensor Compor		1 200	Cond	ition Good			pass	_
Sensor Compo	nent Condition		Cond	ition Good		Status	pass	
Sensor Compo	nent Sensor Heat	ter	Cond	ition N/A		Status	pass	
Sensor Compon	nent Sensor Plum	nb	Cond	ition Plumb		Status	pass	
Sensor Compo	nent Torque		Cond	ition		Status	pass	
Sensor Compo	nent Vane Condit	tion	Cond	ition Good		Status	pass	

Condition

Status pass

Temperature Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site RM Young CHE185 Eric Hebert 03/03/2013 Temperature 04945 8897 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 0.24 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.08 0.04 0.0000 -0.09 primary Temp Low Range \mathbf{C} -0.13C -0.03 Temp Mid Range 17.02 17.02 0.0000 16.99 primary C 0.24 primary Temp High Range 42.36 42.18 0.000042.42 Condition Moderately clean Sensor Component | Shield **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 Site **Owner ID** CHE185 RM Young 12791 Eric Hebert 03/03/2013 Temperature2meter 06244 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** 0.15 0.17 InputTmpRaw | InputTmpCorrected: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDescription: Test type: Temp Low Rang -0.09 C primary -0.080.04 0.0000 -0.13Temp Mid Rang 17.02 17.02 0.0000 16.87 C -0.15 primary 42.35 C primary Temp High Ran 42.36 42.18 0.0000 0.17 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 Sensor Component | Shield **Condition** Moderately clean **Status** pass

Humidity Data Form Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Mfg Site CHE185 Eric Hebert Relative Humidity Rotronic 31161 03/03/2013 06385 Mfg Rotronic Parameter Relative Humidity Tfer Desc. Hygroclip 124432 **Serial Number** 01225 Tfer ID 0.00000 Slope 1.00000 **Intercept Cert Date** 1/29/2013 1.00000 CorrCoff **DAS 1: DAS 2:** Low Range **High Range** Low Range **High Range** 7.2 1.5 Abs Avg Err 8.1 1.5 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: 32.8 RH Low Range Hygroclip 35.5 32.8 0.0000 24.7 primary -8.1RH Low Range -6.3 primary Hygroclip 52.9 54.8 52.9 0.000046.6 primary RH High Range Hygroclip 93.6 89.9 93.6 0.0000 95.1 1.5 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Status pass **Condition** N/A Sensor Component Blower Status Switch **Condition** N/A Status pass Sensor Component | RH Filter Status pass Condition Clean Condition Moderately clean Sensor Component Shield **Status** pass

Solar Radiation Data Form Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Mfg Eric Hebert Solar Radiation 04009 Licor illegible CHE185 03/03/2013 Mfg **Eppley** Parameter solar radiation RM Young Mfg 10765 Tfer Desc. SR transfer translat **Serial Number SN/Owner ID** none 02533 01246 Tfer ID **Parameter** Solar Radiation Translator 0.00000 Slope 1.00000 **Intercept** RM Young Mfg 1/6/2010 1.00000 **Cert Date** CorrCoff none 06630 **SN/Owner ID** Parameter solar radiation Mfg **Eppley** Solar Radiation Translator **Parameter** Tfer Desc. SR transfer sensor **Serial Number** 34341F3 **DAS 1: DAS 2: Tfer ID** 01245 % Diff of Avg %Diff of Max %Diff of Avg %Diff of Max 1.00000 0.00000 Slope **Intercept Cert Date** 12/16/2010 CorrCoff 1.00000 1.7% 0.0% 0.0% 1.4% UseDescription: Measure Date MeasureTime Tfer Corr: PctDifference: DAS w/m2: 794 1.7% primary 3/3/2013 12:00 781 1.5% 3/3/2013 13:00 750 761 primary 3/3/2013 14:00 633 645 1.9% primary 488 498 2.0% primary 3/3/2013 15:00 3/3/2013 16:00 194 188 -3.1% 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

Surface Wetness Data Form

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
RM Young	none	CHE185	Eric Hebert	03/03/2013	Surface Wetness	06313

Ohmite Parameter surface wetness Mfg 296-1200 Tfer Desc. decade box **Serial Number** 01210 Tfer ID 1.00000 0.00000 Intercept Slope 1/4/2011 1.00000 **Cert Date** CorrCoff

✓ Manual Test Pass

UseDescription:	Test Type:	Tfer kOhms:	OutputSignal:	DAS eng:	OutputSignalEngUni	TferUnits:	OutputSignalUnit
primary	wet	N/A	1.2220	1.05	V	N/A	V
primary	dry	N/A	0.0200	0.02	V	N/A	V
primary	Decade box on	230	1.2220	1.05	V	kOhm	V
primary	Decade box off	240	0.0200	0.02	V	kOhm	V

Sensor Component	Grid Orientation	Condition North	Status pass
Sensor Component	Grid Clean	Condition Clean	Status pass
Sensor Component	Grid Angle	Condition About 30 deg	Status pass
Sensor Component	Grid Condition	Condition Fair	Status pass
Sensor Component	Properly Sited	Condition Properly sited	Status pass
Sensor Component	System Memo	Condition	Status pass
Sensor Component	Grid Type	Condition Grid without holes	Status pass

Precipitation Data Form

Mfg	5	Serial I	Number Ta	Site	1	Tec	chnician		Site	Visit Date	Parame	eter		Owner ID
Texas Electro	nics	30094-	202	CHE185		Er	ic Hebert		03/0	03/2013	Precipita	ation		04714
							Mfg		PMF			ramete		
DAS 1:	е. а ъл	a 0/ T	DAS 2:	Die An	/a 0/ D:		Serial Nur	nber	EW-	06134-50	Tf	er Desc.	250m	nl graduate
A Avg % Dif		4.C			viax % Di		Tfer ID		012	50				
							Slope			1.0000	0 Inter	rcept		0.00000
							Cert Date			9/5/200)5 Cori	rCoff		1.00000
UseDesc.		, ı	TferVolume:	Iteration:	TimePerTi	ip:	Eq.Ht:			Eq.HtUnit:	OSE Un	it: TferU	Jnits:F	PctDifference
primary	tip che	ck	10 manual	1	2 sec		0.10	0.	10	in	in	m	ıl	
primary	test 1		231.5	1	8 sec		0.50	0	50	in	in	m	ıl	0.0%
primary	test 2		231.5	2	10 sec		0.50	0.	48	in	in	n	ıl	-4.0%
Sensor Com	ponen	Syste	m Memo		Cond	itio	on				Status	pass		
Sensor Con	ponen	Sens	or Heater		Cond	itio	Not func	tioning	l		Status	Fail		
Sensor Con	ponen	Prope	erly Sited		Cond	itio	Properly	sited			Status	pass		
Sensor Con	ponen	Gaug	e Drain Scree	en	Cond	itio	Installed				Status	pass		
Sensor Con	ponen	Level			Cond	itio	Level				Status	pass		
Sensor Con	ponen	Gaug	e Clean		Cond	itio	Clean				Status	pass		
Sensor Con	ponen	Funn	el Clean		Cond	itio	Clean				Status	pass		
Sensor Com	ponen	Cond	ition		Cond	itio	Good				Status	pass		
Sensor Con	ponen	Gaug	e Screen		Cond	itio	Installed				Status	Fail		

Infrastructure Data For

Shelter One

Site ID CHE185 Technician Eric Hebert Site Visit Date 03/03/2013

Shelter Make Shelter Model Shelter Size

768 cuft

8128

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

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
unknown	015	CHE185	Eric Hebert	03/03/2013	Shelter Temperature	none
DAS 1:	DAS 2:		Mfg	Extech	Parameter She	Iter Temperatur
Abs Avg Err Abs	Max Er Abs Avg 0.82	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	CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	22.29	22.25	0.000	23.1	C	0.82
primary	Temp Mid Range	23.87	23.82	0.000	24.3	С	0.49
primary	Temp Mid Range	25.02	24.96	0.000	25.4	С	0.44

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard Pro	blem
Flow Rate	CHE185	Eric Hebert	03/03/2013	Filter Position	Apex	3709		

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

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site is well maintained and operated. Very good sample change out procedures are being used by the site operator.

2 Parameter: SitingCriteriaCom

The site is located in a pasture with grazing cattle sometimes as close as 5 meters.

3 Parameter: ShelterCleanNotes

The shelter is in very good condition, clean, neat, and well organized.

4 Parameter: PollAnalyzerCom

The ozone analyzer response to audit gas was observed to be very slow. This was discussed with the site operator, and it was recommended that the monitor averaging interval be changed to a shorter period. It was also suggested that the sample line be changed from 3/8 inch tubing to 1/4 inch tubing.

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Site ID CHE185	Technician Eric Hebert	Site Visit Date 03/0	3/2013
Site Sponsor (agency)	EPA	USGS Map	Stilwell West
	Cherokee Nation OES	Map Scale	
Operating Group	CHEIOREE NATION OLS	Map Date	
AQS#		Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone, NOy, ammonia	QAPP Latitude	35.7507
Deposition Measurement	dry, Hg, passive ammonia	QAPP Longitude	-94.6700
Land Use	agriculture, pasture	QAPP Elevation Meters	299
Terrain	rolling	QAPP Declination	3.25
Conforms to MLM	Marginally	QAPP Declination Date	9/16/2005
Site Telephone	(918) 696-5604	Audit Latitude	35.750786
Site Address 1	Cherry Tree	Audit Longitude	-94.669789
Site Address 2	Dahlonegah School	Audit Elevation	305
County	Adair	Audit Declination	3
City, State	Stilwell, OK	Present	
Zip Code	74960	Fire Extinguisher 🔽	No inspection date
Time Zone	Central	First Aid Kit	
Primary Operator	Jacque Adam	Safety Glasses	
Primary Op. Phone #	(918) 822-2770	Safety Hard Hat	
Primary Op. E-mail	jacque-adam@cherokee.org	Climbing Belt	
Backup Operator	Dani Keese	Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail	danielle-keese@cherokee.org	Stable Entry Step 🔽	
Shelter Working Room ✓	Make Shelter One Mo	odel 8128	Shelter Size 768 cuft
	Notes The shelter is in very good con	dition, clean, neat, and well or	ganized.
	Notes		
miles	interstate 40 take exit 311 and go north of south of Stilwell turn left (west) on an unm	narked road. There is a sign fo	or Cherry Tree Baptist Church and
Dahlo	negah school. Continue to the end of the	road at the school. The site is	s on the right behind the ball fields.

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Site ID CHE185 Technician Eric Hebert Site Visit Date 03/03/2013

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		V
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	1	
Feedlot operations	500 m		
Intensive agricultural ops (including aerial spraying)	500 m		V
Limited agricultural operations	200 m		V
Large parking lot	200 m		
Small parking lot	100 m		v
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		

Siting Distances OK ✓

Siting Criteria Comment

The site is located in a pasture with grazing cattle sometimes as close as 5 meters.

		A STATE OF THE PARTY OF THE PAR
Field S	 Data	
		Karn
	Data	, 40, 47, 49, 11,

F-02058-1500-S3-rev001

Site	ID	CHE185	Technician E	ric Hebert		Site Visit Date 03/03/2013	
					✓ [
1		nd speed and direct nfluenced by obstru	ion sensors sited so as actions?	s to avoid	•		
2	(i.e. win	nd sensors should be	I so as to minimize tove mounted atop the tom >2x the max diame wind)	ower or on a			
3		e tower and sensors			V		
4			ds pointed north or poes such as buildings, w	Jordan Co	V		
5	conditi surface	ons? (i.e. ground be	sensors sited to avoid clow sensors should be ped. Ridges, hollows, avoided)	e natural	>		
6	Is the s	olar radiation senso	or plumb?		V	SUN TIGHT PARA TO PROPONICIA OF THE TITLE WAS A THEORY AND A SUN TITLE TO THE TITLE SUNTE	
7	Is it site light?	ed to avoid shading.	, or any artificial or r	eflected	V		
8	Is the r	ain gauge plumb?			✓		
9	Is it site towers,		ng effects from buildi	ngs, trees,	V		
10	Is the s		or sited with the grid	surface	V		
11	Is it in	clined approximate	ly 30 degrees?		V		
			ation (photograph or y affect the monitorir) regarding conditions listed above, or	any other features,

Fiel	ld S	ystems	Data	Form
		APPLIE	Dutu	T OI III

F-02058-1500-S4-rev001

Site	ID CHE185	Technician Er	ic Hebert		Site Visit Date 03/03/20)13
	Do all the meterologic condition, and well m	eal sensors appear to be in aintained?	tact, in good			
	Are all the meteorological sensors operational online, and reporting data?			V		
3	Are the shields for the	e temperature and RH sen	sors clean?	~		
4	Are the aspirated mot	tors working?		V		
	Is the solar radiation scratches?	sensor's lens clean and fre	e of	V		
6	Is the surface wetness	sensor grid clean and und	lamaged?	V		
	Are the sensor signal condition, and well m	and power cables intact, in	n good	V		
	Are the sensor signal from the elements and	and power cable connection well maintained?	ons protected	V		
Para	nmeter	Manufacturer	Model		S/N	Client ID
Sola	r Radiation	Licor	LI-200	000.000	illegible	04009
Shie	ld (10 meter)	RM Young	Aspirated	43408	none	04620
Shie	ld (2 meter)	RM Young	Aspirated	43408	none	04680
Surfa	ace Wetness	RM Young	58101	S ALAN AND AND	none	06313
Winc	l Speed	RM Young	AQ05305	V	34948wsp	04335
Winc	d Direction	RM Young	AQ05305	V	34948wdr	04335
Prec	ipitation	Texas Electronics	TR-525i-H	I T	30094-202	04714
Met	tower	Universal Tower	unknown	AS ADMICTED IN	none	03662
Tem	perature	RM Young	41342VC	HARLESTEE	8897	04945
Tem	perature2meter	RM Young	41342VC		12791	06244
100	tive Humidity	Rotronic	MP 101A-	·C5	31161	06385

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Site	ID	CHE185	Technician	Eric Hebert		Site Visit Date 03/03/2013	3				
	Siting C	riteria: Are the po	llutant analyzers a	nd deposition ed	quipi	nent sited in accordance with	a 40 CFR 58, Appendix E				
1	Do the s		at least a 270 degre		~						
2	Are the	sample inlets 3 - 15	5 meters above the	ground?	V						
3		sample inlets > 1 n neters from trees?	neter from any maj	or obstruction,	~						
	Pollutant analyzers and deposition equipment operations and maintenance										
1		nalyzers and equip n and well maintai	oment appear to be ned?	in good	✓]					
2	Are the reportin		nitors operational, o	on-line, and	✓						
3	ALCOHOLOGICA PR	e ozone sample tub	e			3/8 teflon by 15meters					
4	Describe	e dry dep sample to	ıbe.			3/8 teflon by 10 meters					
5	5 Are in-line filters used in the ozone sample line? (if yes indicate location)					At inlet only					
6	Are sam		e of kinks, moistur	e, and	✓						
7	Is the ze	ro air supply desic	cant unsaturated?		✓						
8	Are the	e moisture traps i	n the sample lines?		✓						
9	Is there clean?	a rotometer in the	dry deposition filto	er line, and is it	V	Clean and dry					
Par	ameter		Manufacturer	Model		S/N	Client ID				
San	nple Towe	er	Aluma Tower	В		AT-81213-T12	000054				
9333	o air pum _l)	Ecotech	8301LC	(ESS)	01-0658	none				
Ozo	one		Monitor Labs, Inc.	ML9811	and the same of th	191	54901				
Filte	er pack flo	w pump	Thomas	107CAB18	3	0000110 00498					
	rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,										

The ozone analyzer response to audit gas was observed to be very slow. This was discussed with the site operator, and it was recommended that the monitor averaging interval be changed to a shorter period. It was also suggested that the sample line be changed from 3/8 inch tubing to 1/4 inch tubing.

F-02058-1500-S6-rev001

Site	ite ID CHE185 Technician Eric Hebert					Site Visit Date				
	DAS, s	sensor translators.	, and peripheral equipn	<u>ient operatio</u>	ns ai	nd maintenance				
1		DAS instruments aintained?	appear to be in good c	ondition and	~					
2		l the components (n, backup, etc)	of the DAS operational?	? (printers,	✓					
3		analyzer and sen	sor signal leads pass thi cuitry?	ough	✓	Met sensors only				
4		e signal connectio aintained?	ns protected from the w	eather and	✓					
5	Are th	e signal leads com	nected to the correct DA	AS channel?	✓					
6	Are th		nslators, and shelter pro	operly	~					
7	Does th	he instrument she	lter have a stable power	source?	✓					
8	Is the i	instrument shelter	temperature controlle	d?	✓					
		met tower stable a sample tower stab	and grounded?			Stable ✓	Grounder ✓			
11	Tower	comments?								
Par	ameter		Manufacturer	Model		S/N	Cl	ient ID		
DAS	3		Environmental Sys Co	orp 8832		A0656-b	73	955		
Mod	dem		Raven	V4221-V	1179063	0808452827	06	459		
Prin	ter		Hewlett Packard	6500A	nesen	unknown	no	ne		
Sola	ar Radia	ation Translator	RM Young	70101-X	E SEEL	none	02	533		
Sola	ar Radia	ation Translator	RM Young	70101-X		none	06	630		
	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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Documentation Does the site have the required instrument and equipment manuals? Yes No N/A Yes No N/A Indication sensor									
See the site have the required instrument and equipment manuals? Yes No N/A Y									
Ves No N/A Yes No N/A									
Ind speed sensor Ind direction sensor Ind									
nd direction sensor									
Imperature sensor									
ative humidity sensor									
ar radiation sensor									
face wetness sensor									
Ind sensor translator									
Inperature translator Imidity sensor transla									
midity sensor translator									
ar radiation translator									
ping bucket rain gauge									
one analyzer Shelter heater Shelter air conditioner Sh									
Present Current Cops Manual Oct 2001 Nov 2009									
Does the site have the required and most recent QC documents and report forms? Present Current tion Log RF Ops Manual Nov 2009									
Does the site have the required and most recent QC documents and report forms? Present Current tion Log RF Ops Manual Oct 2001 Nov 2009									
Present Current tion Log ✓ &F ✓ • Ops Manual ✓ SP Nov 2009									
tion Log RF ✓ Ops Manual Nov 2009 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓									
QF ✓ C Ops Manual ✓ Oct 2001 SP Nov 2009									
Pops Manual ✓ Oct 2001 SP □ Nov 2009									
SP									
ibration Reports									
one z/s/p Control Charts									
ventive 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?									
vide any additional explanation (photograph or elected if pages any) page units and itians listed above an appropriate									
ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any ural or man-made, that may affect the monitoring parameters:									
ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any ural or man-made, that may affect the monitoring parameters:									

F-02058-1500-S8-rev001 **Field Systems Data Form** Site ID CHE185 Technician Eric Hebert Site Visit Date 03/03/2013 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 V 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 Translator Zero/Span Tests (climatronics)** N/A V **V** Weekly **Manual Rain Gauge Test** V **V** Weekly **Confirm Reasonableness of Current Values V V** Weekly **Test Surface Wetness Response**

C Check Performed	Frequency	Compliant
ulti-point Calibrations	✓ Quarterly	✓
utomatic Zero/Span Tests	✓ Daily	✓
nual Zero/Span Tests	✓ Every 2 weeks	✓
omatic Precision Level Tests		✓
nual Precision Level Test	✓ Every 2 weeks	✓
llyzer Diagnostics Tests	✓ Every 2 weeks	✓
ne Filter Replacement (at inlet)	✓ Monthly	V
ne Filter Replacement (at analyze	✓ Monthly	✓
ple Line Check for Dirt/Water	Weekly	V
o Air Desiccant Check	Weekly	✓
Do multi-point calibration gases go the sample train including all filters? Do automatic and manual z/s/p gasses complete sample train including all filters.	go through the	

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,

reported? If yes, how?

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

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Site	ID	CHE185	echn	ician Eric Hebert		Site Visit Da	ite	03/03/2013			
	Site o	peration procedures									
1	Is the	filter pack being changed ev	ery T	uesday as scheduled?	~	Filter changed mo	ori	inings			
2	Are th	ne Site Status Report Forms etly?	eing	completed and filed	✓						
3	Are da	ata downloads and backups l uled?	eing	performed as		No longer required					
4	Are go	eneral observations being ma	de aı	nd recorded? How?	~	SSRF, logbook					
5	Are si fashio	te supplies on-hand and repl n?	enish	ed in a timely							
6	Are sa	ample flow rates recorded? H	ow?		>	SSRF, call-in					
7	Are sa fashio	amples sent to the lab on a re									
8	Are fi	lters protected from contami hipping? How?	natio	n during handling	~	Clean gloves on and off					
9											
QC	Check	Performed		Frequency			Compliant				
N	Iulti-p	oint MFC Calibrations	~	Semiannually							
F	low Sy	stem Leak Checks	✓	Weekly							
F	ilter Pa	ack Inspection			NO DESCRIPTION OF THE PROPERTY						
F	low Ra	te Setting Checks	10000	Weekly							
V	isual C	Check of Flow Rate Rotomete					✓				
		Filter Inspection/Replacemen		Semiannually	PROJECT AND THE ETHIC CO. CO. 487 AND THE ATTER		▽				
S	ample	Line Check for Dirt/Water	V	Weekly	CO.	V					
		vadditional explanation (phonan-made, that may affect the				y) regarding cond	lit	ions listed above, or any other features,			
The s	site is w	ell maintained and operated. \	ery c	lood sample change ou	ıt pr	ocedures are being	gι	used by the site operator.			

Site Inventory by Site Visit

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
CDZI	171-Sandy	Grenville-03/05/2013				
1	3/5/2013	Computer	Dell	000281	D520	unknown
2	3/5/2013	DAS	Campbell	000352	CR3000	2130
3	3/5/2013	Elevation	Elevation	None	1	None
4	3/5/2013	Filter pack flow pump	Thomas	06020	107CAB18D	060400022646
5	3/5/2013	Flow Rate	Apex	000548	AXMC105LPMDPCV	50742
6	3/5/2013	Infrastructure	Infrastructure	none	none	none
7	3/5/2013	Modem	Raven	06457	V42221	0808338189
8	3/5/2013	Ozone	ThermoElectron Inc	000615	49i A1NAA	1009241787
9	3/5/2013	Ozone Standard	ThermoElectron Inc	000367	49i A3NAA	0726124683
10	3/5/2013	Sample Tower	Aluma Tower	000125	В	none
11	3/5/2013	Shelter Temperature	Campbell	none	107-L	none
12	3/5/2013	Siting Criteria	Siting Criteria	None	1	None
13	3/5/2013	Temperature	RM Young	06403	41342VC	14036
14	3/5/2013	UPS	APC	06793	RS900	unknown
15	3/5/2013	Zero air pump	Werther International	06899	PC70/4	000821902

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2130 CDZ171 Sandy Grenville 03/05/2013 DAS Primary Das Date: 3 /5 /2013 **Audit Date** 3 /5 /2013 Datel Parameter DAS Mfg 15:25:30 Das Time: 15:25:30 **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 64 **Audit Day** 64 Tfer ID 01320 **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** 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 -0.0001 0.0000 0.0001 V V 7 0.1000 0.0998 0.0999 0.0001 7 0.3000 0.2997 0.2998 V V 0.0001

0.4997

0.6997

0.8995

0.9994

V

V

V

V

V

V

V

V

0.0001

0.0002

0.0000

0.0000

7

7

7

7

0.5000

0.7000

0.9000

1.0000

0.4996

0.6995

0.8995

0.9994

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Te	chnician	Site Visit I	Date Param	eter	Owner ID	
Apex	50742		CDZ171	Sa	andy Grenville	03/05/2013	Flow R	ate	000548	
					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	
					_			rCoff	1.00000	
					Cert Date			ļu		
					Mfg	BIOS	P	rameter Flow Rate		
					Serial Number	103424	Т	fer Desc. BIOS cell		
					Tfer ID	01410				
					Slope	1.	00000 Inte	ercept	0.00000	
					Cert Date	1/2		rCoff 1.00000		
					Cert Date	172	772012 (01	TCOII	1.0000	
DAS 1:		DAS 2:			Cal Factor Z	ero	-0.0)1		
A Avg % Diff:	A Max % Di	A Avg %	Dif A Max	% Di	Cal Factor F	ull Scale	0.9	9		
2.95%	3.18%				Rotometer R	teading:	1	.5		
UseDescription:	Test type:	Input 1/n	n: Input STP:	MfcDisp.:	: OutputSignal:	Output S E:	InputUnit:	OutputSigna	llPctDifference	
primary	pump off	0.000	0.000	0.00	0.0019	0.00	1/m	l/m		
primary	leak check	0.000	0.000	0.00	0.0038	0.00	1/m	l/m		
primary	test pt 1	1.532	1.535	1.52	1.5135	1.49	1/m	l/m	-2.93%	
primary	test pt 2	1.530	1.532	1.52	1.5097	1.49	1/m	1/m	-2.74%	
primary	test pt 3	1.536	1.539	1.52	1.5119	1.49	1/m	l/m	-3.18%	
Sensor Compe	onent Leak Tes	st		Conditio	on		Status	pass		
Sensor Compo	onent Filter Azi	muth		Conditio	225 deg		Status	pass		
Sensor Compo	onent Filter Dep	oth		Conditio	3.5 cm		Status	pass		
_	onent Filter Pos			Condition			Status	pass		
_				_	No moisture pr	rocont				
	onent Moisture						Status			
Sensor Compo	onent Rotomete	er Condition	on	Conditio	Clean and dry		Status	pass		
Sensor Compo	onent System N	/lemo		Conditio	on		Status	pass		
•		1141		Conditio	Good		Status	pass		
	onent Tubing C	ondition								

Ozone Data Form

Mfg S	erial Number Ta	Site	Tec	chnician		Site Vis	it Date	Parame	ter	Owner ID
ThermoElectron Inc 1	009241787	CDZ171	Sa	andy Grei	rville	03/05/2	.013	Ozone		000615
Intercept -1.3	tercept -1.30738 Intercept 0.00000			Mfg Serial N	lumber	Thermol			rameter Ozo	
CorrCoff 0.9	OPP996 CorrCoff	0.00000	J	Tfer ID		01100				
DAS 1:	DAS 2:			Slope			1.0012	1 Inter	cept	-0.18383
A Avg % Diff: A Ma 0.7%	1.3% A Avg %	6Dif A Max 9	% Di	Cert Da	te		1/2/201	3 Corr	Coff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si	te:	Site	Unit:	PctDiffe	erence:
primary	1	0.09	0.2		-1.		ppb			
primary	2	35.26	35.			.06	ppb			-0.96%
primary	3	50.62	50.		50.		ppb			-1.32%
primary primary	5	80.34 100.68	80.		80. 100		ppb ppb			-0.16% -0.24%
Sensor Component		100.06	Condition			1.30	рро	Status	pass	-0.24%
Sensor Component			Conditio					Status		
Sensor Component	OCIL D TIMP.		Condition)II				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	n N/A				Status	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	on Clean				Status	pass	
Sensor Component	Line Loss	Conditio	on < 1 %				Status	pass		
Sensor Component	Offset	Conditio	0.000				Status	pass		
Sensor Component	Span	Conditio	ondition 1.014			Status	pass			
Sensor Component	Cell B Freq.		Conditio	ndition 84.3 kHz			Status	pass		
Sensor Component	System Memo		Conditio	ondition			Status	pass		
Sensor Component	Sample Train		Conditio	Condition Good			Status	pass		
Sensor Component	Cell B Pressure		Conditio	Condition			Status	pass		
Sensor Component	Cell B Flow		Conditio	Condition 0.70 lpm				Status	pass	
Sensor Component	Cell A Tmp.		Conditio	31.9 ()			Status	pass	
Sensor Component	Cell A Pressure		Conditio	726 m	ımHg			Status	pass	
Sensor Component	Cell A Noise		Conditio	0.6 pp	b			Status	pass	
Sensor Component	Cell A Freq.		Conditio	n 105.2	kHz			Status	pass	
Sensor Component	Cell A Flow		Conditio	0.70 l	om			Status	pass	
Sensor Component	Battery Backup		Conditio	Funct	oning			Status	pass	
Sensor Component	Zero Voltage		Conditio	N/A				Status	pass	

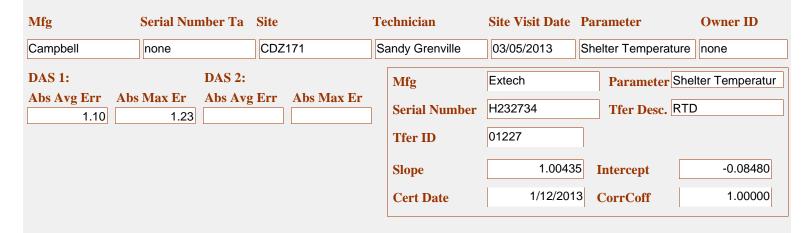
Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young 14036 CDZ171 03/05/2013 Temperature 06403 Mfg Extech **Parameter** Temperature Tfer Desc. RTD H232734 **Serial Number** 01227 Tfer ID -0.08480 **Slope** 1.00435 **Intercept DAS 1: DAS 2:** 1/12/2013 1.00000 Abs Avg Err Abs Max Er **Cert Date** CorrCoff Abs Avg Err Abs Max Er 0.13 0.21 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: 0.39 0.0000 primary Temp Low Range 0.47 0.4 C -0.1 C Temp Mid Range 24.43 24.41 0.0000 24.6 0.21 primary 47.5 C primary Temp High Range 47.54 47.42 0.00000.08 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	CDZ171	Technician	Sandy Grenville	Site Visit Date	03/05/2013	
Shelter	Make	Shelter Model	She	lter Size		
Ekto		8810	640	cuft		
		ACTUAL BOX	NAME OF THE PARTY	NESSONAL AND		

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	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	21.60	21.59	0.000	20.6	C	-1
primary	Temp Mid Range	22.98	22.96	0.000	21.9	С	-1.06
primary	Temp Mid Range	23.86	23.84	0.000	22.6	С	-1.23

Field Systems Comments

1 Parameter: SiteOpsProcComm

Tower is lowered and filter changed without downing ozone channel.

2 Parameter: ShelterCleanNotes

The shelter floor and door have been repaired since the previous audit visit. The shelter is still cluttered and dirty.

3 Parameter: SitingCriteriaCom

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

4 Parameter: MetSensorComme

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

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Site ID CDZ171	Technician Sandy Grenville	Site Visit Date 03/0	5/2013						
Site Sponsor (agency)	EPA	USGS Map	Cadiz						
Operating Group	private, TVA	Map Scale							
AQS#	21-221-9991	Map Date							
Meteorological Type	R.M. Young								
Air Pollutant Analyzer	Ozone, SO2, NOy, PM2.5, IMPROVE	QAPP Latitude	36.7841						
Deposition Measurement	dry	QAPP Longitude	-87.8500						
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	189						
Terrain	gently rolling	QAPP Declination	-2.01						
Conforms to MLM	Yes	QAPP Declination Date	2/23/2006						
Site Telephone	(270) 522-9373	Audit Latitude	36.784053						
Site Address 1	4560 Old Dover Road	Audit Longitude	-87.85015						
Site Address 2	route 1175	Audit Elevation	190						
	Trigg		-2.7						
County	Cadiz, KY	Audit Declination	*2.1						
City, State	42211	Present	No inspection date						
Zip Code		First Aid Kit	INO INSPECTION date						
Time Zone	Central David Chesnut								
Primary Operator		Safety Glasses							
Primary Op. Phone #	(270) 522-6819								
Primary Op. E-mail	dchesnut@bellsouth.net								
Backup Operator	Lawrence Barnes	Security Fence							
Backup Op. Phone #	(270) 855-2500	_							
Backup Op. E-mail Shelter Working Room ✓	Make Ekto Mo	Stable Entry Step ✓ odel 8810	Shelter Size 640 cuft						
			Shelter Size 640 cuft ous audit visit. The shelter is still						
	cluttered and dirty.	s been repaired since the prev	ous addit visit. The sheller is still						
	Notes 1475 and 1775 a	Note that he can be a second and the control of the	The Mark William Control of the Control						
on the	route 68 in Cadiz turn south on 1175 and right. Turn onto the gravel road just past								
left.	<u>left.</u>								

F-02058-1500-S2-rev001

Site ID CDZ171 Technician Sandy Grenville Site Visit Date 03/05/2013

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		✓
City 10,000 to 50,000 population	10 km		V
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	15 m	
Large parking lot	200 m		✓
Small parking lot	100 m		✓
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		V

Siting Distances OK

Siting Criteria Comment

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

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Site	e ID	CDZ171	Technician	Sandy Grenville		Site Visit Date 03/05/2013	
1		nd speed and direct afluenced by obstr	etion sensors sited so ructions?	as to avoid	V	N/A	
2	(i.e. wir	nd sensors should	d so as to minimize to be mounted atop the om >2x the max dian wind)	tower or on a	✓	N/A	
3	Are the	tower and sensor	s plumb?		V	N/A	
4			lds pointed north or ees such as buildings	CONTRACTOR OF THE PROPERTY OF THE PARTY OF T	✓		
5	condition surface	ons? (i.e. ground b	sensors sited to avo elow sensors should oped. Ridges, hollow avoided)	be natural	~		
6	Is the so	olar radiation sens	sor plumb?		✓	N/A	
7	Is it site light?	ed to avoid shadin	g, or any artificial or	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		sor sited with the gr	id surface	✓	N/A	
11	Is it in	clined approximat	ely 30 degrees?		✓	N/A	
			nation (photograph o ay affect the monitor			y) regarding conditions listed above, or	any other features,
The	tempera	ature sensor has be	en installed in a natura	ally aspirated shie	eld o	n the sample tower.	

Site ID CDZ171 Technician Sandy Grenville Site Visit Date 03/05/2013 1 Do all the meterological sensors appear to be intact, in good condition, and well maintained? 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? 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? 8 Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Tevoide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature attural or man-made, that may affect the monitoring parameters:	1 Do all the meterological sensors appear to be intact, in good condition, and well maintained? 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? 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? 8 Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Field S	ystems Dat	a Form			F.	-02058-	1500-S4-rev00
condition, and well maintained? 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? 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? 8 Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 Trovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	condition, and well maintained? 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? 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? 8 Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Site ID	CDZ171	Technician [Sandy Grenville		Site Visit Date 03/05/	2013	
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? 8 Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	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? 8 Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,				intact, in good	✓	Temperature only		
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? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	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 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? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,			cal sensors operational	online, and	✓	Temperature only		
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? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	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? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	3 Are the	e shields for the t	emperature and RH so	ensors clean?	✓			
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? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Sovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	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? Parameter Manufacturer Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Are th	e aspirated moto	rs 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? Parameter Model S/N Client ID Temperature RM Young 41342VC 14036 Tovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	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? Parameter Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,			nsor's lens clean and f	ree of	✓	N/A		
condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Model S/N Client ID Temperature RM Young 41342VC 14036 Tovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	condition, and well maintained? Are the sensor signal and power cable connections protected from the elements and well maintained? Parameter Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Is the s	surface wetness s	ensor grid clean and u	ndamaged?	✓	N/A		
from the elements and well maintained? Parameter Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	from the elements and well maintained? Parameter Model S/N Client ID Temperature RM Young 41342VC 14036 06403 Ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,				in good	✓			
remperature RM Young 41342VC 14036 06403 06403 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	remperature RM Young 41342VC 14036 06403 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,				tions protected	✓			
rovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature	ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features,	Parameter		Manufacturer	Model		S/N		Client ID
		remperatur	е	RM Young	41342VC		14036		06403
						ary)	regarding conditions list	ed above, o	r any other features,

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Site	ID	CDZ171	Technician	Sandy Grenville		Site Visit Date	03/05/2013			
	Siting C	Criteria: Are the	pollutant analyzers a	nd deposition eq	uipi	ment sited in accord	lance with 40 CF	R 58, Appendix E		
1		sample inlets hav	ve at least a 270 degre	e arc of	✓					
2	Are the	sample inlets 3	15 meters above the	ground?	✓					
3		sample inlets > meters from tree	1 meter from any maj s?	or obstruction,	•					
	Pollutar	nt analyzers and	deposition equipment	t operations and	ma	<u>intenance</u>				
1		nnalyzers and eq on and well main	uipment appear to be tained?	in good	✓					
2	Are the reportir		nonitors operational, o	on-line, and	✓					
3		e ozone sample t	ube.			1/4 teflon by 18 met	ers			
4	Describ	e dry dep sampl	e tube.			3/8 teflon by 15 met	ers			
5		ine filters used in location)	n the ozone sample lin	e? (if yes	✓	At inlet only				
6	Are san		free of kinks, moisture	e, and	✓					
7	Is the ze	ero air supply de	siccant unsaturated?		✓					
8	Are the	re moisture trap	s in the sample lines?		✓					
9	Is there clean?	a rotometer in t	he dry deposition filte	er line, and is it	✓	Clean and dry				
Par	ameter		Manufacturer	Model		S/N		Client ID		
San	nple Tow	er_	Aluma Tower	В	NE SH	none		000125		
Ozo	ne		ThermoElectron Inc	49i A1NAA	eel t	1009241787		000615		
Filte	er pack flo	ow pump	Thomas	107CAB18	D	06040002264	6	06020		
Zer	ero air pump Werther International PC70/4					000821902 06899				
			nation (photograph or ay affect the monitori		ary)	regarding condition	ons listed above, o	r any other features,		

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Site	ID	CDZ171	Technician	Sandy Grenville		Site Visi	t Date 03/0	5/2013		
	DAS, sei	nsor translators, and	peripheral equi	ipment operatio	ns a	nd maintena	<u>nce</u>			
1		OAS instruments appointained?	ear to be in goo	d condition and	~					
2		he components of th backup, etc)	e DAS operation	nal? (printers,	~					
3		nalyzer and sensor s g protection circuitr		through	✓	Met sensors	only			000000000000000000000000000000000000000
4		signal connections partained?	rotected from th	e weather and	✓					
5	Are the	signal leads connecto	ed to the correct	DAS channel?	✓					
6	Are the grounde	DAS, sensor translat d?	ors, and shelter	properly	~					
7	Does the	e instrument shelter	have a stable po	wer source?	✓					
8	Is the in	strument shelter ten	iperature contro	lled?	✓					
9	Is the m	et tower stable and g	rounded?			Stable		Grounde	d	
10	Is the sa	mple tower stable ar	nd grounded?			V		V		
11	Tower c	omments?				V		✓		
Par	ameter	n n	Janufacturer	Model		S/N		Cl	lient ID	
Cor	nputer		Pell	D520		unkno	own	00	0281	
DAS	3		Campbell	CR3000		2130		The second secon	0352	
Mod	dem	F	Raven	V42221	annonen	08083	338189	06	457	
UPS	10000000000000000000000000000000000000		.PC	RS900		unkno	own	06	793	
		additional explanati an-made, that may				y) regarding	g conditions	listed above, or	any other features,	
										963111

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Site ID CDZ171		Tech	nician	Sandy Grenville	Site Visit Date	03/05/2013			
<u>Documentation</u>									
Does the site have the requir		trume			<u>?</u>				
Wind an and assume	Yes	No	N/			Yes	No 🗸	N/A	
Wind speed sensor	H		✓			H		<u> </u>	
Vind direction sensor	✓		✓					V	
Semperature sensor	<u> </u>				rt recorder	✓			
Relative humidity sensor			✓		r		□	H	
olar radiation sensor			✓					✓	
urface wetness sensor			✓			✓			
Vind sensor translator			>				□		
Temperature translator Iumidity sensor translator			✓					✓	
olar radiation translator			✓		otector	✓			
ipping bucket rain gauge			✓		g protection device			✓	
opping bucket ram gauge Dzone analyzer	✓		_	Shelter h			V		
ilter pack flow controller	Ť	✓			ir conditioner	✓		Ä	
Iter pack MFC power supply			✓		ir conditioner				
					1				
Does the site have the requi	53165		ost rece	nt QC documents an	a report forms?				
	Pres				<u>_</u>	Curre	nt		
ation Log						V			
SSRF									
e Ops Manual		STORE STORE	Oct 200			H			
ASP	2	/	Nov 20	09					
eld Ops Manual	_								
llibration Reports									
one z/s/p Control Charts									
eventive maintenance schedu			erson and	BENEFICE GENERAL RESIDENCE					
Is the station log properly	comp	leted a	luring	every site visit?	Minimal information		10.55	CONTRACT.	
is the station log property	Comp			every size visit.					
Are the Site Status Report current?	Form	ıs beir	ng com	pleted and					
Are the chain-of-custody for sample transfer to and from			rly use	d to document					
Are ozone z/s/p control chacurrent?	arts p	roperl	y comp	oleted and	Control charts not us	sed			
ovide any additional explana tural or man-made, that may					r) regarding condit	ions listed a	above,	or any o	
	10 Mg 12 Mg		ar Artacide Bara					outromaty with	

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Site II	D CDZ171	Technician Sa	andy Grenville	e a loi e	Site Visit Date	03/05/20	13			
1 I	Site operation procedures Has the site operator attended a course? If yes, when and who in		NET training	✓	During site installation	on				
2 I	Has the backup operator attendraining course? If yes, when a	ded a formal CA		✓	Site operator refresh	ner trainir	ng course			
3 Is	s the site visited regularly on the			✓						
	re the standard CASTNET op ollowed by the site operator?	erational procee	dures being	✓						
5 Is	s the site operator(s) knowledg ne required site activities? (incl	eable of, and ab luding documen	le to perform tation)	✓		COLUMN SEC.				
<u>A</u>	re regular operational QA/QC	checks perforn	ned on meteor	olog	gical instruments?					
QC C	heck Performed		Frequency				Compliant			
Multi	point Calibrations	✓	N/A				✓			
Visua	l Inspections	✓	N/A				~			
Trans	slator Zero/Span Tests (climati	conics)	N/A				✓			
Manu	ıal Rain Gauge Test	V	N/A	tractors.			✓			
Confi	rm Reasonableness of Current	Values	N/A				✓			
Test S	Surface Wetness Response	~	N/A				✓			
<u>A</u>	re regular operational OA/OC	checks perforn	ned on the ozo	ne a	analyzer?					
QC C	QC Check Performed Frequency Compliant									
Multi	-point Calibrations	~	Semiannually	/			✓			
Autor	natic Zero/Span Tests	✓	Daily				✓			
	ial Zero/Span Tests		THE RESERVE OF THE PARTY OF THE	developmen						
	matic Precision Level Tests	✓	Daily				✓			
Manu	al Precision Level Test									
	zer Diagnostics Tests	✓	Weekly	6.734901	WITH SECTION AND WOOD SECOND COMMENTS		✓			
	e Filter Replacement (at inlet)	✓	Every 2 week	(S			✓			
	e Filter Replacement (at analy	ze 🗆	N/A		Anti-Oscipio de la Propie del Colte de Constitución de la Residencia de Constitución de Consti		✓			
	le Line Check for Dirt/Water			E-761-76	DOMESTICAL STATE OF S					
CHARLES NO.	Air Desiccant Check	~	Weekly	V. Saltak est			✓			
Sa	1 Do multi-point calibration gases go through the complete sample train including all filters?									
3 A	omplete sample train including are the automatic and manual a eported? If yes, how?		nitored and	✓	SSRF, call-in					
Provid	le any additional explanation (al or man-made, that may affec				y) regarding conditi	ions liste	d above, or a	ny other features,		

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Site	· ID	CDZ171	Tech	nician	Sandy Grenville		Site Visit Dat	e 03/05/2013	
	Site op	eration procedures							
1	Is the f	ilter pack being changed	l every	Tuesd	ay as scheduled?	✓	Filter changed after	ernoons (90% of the time))
2	Are the	e Site Status Report For:	ms beir	ig com	pleted and filed	✓			
3	Are da	ta downloads and backu led?	ıps beir	ıg perf	ormed as		No longer required	d	
4	Are ge	neral observations being	made	and re	corded? How?	~	SSRF		
5	Are sit	e supplies on-hand and 1 1?	eplenis	shed in	a timely	✓			
6	Are sa	mple flow rates recorded	l? How	?		✓	SSRF, call-in		
7	Are sar	mples sent to the lab on a	a regul	ar sche	dule in a timely	~			
8		ters protected from containing? How?	aminat	ion du	ring handling	✓	One set of gloves	only	
9	Are the	e site conditions reported ions manager or staff?	l regula	arly to	the field	~			
QC	Check I	Performed		Fre	quency			Compliant	
N	Iulti-po	int MFC Calibrations	[✓ Sen	niannually	21 C		✓	
F	low Sys	tem Leak Checks		Wee	ekly	100.00	i.	✓	
		ck Inspection				ennita.			
		e Setting Checks		Wee	CONTRACTOR OF THE PROPERTY OF THE PARTY OF T			V	
		heck of Flow Rate Roton		Wee	CONTRACTOR DE LA CONTRA	25520		∨	
		ilter Inspection/Replacer		Sen	niannually	2016/27/3			
		Line Check for Dirt/Wat							
		additional explanation (an-made, that may affec					y) regarding condi	tions listed above, or ar	y other features,
		ered and filter changed with							
	State of the last								

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
МС	K131-Sandy	Grenville-03/06/2013				
1	3/6/2013	Computer	Dell	000457	D520	unknown
2	3/6/2013	DAS	Campbell	000429	CR3000	2535
3	3/6/2013	Elevation	Elevation	None	1	None
4	3/6/2013	Filter pack flow pump	Thomas	00497	107CA18	118700000596
5	3/6/2013	Flow Rate	Apex	000528	AXMC105LPMDPCV	48097
6	3/6/2013	Infrastructure	Infrastructure	none	none	none
7	3/6/2013	Modem	Raven	06477	H4222-C	0808311292
8	3/6/2013	Ozone	ThermoElectron Inc	000683	49i A1NAA	1030244798
9	3/6/2013	Ozone Standard	ThermoElectron Inc	000441	49i A3NAA	CM08200017
10	3/6/2013	Sample Tower	Aluma Tower	03514	Α	none
11	3/6/2013	Shelter Temperature	Campbell	none	107-L	none
12	3/6/2013	Siting Criteria	Siting Criteria	None	1	None
13	3/6/2013	Temperature	RM Young	06543	41342VC	14804
14	3/6/2013	Zero air pump	Werther International	06912	PC70/4	000829177

DAS Data Form 0.02 **DAS Time Max Error:** Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2535 MCK131 Sandy Grenville 03/06/2013 DAS Primary Das Date: 3 /6 /2013 **Audit Date** 3 /6 /2013 Datel Parameter DAS Mfg 17:57:49 17:57:50 Das Time: **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 65 **Audit Day** 65 Tfer ID 01320 **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** 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 -0.0001 0.0000 0.0001 V V 7 0.1000 0.0998 0.0996 -0.0002 7 0.3000 0.2997 0.2998 V V 0.0001 7 0.5000 0.4997 V V 0.0001 0.4996 7 0.7000 V V 0.0002 0.6995 0.6997 V V 7 0.9000 0.8994 0.8996 0.00027 0.9994 0.9995 V V 0.0001 1.0000

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Tec	hnician	Site Visit I	Oate Param	eter	Owner ID
Apex	48097		MCK131	Sa	ndy Grenville	03/06/2013	Flow R	ate	000528
					Mfg	BIOS	P	Parameter Flow Rate	
					Serial Number	103471	T	fer Desc. ne	xus
					Tfer ID	01420			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	6/13	3/2012 Cor	rCoff	1.00000
					Mfg	BIOS	P	arameter Flo	ow Rate
					Serial Number	103424	Т	fer Desc. Bl	OS cell
					Tfer ID	01410			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	1/2	7/2012 Cor	rCoff	1.00000
DAS 1:	A Man 0/ D:	DAS 2:	Dif A Mon	. 0/ D :	Cal Factor Z		-0.0	1	
A Avg % Diff: 0.24%	0.40%	A Avg %	Dif A Max	3 % D1	Cal Factor F		1.		
	,				Rotometer R				
UseDescription:		-	: Input STP:	MfcDisp.:					IIPctDifference:
primary	pump off	0.000	0.000	0.00	0.002	0.00	1/m	1/m	
primary	leak check	0.000	0.000	0.00	0.002	0.00	1/m	1/m	
primary	test pt 1	1.496	1.502	1.50	1.489	1.50	1/m	l/m	-0.13%
primary	test pt 2	1.497	1.503	1.50	1.490	1.50	1/m	1/m	-0.20%
primary	test pt 3	1.500	1.506	1.50	1.491	1.50	1/m	1/m	-0.40%
Sensor Compo	nent Leak Tes	t		Condition	n		Status	pass	
Sensor Compo	nent Filter Azi	muth		Condition	Not tested		Status	pass	
Sensor Compo	nent Filter Dep	oth		Condition	1.5 cm		Status	pass	
Sensor Compo	nent Filter Pos	sition		Condition	n Good		Status	pass	
Sensor Compo	onent Moisture	Present		Condition	n No moisture pr	resent	Status	pass	
Sensor Compo	nent Rotomete	er Conditio	n	Condition	Clean and dry	Status	pass		
Sensor Compo	onent System N	/lemo		Condition	n		Status	pass	
	nent Tubing C			Condition	n Good		Status		
Sensor Component Filter Distance		Condition			Status pass				

Ozone Data Form

Mfg Serial Number Ta Site			Technician			Site Visit Date Parame			ter	Owner ID)
ThermoElectron Inc 1	030244798	MCK131	Sa	andy Grer	ville	03/06/2013 Ozon		one		000683	
Slope: 1.0)1600 Slope:	0.00000		Mfg		ThermoElectron Inc Pa		Pa	rameter	zone	
•	S2386 Intercept	0.00000		Serial N	umber	49C-7310	04-373	Tfe	er Desc. C	zone transfer	
CorrCoff 0.9	O9999 CorrCoff	0.00000)			01100					
				Tfer ID		01100					
DAS 1:	DAS 2:			Slope			1.00121	Inter	cept	-0.183	83
A Avg % Diff: A Ma 0.5%	1.2% A Avg %	6Dif A Max %	% Di	Cert Da	te		1/2/2013	Corr	Coff	1.000	00
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Un	nit:	PctDi	fference:	
primary	1	0.20	0.3		-0.		ppb				
primary	2	35.77	35.				ppb			0.03%	
primary	3	51.51	51.				ppb			0.12%	
primary	5	80.03	80.				ppb			0.61%	
primary		101.95	102		103	0.20	ppb			1.17%	1
Sensor Component	Cell B Noise		Conditio	n 1.4 pp	D D		Sta	atus	pass		j
Sensor Component	Cell B Tmp.		Conditio	on			Sta	atus	pass		
Sensor Component	Fullscale Voltage		Conditio	n N/A			Sta	atus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			Sta	atus	pass		
Sensor Component	Line Loss		Conditio	on < 1 %			Sta	atus	pass		
Sensor Component	Offset		Conditio				Sta	atus	pass		
Sensor Component	Span		Conditio	1.039			Sta	atus	pass		
Sensor Component	Cell B Freq.		Conditio	81.4 k	Hz		Sta	atus	pass		
Sensor Component	System Memo		Conditio	on			Sta	atus	pass		
Sensor Component	Sample Train		Conditio	Good			Sta	atus	pass		
Sensor Component	Cell B Pressure		Conditio	on			Sta	atus	pass		
Sensor Component	Cell B Flow		Conditio	0.72 lp	om		Sta	atus	pass		
Sensor Component	Cell A Tmp.		Conditio	30.9 C	;		Sta	atus	pass		
Sensor Component	Cell A Pressure		Conditio	739 m	mHg		Sta	atus	pass		
Sensor Component	Cell A Noise		Conditio	2.0 pp	b		Sta	atus	pass		
Sensor Component	Component Cell A Freq.			lition 111.7 kHz			Sta	atus	pass		
Sensor Component	Cell A Flow		Conditio	lition 0.71 lpm			Sta	atus	pass		
Sensor Component	Battery Backup		Conditio	dition N/A			Sta	atus	pass		
Sensor Component	Zero Voltage		Conditio	N/A			Sta	atus	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young 14804 MCK131 Temperature 06543 03/06/2013 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** 0.08 0.12 Test type: InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: -0.03 0.000 -0.12 primary Temp Low Range -0.11 -0.2 C C -0.12 Temp Mid Range 25.70 25.67 0.000 25.6 primary C -0.01 primary Temp High Range 49.00 48.87 0.000 48.9 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 I	MCK131	Technician	Sandy Grenville	Site Visit Date	03/06/2013	
Sh	ielter Make	Shelter Model	She	lter Size		
Ek	to	8810	640	cuft		
	BANKER PROBLEM STORY	en e	DED TO SECURIS DATE OF SECURIS	NA STANISH MARKATAN AND AND AND AND AND AND AND AND AND A		

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Туре А	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	Fair	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	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	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	18.80	18.80	0.000	17.1	С	-1.7
primary	Temp Mid Range	19.00	19.00	0.000	17.5	С	-1.5
primary	Temp Mid Range	19.30	19.30	0.000	17.9	С	-1.4

Field Systems Comments

1 Parameter: ShelterCleanNotes

The shelter is neat, clean, and well organized.

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Site ID MCK131	Technician Sandy Grenville	Site Visit Date 03/0	6/2013
Site Sponsor (agency)	EPA	USGS Map	Mackville
Operating Group	Private	Map Scale	
	21-229-9991	Map Date	
AQS#			
Meteorological Type	R.M. Young		07.70.44
Air Pollutant Analyzer	Ozone	QAPP Latitude	37.7044
Deposition Measurement	dry, wet	QAPP Longitude	-85.0483
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	353
Terrain	rolling	QAPP Declination	4.25
Conforms to MLM	Marginally	QAPP Declination Date	12/28/2004
Site Telephone	(859) 262-5181	Audit Latitude	37.704678
Site Address 1	Westley Miller Road	Audit Longitude	-85.048706
Site Address 2		Audit Elevation	293
County	Washington	Audit Declination	-4.5
City, State	Harrodsburg, KY	Present	
Zip Code	40330	Fire Extinguisher	Inspected Nov 1992
Time Zone	Eastern	First Aid Kit	
Primary Operator	Belinda Warden	Safety Glasses	
Primary Op. Phone #	(859) 262-0386	Safety Hard Hat	
Primary Op. E-mail	bawarden@bellsouth.net	Climbing Belt	
Backup Operator	none	Security Fence	
Backup Op. Phone #		Secure Shelter	Company Association and Company
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Ekto Mo	odel 8810	Shelter Size 640 cuft
	Notes The shelter is neat, clean, and	well organized.	
Site OK	Notes		
approx	Danville go west on 150 toward Perryville. ximately 7.3 miles to Wesley Miller Road.	Turn left onto Wesley Miller R	
mile.	The site is on the left through a farm gate.		

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Site ID MCK131 Technician Sandy Grenville Site Visit Date 03/06/2013

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		✓
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	MCK131	Technician Sa	andy Grenville		Site Visit Date 03/06/2013
1		wind speed and directi g influenced by obstru		s to avoid	V	N/A
2	Are wind sensors mounted so as to minimize tower effects? (i.e. wind sensors should be mounted atop the tower or on a horizontally extended boom >2x the max diameter of the tower into the prevailing wind)					N/A
3		the tower and sensors			✓	N/A
4	Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?					
5	cond surfa	temperature and RH s litions? (i.e. ground be ace and not steeply slo ding water should be a	low sensors should be ped. Ridges, hollows,	e natural	✓	
6	Is th	e solar radiation senso	or plumb?		✓	N/A
7	Is it	sited to avoid shading,	or any artificial or r	eflected	✓	N/A
8	Is th	e rain gauge plumb?			✓	N/A
9		sited to avoid shelteriners, etc?	g effects from buildi	ngs, trees,	✓	N/A
10		ne surface wetness sensong north?	or sited with the grid	surface	✓	N/A
11	Is it	inclined approximatel	ly 30 degrees?		✓	N/A
		any additional explana or man-made, that may				y) regarding conditions listed above, or any other features,

ield S	Systems Data	Form			F-	02058-	1500-S4-rev0		
ite ID	MCK131	Technician	Sandy Grenville		Site Visit Date 03/06/2	2013			
	l the meterological s tion, and well maint	ensors appear to be i ained?	ntact, in good	✓	Temperature only				
	ll the meteorologica	l sensors operational	online, and	✓	Temperature only				
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?				✓	N/A				
Is the surface wetness sensor grid clean and undamaged?				✓	N/A				
	he sensor signal and tion, and well maint	power cables intact, ained?	in good	V					
	he sensor signal and the elements and we	power cable connected maintained?	ions protected	✓					
ıramete	r	Manufacturer	Model		S/N		Client ID		
emperati	ıre	RM Young	41342VC	19 (2) (1	14804		06543		

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Site	ID	MCK131	Technician S	andy Grenville		Site Visit Date	03/06/2013			
								₹ 		
			e pollutant analyzers and			nent sited in accord	lance with 40 CFR	58, Appendix E		
		sample inlets har ricted airflow?	ave at least a 270 degree	arc of	V					
2	Are th	e sample inlets 3	3 - 15 meters above the gr	round?	✓					
		e sample inlets >) meters from tro	> 1 meter from any major ees?	r obstruction,	✓					
	Polluta	ant analyzers an	d deposition equipment of	operations and	mai	<u>ntenance</u>				
		analyzers and e	equipment appear to be intained?	n good	V					
	Are the analyzers and monitors operational, on-line, and reporting data?									
3	Describe ozone sample tube.					1/4 teflon by 15 met	ers			
4	Describe dry dep sample tube.					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	zero air supply o	lesiccant unsaturated?		✓					
8	Are th	ere moisture tra	ps in the sample lines?		✓					
	Is ther clean?		the dry deposition filter	line, and is it	✓	Clean and dry				
Para	meter		Manufacturer	Model		S/N	C	lient ID		
Sam	ple To	wer	Aluma Tower	A	SERVINA	none	03	3514		
Ozoi	ne		ThermoElectron Inc	49i A1NAA		1030244798	00	00683		
Filte	r pack t	flow pump	Thomas	107CA18	[118700000596 00497					
Zero	ro air pump Werther International PC70/4				000829177 06912					
			anation (photograph or s may affect the monitoring		ary)	regarding conditio	ns listed above, or	any other features,		
and the second			Company of National States		ENGINEERING CO.		do to Sauli, and have the			

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Site	ID	MCK131	Technician	Sandy Grenville		Site Visit Date	03/06/2013]	
	DAS, s	sensor translators, an	d peripheral equi	pment operation	ıs aı	nd maintenance				
1		DAS instruments apaintained?	pear to be in goo	d condition and	✓					
2		l the components of t n, backup, etc)	he DAS operation	al? (printers,	✓					
3		analyzer and sensoring protection circuit		through	✓	Met sensors only				
4		e signal connections paintained?	protected from th	e weather and	✓					
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?					Stable		Grounded		
10	Is the	sample tower stable a	and grounded?			V		V		
11	Tower	comments?								
Par	ameter		Manufacturer	Model		S/N		Cli	ent ID	
Con	nputer		Dell	D520		unknown	000457			
DAS	3		Campbell	CR3000	NASA I	2535			000429	
Mod	dem		Raven	H4222-C	3600	0808311292		064	177	
	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 MCK131		Tech	nician	Sandy Grenville		Site Visit Dat	e 03/06/20)13	
Documentation									
Does the site have the requir					nuals?	<u>2</u>			
Wind speed sensor	Yes	No	N/.		ı logg	0	Yes	No 🗸	N/A
Wind direction sensor	H		∨		i logg i logg				✓
Temperature sensor	Ä					rt recorder			<u> </u>
Relative humidity sensor	Ä				pute				
Solar radiation sensor	Ä		✓	Mod					$\overline{\Box}$
Surface wetness sensor			✓	Prin					✓
Wind sensor translator			✓			oump		✓	
Temperature translator			✓			v pump		✓	
Humidity sensor translator			✓			otector		V	
Solar radiation translator			✓	UPS	0.00				<u> </u>
Tipping bucket rain gauge			<u> </u>			protection device	ce 🗆		✓
Ozone analyzer	✓				ter he			✓	
Filter pack flow controller		✓		Shel	ter ai	r conditioner	✓		
Filter pack MFC power supply		✓							
Does the site have the requi	ired a	and m	ost rece	nt OC documen	ts and	d report forms?			
	Pres	10.75					C	rrent	
Station Log		✓						✓	
SSRF		∨						▼	
Site Ops Manual		✓	Oct 200	14					
HASP		<u> </u>	Nov 20						
Field Ops Manual		Ť	NOV 20						
Calibration Reports		_ _	Electro	nic copy				<u> </u>	
Ozone z/s/p Control Charts			Liootioi	по сору					
Preventive maintenance schedu	d						[
1 Is the station log properly	comp	oleted	during	every site visit?	✓		CONTRACTOR SECTION	NEW COSTON CONTROL	
2 Are the Site Status Report	For	ns bei	ng comp	pleted and	~				
current?									
3 Are the chain-of-custody for sample transfer to and from			erly use	d to document	✓				
4 Are ozone z/s/p control chacurrent?	arts p	roper	ly comp	oleted and		Control charts not	used		
Provide any additional explana	tion (nhoto	oranh o	r sketch if nece	ssarv)) regarding cond	litions liste	ed above	or any of
natural or man-made, that may						, reguranic cond	ions nau		, or any ot
	a to the second	enest veic			erent (10%				

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Site I	ID .	MCK131	Technician	Sandy Grenville	Site Visit Date	03/06/2013	
		<u>eration procedures</u> site operator attended a	o formal CAS	STNET training	Trained on-site by	MACTEC technician	
		If yes, when and who in		onner training	Trained on site by i	THE CONTINUAL	
		backup operator attend					
		g course? If yes, when ar					
	s the sit	te visited regularly on the?	e requirea 1	uesday	V		
f	Tollowe	standard CASTNET open downward open downward of the site operator?			V		
5 I	Is the sit the requ	te operator(s) knowledge ired site activities? (incl	eable of, and uding docum	able to perform entation)			
<u> </u>	Are regi	ular operational QA/QC	checks perfo	ormed on meteo	rological instruments?		
QC (Check P	erformed		Frequency		Compliant	
Mult	ipoint (Calibrations	V	Semiannuall	У	V	
Visua	al Inspe	ctions	V	Weekly		V	
Tran	slator Z	Zero/Span Tests (climatr		The state of the s		✓	
Man	ual Rai	n Gauge Test	_	Nacional Company of the Company of t			
Conf	irm Rea	asonableness of Current		Commission of the Commission o		V	
Test	Surface	Wetness Response	_	N/A	OBSISSION CONTRACTOR OF STREET	✓	
<u> </u>	Are regi	ular operational QA/QC	checks perfe	ormed on the oz	one analyzer?		
QC (Check P	erformed		Frequency		Compliant	
Mult	i-point	Calibrations	V	Semiannuall	У	V	
		Zero/Span Tests	V	Control of the second s	TIMANIANTE LE TIPANITO EN M. TARRAMO VIII.	_	
Auto	matic Z			NAME OF ADDRESS OF THE PARTY OF			
			i i			✓	
Man	ual Zer	o/Span Tests recision Level Tests				<u>✓</u>	
Manu Auto	ual Zero matic P	o/Span Tests	_	Daily		✓ ✓	
Manu Auto Manu	ual Zero matic P ual Prec	o/Span Tests Precision Level Tests		Daily Weekly			
Manu Auto Manu Anal	ual Zero matic P ual Preo yzer Dia	o/Span Tests Precision Level Tests Cision Level Test	_	Daily Weekly	ks		٠,
Manu Auto Manu Anal In-lir	ual Zero matic P ual Pred yzer Dia ne Filter	o/Span Tests Precision Level Tests Desirion Level Test Desirion Level Test Desirion Level Test	ze V	Daily Weekly Every 2 wee	ks		
Manu Auto Manu Anal In-lir In-lir	ual Zeromatic P ual Prec yzer Dia ne Filten ne Filten	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Replacement (at inlet)	ze v	Daily Weekly Every 2 wee N/A Weekly	ks		
Mani Auto Mani Anal In-lir In-lir Samp	ual Zeromatic Pual Prec yzer Dia ne Filten ne Filten ple Line	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Replacement (at inlet) Replacement (at analyza	ze V	Daily Weekly Every 2 wee N/A Weekly	ks		
Mand Auto Mand Anal In-lir In-lir Samp Zero	ual Zeromatic Pual Prec yzer Diane Filten ne Filten ple Line Air De	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Replacement (at inlet) Replacement (at analyze Check for Dirt/Water Siccant Check	ze	Daily Weekly Every 2 wee N/A Weekly Weekly			
Manu Auto Manu Anali In-lir Samp Zero	ual Zeromatic Pual Prec yzer Diane Filten ne Filten ple Line Air De	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Replacement (at inlet) Replacement (at analyze Check for Dirt/Water	ze go through	Daily Weekly Every 2 wee N/A Weekly Weekly			
Mand Auto Mand Analj In-lir In-lir Samp Zero	ual Zero matic P ual Prec yzer Dia ne Filter ne Filter ple Line Air Des	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Replacement (at inlet) Replacement (at analyze Check for Dirt/Water siccant Check i-point calibration gases train including all filters matic and manual z/s/p g	go through ?	Daily Weekly Every 2 wee N/A Weekly Weekly the complete			
Mand Auto Mand Analj In-lir Samp Zero	ual Zeromatic Pual Precyzer Diane Filterne Filterne Air Desconding to autocomplet	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Preplacement (at inlet) Preplacement (at analyze Check for Dirt/Water siccant Check I-point calibration gases train including all filters matic and manual z/s/p ge sample train including	go through the gasses go through the gas go through t	Daily Weekly Every 2 wee N/A Weekly Weekly the complete			
Mand Auto Mand Analj In-lin Samp Zero	ual Zeromatic Pual Precyzer Diane Filterne Filterne Air Desconnect Complete	o/Span Tests Precision Level Tests Precision Level Test Precision Level Test President Test Preplacement (at inlet) Preplacement (at analyse Precision Check Preplacement (at analyse Precision Check Proposition Check Proposition Check Proposition Check Proposition Check President Check Proposition Check Precision Level Tests	go through the gasses go through the gas go through t	Daily Weekly Every 2 wee N/A Weekly Weekly the complete			
Mand Auto Mand Analj In-lin Samp Zero	ual Zeromatic Pual Precyzer Diane Filterne Filterne Air Desconnect Complete	o/Span Tests Precision Level Tests Cision Level Test agnostics Tests Preplacement (at inlet) Preplacement (at analyze Check for Dirt/Water siccant Check I-point calibration gases train including all filters matic and manual z/s/p ge sample train including	go through the gasses go through the gas go through t	Daily Weekly Every 2 wee N/A Weekly Weekly the complete			
Mand Auto Mand Analy In-lin Samp Zero 1 I s 2 I c 3 A	ual Zero matic P ual Prec yzer Dia ne Filter ne Filter ple Line Air De Do mult sample t Do autor Are the reported	o/Span Tests Precision Level Tests Precision Level Test Precision Level Test Presision Level	go through to all filters? c/s/p checks not be a photograph of the second seco	Daily Weekly Every 2 wee N/A Weekly Weekly the complete ough the nonitored and	SSRF, logbook, cal		eatures,
Mand Auto Mand Analy In-lin Samp Zero 1 I s 2 I c 3 A	ual Zero matic P ual Prec yzer Dia ne Filter ne Filter ple Line Air De Do mult sample t Do autor Are the reported	o/Span Tests Precision Level Tests Precision Level Test Precision Level Test President Test Preplacement (at inlet) Preplacement (at inlet) Preplacement (at analyze Precision Check Proposition Check Precision Level Tests Precision L	go through to all filters? c/s/p checks not be a photograph of the second seco	Daily Weekly Every 2 wee N/A Weekly Weekly the complete ough the nonitored and	SSRF, logbook, cal	I-in	eatures,
Mand Auto Mand Analy In-lin Samp Zero 1 I s 2 I c 3 A	ual Zero matic P ual Prec yzer Dia ne Filter ne Filter ple Line Air De Do mult sample t Do autor Are the reported	o/Span Tests Precision Level Tests Precision Level Test Precision Level Test Presision Level	go through to all filters? c/s/p checks not be a photograph of the second seco	Daily Weekly Every 2 wee N/A Weekly Weekly the complete ough the nonitored and	SSRF, logbook, cal	I-in	eatures,

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Site	ID .	MCK131	echn	cian Sandy Grenville	S 245	Site Visit Date	03/06/2013		
	Site o	peration procedures							
1	Is the	filter pack being changed ev	ery T	uesday as scheduled?	V	Filter changed mori	inings		
2	Are th	ne Site Status Report Forms	being	completed and filed	✓				
3		ata downloads and backups	being	performed as		No longer required			
4	Are g	eneral observations being m	ide ai	nd recorded? How?	✓	SSRF, logbook			
5	Are si	te supplies on-hand and repn?	enish	ed in a timely	✓				
6	Are sa	ample flow rates recorded?	low?		✓	SSRF, logbook, cal	ll-in		
7	Are sa	amples sent to the lab on a ron?	gular	schedule in a timely	✓				
8	Are fi	Iters protected from contamnipping? How?	natio	n during handling	✓	Clean gloves on an	d off		
9	Are th	ne site conditions reported retions manager or staff?	gular	ly to the field	✓				
QC	Check	Performed		Frequency			Compliant		
N	Iulti-p	oint MFC Calibrations	V	Semiannually	Ok. CI				
F	low Sy	stem Leak Checks	✓	Weekly	apostorio				
		ack Inspection			Matte				
		te Setting Checks	1000	Weekly	BUCLEYO'S				
		Check of Flow Rate Rotomet			2000				
		Filter Inspection/Replacement	0.4355004	As needed	DEFECTIVE				
		Line Check for Dirt/Water		Weekly		JP.			
		additional explanation (ph nan-made, that may affect t				y) regarding conditi	ions listed above, or any other features,		
								100	
	The second								

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
MC.	K231-Sandy	Grenville-03/06/2013				
1	3/6/2013	Computer	Dell	000458	D530	unknown
2	3/6/2013	DAS	Campbell	000359	CR3000	2137
3	3/6/2013	Elevation	Elevation	None	1	None
4	3/6/2013	Filter pack flow pump	Thomas	04513	107CAB18B	110000014171
5	3/6/2013	Flow Rate	Mykrolis	000236	FC280SAV	AW06273002
6	3/6/2013	Infrastructure	Infrastructure	none	none	none
7	3/6/2013	MFC power supply	MACTEC	04998	none	none
8	3/6/2013	Modem	Raven	06476	H4222-C	0808311140
9	3/6/2013	Ozone	ThermoElectron Inc	000680	49i A1NAA	1030244792
10	3/6/2013	Ozone Standard	ThermoElectron Inc	000439	49i A3NAA	CM08200015
11	3/6/2013	Shelter Temperature	Campbell	none	107-L	none
12	3/6/2013	Siting Criteria	Siting Criteria	None	1	None
13	3/6/2013	Temperature	RM Young	06542	41342VC	14803
14	3/6/2013	Zero air pump	Werther International	06924	C 70/4	000836205

DAS Data Form DAS Time Max Error: 0 Mfg **Serial Number** Site **Technician** Site Visit Date Parameter Use Desc. Campbell 2137 MCK231 Sandy Grenville 03/06/2013 DAS Primary Das Date: 3 /6 /2013 **Audit Date** 3 /6 /2013 Datel **Parameter** DAS Mfg 17:55:20 17:55:20 **Das Time: Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 65 **Audit Day** 65 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 **Slope Intercept** 0.0002 0.0001 0.0002 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	0.0998	0.0999	V	V	0.0001
7	0.3000	0.2997	0.2998	V	V	0.0001
7	0.5000	0.4996	0.4998	V	V	0.0002
7	0.7000	0.6995	0.6997	V	V	0.0002
7	0.9000	0.8995	0.8996	V	V	0.0001
7	1.0000	0.9993	0.9995	V	V	0.0002

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Tec	chnician	Site Visit D	ate Param	eter	Owner ID
Mykrolis	AW062730	002	MCK231	Sa	indy Grenville	03/06/2013	Flow R	ate	000236
Mfg	MACTEC				Mfg	BIOS	P	arameter Flo	w Rate
SN/Owner ID	none	04998			Serial Number	103471	Т	fer Desc. nex	kus
Parameter	MFC power sup	oply			Tfer ID	01420			
					Slope	1.0	00000 Inte	ercept	0.00000
					Cert Date	6/13	3/2012 Cor	rCoff	1.00000
					Mfg	BIOS	P	arameter Flo	w Rate
					Serial Number	103424	Т	fer Desc. BIG	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: A Avg % Diff: 2.81%	A Max % Di 2.98%	DAS 2: A Avg %	oDif A Max	a % Di	Cal Factor Z Cal Factor F Rotometer R	ull Scale		0 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	-0.15	-0.142	-0.03	l/m	l/m	
primary	leak check	0.000	0.000	-0.15	-0.146	-0.04	l/m	l/m	
primary	test pt 1	1.539	1.542	1.28	1.283	1.50	1/m	l/m	-2.72%
primary	test pt 2	1.539	1.542	1.28	1.283	1.50	l/m	l/m	-2.72%
primary	test pt 3	1.542	1.546	1.28	1.283	1.50	1/m	l/m	-2.98%
Sensor Compo	onent Leak Tes	st		Conditio	on		Status	pass	
Sensor Compo	onent Filter Azi	muth		Conditio	n 135 deg		Status	pass	
Sensor Compo	onent Filter Dep	oth		Conditio	1.5 cm		Status	pass	
Sensor Compo	onent Filter Pos	sition		Conditio	Good		Status	pass	
Sensor Compo	onent Moisture	Present		Conditio	No moisture pr	resent	Status	pass	
Sensor Compo	onent Rotomete	er Condition	on	Conditio	Clean and dry		Status	pass	
Sensor Compe	onent System N	/lemo		Conditio	on		Status	pass	
	onent Tubing C			Conditio	n Good		Status	pass	
_	onent Filter Dis			Conditio			Status		

Ozone Data Form

Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	t Date Par	rame	eter	Owner I	D
ThermoElectron Inc 1	030244792	MCK231	Sa	andy Gren	ville	03/06/20)13 Ozo	one		000680	
Slope: 0.8	86335 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	9057 Intercept	0.00000	=	Serial N	umber	49C-7310	04-373	Tf	er Desc.	zone transfe	r
CorrCoff 0.9	99997 CorrCoff	0.00000)	Tfer ID		01100		J			
5101				Tiel ID							
DAS 1: A Avg % Diff: A Ma	DAS 2: x % Di	6Dif A Max %	/ D :	Slope			1.00121	Inter	cept	-0.18	383
15.7%	17.1% A Avg 7	oDII A Wax 9	/o DI	Cert Da	te		1/2/2013	Corr	Coff	1.00	0000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (te:	Site Un	it:	PctDi	fference:	
primary	1	0.12	0.3				ppb				
primary	2	38.00	38.				ppb			-17.10%	
primary	3	49.85 80.51	49. 80.				ppb			-15.43%	
primary primary	5	101.77	101			-	ppb ppb			-15.59% -14.66%	
Sensor Component	<u> </u>	101.77		n 1.1 pp		.90 <u>j</u>		tuc	pass	-14.0070	
Sensor Component	Cell B Tmp.		Conditio	on			Sta	tus	pass		
Sensor Component	Fullscale Voltage		Conditio	n N/A			Sta	itus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			Sta	itus	pass		
Sensor Component	Line Loss		Conditio	on < 1 %			Sta	tus	pass		
Sensor Component	Offset		Condition				Sta	atus	pass		
Sensor Component	Span		Conditio	1.02			Sta	atus	pass		
Sensor Component	Cell B Freq.		Conditio	94.0 k	Hz		Sta	tus	pass		
Sensor Component	System Memo		Conditio	See co	omments	1	Sta	itus	pass		
Sensor Component	Sample Train		Conditio	Good			Sta	atus	pass		
Sensor Component	Cell B Pressure		Conditio	on			Sta	atus	pass		
Sensor Component	Cell B Flow		Conditio	0.71 lp	om		Sta	atus	pass		
Sensor Component	Cell A Tmp.		Conditio	29.3 C	;		Sta	itus	pass		
Sensor Component	Cell A Pressure		Conditio	723 m	mHg		Sta	atus	pass		
Sensor Component	Cell A Noise		Conditio	0.9 pp	b		Sta	atus	pass		
Sensor Component	Cell A Freq.		Conditio	95.2 k	Hz		Sta	tus	pass		
Sensor Component	Cell A Flow		Conditio	0.70 lp	om		Sta	atus	pass		
Sensor Component	Battery Backup		Conditio	N/A			Sta	atus	pass		
Sensor Component	Zero Voltage		Conditio	N/A			Sta	tus	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young 14803 MCK231 03/06/2013 Temperature 06542 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** 0.15 0.30 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.03 0.000 0.02 primary Temp Low Range -0.11 0.0 \mathbf{C} C -0.12 Temp Mid Range 25.70 25.67 0.000 25.6 primary C -0.3 primary Temp High Range 49.00 48.87 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	MCK231	Technician	Sandy Grenville	Site Visit Date	03/06/2013
Shelter	Make	Shelter Model	She	lter Size	
Ekto		8810	640	cuft	
				NESSE AND DESIGNATION OF THE PARTY OF THE PA	

Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Sample Tower Type	Condition	Type A	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	Fair	Status	pass
Sensor Component	Shelter Condition	Condition	Fair	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	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	21.30	21.29	0.000	20.0	C	-1.25
primary	Temp Mid Range	22.61	22.60	0.000	21.5	С	-1.07
primary	Temp Mid Range	20.40	20.40	0.000	19.4	C	-1

Field Systems Comments

1 Parameter: ShelterCleanNotes

The site instruments are located in the MCK131 shelter. The same site operator is servicing both sites.

2 Parameter: PollAnalyzerCom

The ozone analyzer failed the performance evaluation. The field operations staff at AMEC were aware of the problem and had sent a replacement ozone monitor to the site operator for installation. The site operator had not been informed of the problem and had not replaced the site monitor prior to the audit visit. The site will be revisited for an ozone PE following the replacement of the site ozone analyzer.

F-02058-1500-S1-rev001

Site ID MCK231	Technician Sandy Grenville	Site Visit Date 03/0	6/2013
Site Sponsor (agency)	EPA	USGS Map	Mackville
Operating Group	Private	Map Scale	
AQS#	21-229-9991	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone	QAPP Latitude	37.7044
Deposition Measurement	dry, wet	QAPP Longitude	-85.0483
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	353
Terrain	rolling	QAPP Declination	4.25
Conforms to MLM	Marginally	QAPP Declination Date	12/28/2004
Site Telephone	(859) 262-5181	Audit Latitude	37.704678
Site Address 1	Wesley Miller Road	Audit Longitude	-85.048706
Site Address 2		Audit Elevation	293
County	Washington	Audit Declination	-4.5
City, State	Harrodsburg, KY	Present	
Zip Code	40330	Fire Extinguisher	Inspected Nov 1992
Time Zone	Eastern	First Aid Kit	
Primary Operator	Belinda Warden	Safety Glasses	
Primary Op. Phone #	(859) 262-0386	Safety Hard Hat	
Primary Op. E-mail	bawarden@bellsouth.net	Climbing Belt	
Backup Operator	none	Security Fence	
Backup Op. Phone #		Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Ekto Mo	odel 8810	Shelter Size 640 cuft
Shelter Clean	Notes The site instruments are locate sites.	ed in the MCK131 shelter. The	same site operator is servicing both
Site OK	Notes Sites.		
appro	Danville go west on 150 toward Perryville. ximately 7.3 miles to Wesley Miller Road. The site is on the left through a farm gate	Turn left onto Wesley Miller R	

F-02058-1500-S2-rev001

Site ID MCK231 Technician Sandy Grenville Site Visit Date 03/06/2013

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	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

F-02058-1500-S3-rev001

2 A (i h	eing influ are wind s i.e. wind s	enced by obstruc	on sensors sited so	as to avoid		
2 A (i h	eing influ are wind s i.e. wind s	enced by obstruc			V	N/A
(i h	i.e. wind s		HOHS.			
to		sensors should be	so as to minimize mounted atop the >2x the max diarnd)	tower or on a	✓	N/A
3 A	are the to	wer and sensors p	lumb?		✓	N/A
			pointed north or such as buildings		✓	
co sı	onditions urface an	? (i.e. ground belo	ensors sited to avo ow sensors should ed. Ridges, hollow roided)	be natural	✓	
6 Is	s the sola	r radiation sensor	plumb?		V	N/A
	s it sited t	o avoid shading,	or any artificial o	r reflected	✓	N/A
8 Is	s the rain	gauge plumb?			✓	N/A
	s it sited t owers, etc		g effects from buil	dings, trees,	✓	N/A
	s the surf acing nor		r sited with the gr	id surface	✓	N/A
11 Is	s it inclin	ed approximately	30 degrees?		✓	N/A
			ion (photograph o			y) regarding conditions listed above, or any other features,

ielo	d Sys	tems Data F	orm			\mathbf{F}	-02058-15	500-S4-rev0
ite II) [MCK231	Technician	Sandy Grenville		Site Visit Date 03/06/	2013]
		e meterological sens , and well maintain		e intact, in good	✓	Temperature only		
	re all th	ne meteorological se g data?	nsors operationa	al online, and	✓	Temperature only		
Are the shields for the temperature and RH sensors clean?								
A	re the a	spirated motors wo	rking?		✓			
Is the solar radiation sensor's lens clean and free of scratches?						N/A		
Is	the sur	face wetness sensor	grid clean and	undamaged?	✓	N/A		
		ensor signal and po , and well maintain		t, in good	✓			
		ensor signal and po elements and well n		ctions protected	✓			
aran	neter	N	Manufacturer	Model		S/N	Cli	ient ID
empe	erature	R	RM Young	41342VC	100 T	14803	06	542

F-02058-1500-S5-rev001

Site	e ID	MCK231	Technician	Sandy Grenville		Site Visit Date 03	/06/2013	
	Siting (riteria. Are the no	llutant analyzare a	nd denosition ec	urim	nent sited in accordar	ace with 40 CFR 5	8 Annendiy F
1	Do the s	sample inlets have a cited airflow?			✓		CC WAI AV CT KS	3, 11 9901113 L
2	Are the	sample inlets 3 - 15	meters above the	ground?	✓			
3	and 20	sample inlets > 1 m neters from trees?			✓			
	Pollutar	nt analyzers and de	<u>position equipmen</u>	t operations and	1000	<u>intenance</u>		
1		nalyzers and equip n and well maintai		in good	V			
2	Are the reportin	analyzers and mon	itors operational, o	on-line, and	✓			
3	Describ	e ozone sample tub	e.			1/4 teflon by 15 meters	5	
4	Describe dry dep sample tube.					3/8 teflon by 13 meters	5	
5		ine filters used in tl location)	he ozone sample lir	ne? (if yes	✓	At inlet only		
6	Are san	nple lines clean, free tions?	e of kinks, moistur	e, and	✓			
7	Is the zo	ero air supply desic	cant unsaturated?		v			
8	Are the	re moisture traps ir	the sample lines?		v			
9	Is there clean?	a rotometer in the	dry deposition filto	er line, and is it	✓	Clean and dry		
Par	rameter		Manufacturer	Model		S/N	Cli	ent ID
MF	C power s	supply	MACTEC	none		none	049	98
Ozo	(C. S.		ThermoElectron Inc		Days.	1030244792	San	0680
Filte	er pack flo	ow pump	Thomas	107CAB18	В	110000014171	045	513
Zer	o air pum	р	Werther Internation	al C 70/4		000836205	069	024
Prov	ide any a	dditional explanati	ion (photograph or	sketch if necess	ary)	regarding conditions	listed above, or a	ny other features,

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

The ozone analyzer failed the performance evaluation. The field operations staff at AMEC were aware of the problem and had sent a replacement ozone monitor to the site operator for installation. The site operator had not been informed of the problem and had not replaced the site monitor prior to the audit visit. The site will be revisited for an ozone PE following the replacement of the site ozone analyzer.

F-02058-1500-S6-rev001

Site	ID	MCK231	Technician	Sandy Grenville		Site Visit Date	03/06/2013			
	DAS, se	ensor translators, a	nd peripheral equi	pment operations	and	<u>maintenance</u>				
		DAS instruments a intained?	ppear to be in good	d condition and						
		the components of , backup, etc)	the DAS operation	al? (printers,						
		analyzer and senso ng protection circui		through	M	et sensors only				
		signal connections intained?	protected from th	e weather and						
5	Are the	signal leads conne	cted to the correct	DAS channel?						
	Are the ground	DAS, sensor transed?	lators, and shelter	properly	/					
7	Does th	e instrument shelte	er have a stable pov	wer source?						
8	Is the in	nstrument shelter t	emperature contro	lled?						
9	Is the n	net tower stable and	d grounded?			Stable	Gro	unded		
10	Is the s	ample tower stable	and grounded?					✓		
11	Tower	comments?						V		
Para	meter		Manufacturer	Model		S/N		Clie	ent ID	
Com	puter	2541028555005050000000000000000000000000000	Dell	D530	1000000	unknown		000	458	
DAS			Campbell	CR3000		2137		000	359	
Mod			Raven	H4222-C		0808311140		064	76	
		additional explana nan-made, that ma			sary)	regarding condit	ions listed abo	ve, or a	nny other fe	atures,

F-02058-1500-S7-rev001

Site ID MCK231		Tech	nician	Sandy Grenville)	Site Visit Date	03/06/2013	3	
<u>Documentation</u>									
Does the site have the requir					<u>nuals</u>	<u>s?</u>			
Wind speed sensor	Yes	No	N/. ✓		a log	gov.	Yes	No 🗸	N/A
Wind direction sensor	H		∨		a log		H		✓
Temperature sensor	Ä		_			art recorder	\Box	H	✓
Relative humidity sensor	H		✓		p cha npute		✓		
Solar radiation sensor			✓		npuu dem	ol.		✓	
Surface wetness sensor	H		✓		nter				<u> </u>
Wind sensor translator			✓			pump		✓	
Temperature translator			✓			ow pump		V	
Humidity sensor translator			✓			otector		V	
Solar radiation translator			✓		100				✓
Tipping bucket rain gauge			✓			g protection device	e 🗆		<u> </u>
Ozone analyzer	✓					neater		✓	
Filter pack flow controller		✓				ir conditioner	✓		
Filter pack MFC power supply		✓							
Does the site have the requ		and me	set rece	nt OC docume	nte ar	nd report forms?			
Does the site have the requ	5316		<u> Street</u>	nt QC docume	its ai	id report forms.	C		
Clastica I on		sent				1	Curre	ent	
Station Log SSRF		✓					✓✓		
Site Ops Manual									
HASP		H							
Field Ops Manual		H				<u> </u>			
Calibration Reports		<u> </u>	Electro	nic copy			∠		
Ozone z/s/p Control Charts			Electro	піс сору					
Preventive maintenance schedu	ıl								
			S Control	100 TEA 100 TE					
1 Is the station log properly	com	pleted (during	every site visit?					
2 Are the Site Status Report	Fori	ms beir	ng com	oleted and	✓				
current?									
3 Are the chain-of-custody f sample transfer to and fro			rly use	d to document	~				
4 Are ozone z/s/p control chacurrent?	arts p	proper	ly comp	oleted and		Control charts not u	ısed		
Provide any additional explana natural or man-made, that may						y) regarding condit	tions listed	above, o	or any other fe
	diffe			Purumeter	9.00				
L									

F-02058-1500-S8-rev001

Site ID MCK231	Technician [Sandy Grenville	Site Visit Date 03/06/201	3
Site operation procedures				
1 Has the site operator attendoruse? If yes, when and w		NET training ✓	Trained on-site by MACTEC to	echnician
2 Has the backup operator at training course? If yes, who				
3 Is the site visited regularly of schedule?				3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
4 Are the standard CASTNET flollowed by the site operator		edures being		
5 Is the site operator(s) knowl the required site activities?	ledgeable of, and a (including docume	ble to perform ✓ ntation)		
Are regular operational QA	/QC checks perfor	med on meteorolo	gical instruments?	
QC Check Performed		Frequency		Compliant
Multipoint Calibrations	✓	Semiannually		
Visual Inspections	✓	Weekly		✓
Translator Zero/Span Tests (clin	matronics)	N/A		
Manual Rain Gauge Test	✓	N/A		
Confirm Reasonableness of Cur		N/A	HORSE	
Test Surface Wetness Response	✓	N/A		
Are regular operational QA	/QC checks perfor	med on the ozone	analyzer?	
QC Check Performed		Frequency		Compliant
QC Check Performed Multi-point Calibrations		Frequency Semiannually		Compliant ☑
	✓✓			
Multi-point Calibrations		Semiannually		▽
Multi-point Calibrations Automatic Zero/Span Tests	V	Semiannually		✓ ✓
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests	V	Semiannually Daily		✓ ✓ ✓
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests	V	Semiannually Daily		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test		Semiannually Daily Daily		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests	s v	Semiannually Daily Daily Weekly		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in	s v	Semiannually Daily Daily Weekly Every 2 weeks		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an	s v	Semiannually Daily Daily Weekly Every 2 weeks N/A		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check	s v nlet) v nalyze tter v gases go through th	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check 1 Do multi-point calibration g sample train including all fil	nlet) nalyze tter gases go through the	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check	allet) nalyze tter gases go through the liters? s/s/p gasses go through	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly Weekly Veekly		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check 1 Do multi-point calibration g sample train including all fi 2 Do automatic and manual z	alet) playze dier gases go through the lters? ding all filters?	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly Weekly Weekly It complete		
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check 1 Do multi-point calibration g sample train including all fit 2 Do automatic and manual z complete sample train inclu 3 Are the automatic and manual reported? If yes, how?	alet) nalyze ter gases go through th lters? //s/p gasses go throu ding all filters? ual z/s/p checks me	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly weekly It complete Ingh the Daily It complete I	SSRF, logbook, call-in	
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check 1 Do multi-point calibration g sample train including all fil 2 Do automatic and manual z complete sample train inclu 3 Are the automatic and manual	alet) gases go through the lters? ls/s/p gasses go through gall filters? ual z/s/p checks motion (photograph or	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly weekly weekly wonitored and sketch if necessar	SSRF, logbook, call-in	
Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at in In-line Filter Replacement (at an Sample Line Check for Dirt/Wa Zero Air Desiccant Check 1 Do multi-point calibration g sample train including all fi 2 Do automatic and manual z complete sample train inclu 3 Are the automatic and man reported? If yes, how?	alet) gases go through the lters? ls/s/p gasses go through gall filters? ual z/s/p checks motion (photograph or	Semiannually Daily Daily Weekly Every 2 weeks N/A Weekly Weekly weekly weekly wonitored and sketch if necessar	SSRF, logbook, call-in	

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Site	e ID	MCK231	Tech	nician	Sandy Grenville		Site Visit Date	e 03/06/2013	
	Site or	peration procedures							
1	Is the	filter pack being changed o	every '	Tuesd	ay as scheduled?	V	Filter changed mo	rinings	
2	Are th	e Site Status Report Form tly?	s bein	g com	pleted and filed	✓			
3	Are da	nta downloads and backup uled?	s bein	g perf	ormed as		No longer required	1	
4	Are ge	eneral observations being n	nade a	nd re	corded? How?	✓	SSRF, logbook		868,888
5	Are sit	te supplies on-hand and re	plenis	hed in	a timely	✓			-
6	Are sa	mple flow rates recorded?	How			✓	SSRF, logbook, ca	all-in	
7	Are sa fashio	mples sent to the lab on a l	regula	r sche	edule in a timely	✓			
8							Clean gloves on a	nd off	_
9		e site conditions reported i ions manager or staff?	regula	rly to	the field	~			_
QC	Check	Performed		Fre	quency			Compliant	
N	Aulti-po	oint MFC Calibrations	5	Sen	niannually	201-00			
F	low Sys	stem Leak Checks		We	ekly			✓	
F	ilter Pa	ck Inspection				ema iliza			
F	low Ra	te Setting Checks		We	THE PERSON NAMED TO ASSOCIATE AND ADDRESS OF THE PERSON NAMED TO A	- 1000000	<u>V</u>		
		heck of Flow Rate Rotome		We	BYGE WYDGELLING WHO APPEAR OF THE	200000			
		ilter Inspection/Replaceme		STATE OF THE PARTY	needed	Ten Th			
S	ample l	Line Check for Dirt/Water		We	ekly	la con		V	
		additional explanation (pl nan-made, that may affect					y) regarding condi	tions listed above, or any other features,	

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
BBE	401-Eric H	lebert-03/06/2013				
1	3/6/2013	Computer	Gateway	90699	Solo	0018986902
2	3/6/2013	DAS	Environmental Sys Corp	90665	8816	2689
3	3/6/2013	Elevation	Elevation	None	1	None
4	3/6/2013	F460 translator	Climatronics	none	100163	688
5	3/6/2013	Filter pack flow pump	Thomas	none	107CAB18B	070000012920
6	3/6/2013	flow rate	Tylan	03392	FC280AV	AW9403018
7	3/6/2013	Infrastructure	Infrastructure	none	none	none
8	3/6/2013	Mainframe	Climatronics	01847	100081	1426
9	3/6/2013	Mainframe power supply	Climatronics	none	101074	unknown
10	3/6/2013	Met tower	Universal Tower	none	unknown	none
11	3/6/2013	MFC power supply	Tylan	03680	RO-32	FP9403013
12	3/6/2013	Modem	US Robotics	none	V.92	unknown
13	3/6/2013	Ozone	ThermoElectron Inc	90517	49C	49C-58468-318
14	3/6/2013	Ozone Standard	ThermoElectron Inc	90832	49C	520012326
15	3/6/2013	Precipitation	Climatronics	01474	100508-2	illegible
16	3/6/2013	Printer	Hewlett Packard	none	842C	unknown
17	3/6/2013	Relative Humidity	Rotronic	none	MP 601A	59221
18	3/6/2013	Sample Tower	Aluma Tower	none	В	AT-5381-F9-1
19	3/6/2013	Shelter Temperature	ARS	none	none	none
20	3/6/2013	Shield (10 meter)	Climatronics	00390	100325	1275
21	3/6/2013	Shield (2 meter)	Climatronics	01497	100325	illegible
22	3/6/2013	Siting Criteria	Siting Criteria	None	1	None
23	3/6/2013	Solar Radiation	Licor	none	LI-200	PY35732
24	3/6/2013	Solar Radiation Translator	Climatronics	none	100144	385
25	3/6/2013	Temperature	Climatronics	01049	100093	missing
26	3/6/2013	Temperature Translator	Climatronics	none	100088-2	482
27	3/6/2013	Wind Direction	Climatronics	90885	100076	1813
28	3/6/2013	Wind Speed	Climatronics	90921	100075	1725

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
29	3/6/2013	Zero air pump	Werther International	none	PC70/4	606489

DAS Data Form

DAS Time Max Error:

0.02

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2689	BBE401	Eric Hebert	03/06/2013	DAS	Primary
Das Date: 3/6 / Das Time: 9:0 Das Day: Low Channel:	/2013 Audit Da 09:33 Audit Da 65 Audit Da High Cha x Diff: Avg Diff:	ate 3/6/2013 ime 9:09:32 ay 65	Mfg Serial Number Tfer ID Slope	Datel 4000392 01321 1.0000 2/13/201 Fluke 86590148 01310 1.0000 1/27/201	Parameter Tfer Desc. Intercept CorrCoff Parameter Tfer Desc. Intercept	DAS Source generator (D 0.00000 1.00000 DAS

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	0.5000	V	V	0.0000
2	0.7000	0.7000	0.7000	V	V	0.0000
2	0.9000	0.9000	0.9000	V	V	0.0000
2	1.0000	1.0001	1.0001	V	V	0.0000
10	0.0000	0.0000	0.0000	V	V	0.0000
10	0.1000	0.1000	0.1000	V	V	0.0000
10	0.3000	0.3000	0.3000	V	V	0.0000
10	0.5000	0.5000	0.5000	V	V	0.0000
10	0.7000	0.7000	0.7000	V	V	0.0000
10	0.9000	0.9000	0.9000	V	V	0.0000
10	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	P	W940301	8	BBE401	Erio	c Hebert	03/06/201	3 flow rat	te	03392	
Mfg	Tylan	l				Mfg	BIOS		arameter Flow Rate		
SN/Owner ID	FP94	03013	03680			Serial Number	122974	Т	fer Desc. BIG	OS 220-H	
Parameter	MFC	power sup	vla			Tfer ID	01416				
			. ,			Slope	1	.00000 Inte	ercept	0.00000	
					_						
Cert Date 1/8/2013 CorrCoff 1.00000											
DAS 1:			DAS 2:			Cal Factor Z	ero	0.0	7		
A Avg % Diff:	A Ma	x % Di	A Avg %	Dif A Max	x % Di	Cal Factor F	ull Scale	5.3	37		
0.43%		0.70%				Rotometer R	eading:	3.0	5		
UseDescription	Te	st type:	Input l/m:	Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference	
primary	pump		0.000	0.000	-0.02	0.011	0.08	l/m	l/m		
primary	leak o	check	0.000	0.000	-0.03	0.003	0.07	l/m	l/m		
primary	test p	t 1	0.000	2.969	3.04	2.755	2.99	1/m	l/m	0.70%	
primary	test p	t 2	0.000	2.978	3.04	2.755	2.99	l/m	l/m	0.41%	
primary	test p	t 3	0.000	2.985	3.04	2.755	2.99	l/m	l/m	0.17%	
Sensor Comp	onent	Leak Tes	t		Condition	n		Status	pass		
Sensor Comp	onent	Filter Azir	muth		Condition	Not tested		Status	Status pass		
Sensor Comp	onent	Filter Dep	oth		Condition	0.5 cm		Status	Status pass		
Sensor Comp	onent	Filter Pos	ition		Condition	Good		Status	pass		
Sensor Comp	onent	Moisture	Present		Condition	No moisture p	resent	Status	pass		
Sensor Comp	onent	Rotomete	er Condition	า	Condition	Clean and dry		Status	pass		
Sensor Component System Memo		Condition	n	Status	pass						
Sensor Component Tubing Condition		Condition	Good	Status	pass						
Sensor Component Filter Distance		Condition	5.5 cm	Status	pass						

Ozone Data Form

Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	Date Param	eter	Owner ID
ThermoElectron Inc 4	19C-58468-318	BBE401	Eri	ic Hebert		03/06/20	13 Ozone		90517
Slope: 0.9	98260 Slope:	0.00000		Mfg		ThermoEl	ectron Inc P	arameter	ozone
_	9900 Intercept	0.00000		Serial N	umber	51711217	5 Т	fer Desc.	Ozone primary stan
CorrCoff 0.9	99991 CorrCoff	0.00000			dilloci			Ter Beset [
				Tfer ID		01111			
DAS 1:	DAS 2:			Slope		(0.99720 Inte	ercept	0.18428
A Avg % Diff: A Ma	3.5% A Avg %	6Dif A Max %	% Di	Cert Da	te	1	/2/2013 Cor	rCoff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Unit:	PctD	ifference:
primary	1	0.26	0.0)7	2.	31 p	pb		
primary	2	29.17	29.	06	30	.07 p	pb		3.48%
primary	3	52.05	52.				pb		2.96%
primary	4	79.97	80.			-	pb		1.61%
primary	5	97.66	97.	74	97	.65 p	pb		-0.09%
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	n 1.000	5		Status	pass	
Sensor Component	Inlet Filter Condition	n	Condition Clean			Status	pass		
Sensor Component	Line Loss		Conditio	Not te	sted		Status	pass	
Sensor Component	Offset		Conditio				Status	pass	
Sensor Component	Span		Conditio	ondition 1.018			Status	pass	
Sensor Component	Cell B Freq.		Conditio	adition 80.8 kHz Stat			Status	pass	
Sensor Component	System Memo		Condition			Status	pass		
Sensor Component	Sample Train		Conditio	Condition Good			Status	pass	
Sensor Component	Cell B Pressure		Conditio	Condition			Status	pass	
Sensor Component	Cell B Flow		Conditio	0.69 lp	om		Status	pass	
Sensor Component	Cell A Tmp.		Conditio	37.7 C	;		Status	pass	
Sensor Component	Cell A Pressure		Conditio	657 m	mHg		Status	pass	
Sensor Component	Cell A Noise		Conditio	3.0 pp	b		Status	pass	
Sensor Component	nent Cell A Freq.			dition 86.4 kHz			Status	pass	
Sensor Component	Cell A Flow		Conditio	0.66 lp	om		Status	pass	
Sensor Component	Battery Backup		Conditio	ition N/A			Status	pass	
Sensor Component	Zero Voltage		Conditio	0.000e	6		Status	pass	

Wind Speed Data Form Mfg Serial Number Ta **Technician** Site Visit Date Parameter Owner ID Wind Speed 90921 1725 BBE401 Eric Hebert 03/06/2013 Climatronics Parameter wind speed Mfg RM Young Climatronics Mfg Tfer Desc. wind speed motor (h Serial Number 688 **SN/Owner ID** none 01262 Tfer ID F460 translator **Parameter** 0.00000 1.00000 **Slope Intercept** 1967 Prop or Cups SN 0.2 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 0.21% Abs Avg Err 0.03 0.42% Abs Max Er UseDescription: InputDevice: Input RPM: Output V: Diff/ % Diff: Difference: Input m/s: DAS m/s: none 0 0.20 0.000 0.2 0.00 primary 01261 50 1.40 0.000 1.4 0.00 primary primary 01261 100 2.57 0.000 2.6 0.03 4.22 4.2 -0.02 01261 170 0.000 primary primary 01261 250 6.10 0.000 6.1 0.00% 11.97 12.0 0.25% primary 01262 500 0.000 01262 800 19.02 0.000 19.1 0.42% primary primary 01262 2000 47.22 0.000 47.3 0.17% 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 **Status** pass Condition

Wind Direction Data Form

Mfg	Serial Nu	mber Ta Si	te	T	Гесhnician		Site Visit	Date Pa	rame	ter	Owner II	D
Climatronics	1813	BE	3E401		Eric Hebert		03/06/20	13 Wi	nd Dir	ection	90885	
Mfg Climatronics SN/Owner ID 688 none Parameter F460 translator Vane SN: 36 C. A. Align. deg. true: VaneTorque 10 to 10 360				rue:	Mfg Serial Nur Tfer ID Slope Cert Date Mfg Serial Nur Tfer ID		Ushikata 190037 01265	1.00000	Par Inter Corr	rameter ver Desc. teept Coff	wind direction	000
	DAS 1: Orientation 1.8		DAS 2 Orient .8		Linearity:							
UseDescription	n: TferID:	Input	Raw. L	inearity	Output V:	Outr	out Deg.:	Differenc	e· C	Change:	Error:	
primary	01266	(✓	0.000		359	Difference	1	44	-1	
primary	01266	4.	5	✓	0.000		42		3	43	-2	
primary	01266	9	0	✓	0.000		87		3	45	0	
primary	01266	13	35	✓	0.000		132		3	45	0	
primary	01266	18	30	✓	0.000		178		2	46	1	
primary	01266	22	25	✓	0.000		224		1	46	1	
primary	01266	27	0	✓	0.000		269		1	45	0	
primary	01266	31	.5	✓	0.000		315		0	46	1	
primary	01265	9	0		0.000		87		3		3	
primary	01265	18	30		0.000		178		2		2	
primary	01265	27	0		0.000		269		1		1	
primary	01265	36	50	Ш	0.000		359		1		1	
Sensor Comp	onent Mast			Condi	tion Good			St	atus	pass		
Sensor Comp	onent Conditio	n		Condi	tion Good			St	atus	pass		
Sensor Comp	onent Sensor I	Heater		Condi	tion N/A			St	atus	pass		
Sensor Comp	onent Sensor I	Plumb		Condi	tion Plumb			Sta	atus	pass		
Sensor Component Torque			Condi	tion Stat			atus	us pass				
Sensor Comp	onent Vane Co	ondition		Condi	tion Good			Sta	atus	pass		
Sensor Comp	onent System	Memo		Condi	tion			St	atus	pass		

Temperature Data Form Technician Site Visit Date Parameter **Owner ID** Mfg Serial Number Ta Site BBE401 Eric Hebert Temperature 01049 Climatronics 03/06/2013 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** 0.16 0.22 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: | UseDesc.: Test type: 0.000 0.14 primary Temp Low Range -0.100.02 0.2 \mathbf{C} C 0.12 Temp Mid Range 29.23 29.14 0.000 29.3 primary Temp High Range C 0.22 primary 46.44 46.23 0.000 46.5 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 BBE401 Eric Hebert 03/06/2013 Relative Humidity Rotronic 59221 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** 1.9 Abs Avg Err 2.0 2.5 2.0 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 34.1 32.8 0.340 34.0 1.2 primary RH Low Range 52.9 2.5 primary Hygroclip 52.0 52.9 0.554 55.4 primary RH High Range Hygroclip 93.6 90.3 93.6 0.916 91.6 -2.0 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** Site Visit Date Parameter Owner ID Mfg PY35732 BBE401 Eric Hebert Solar Radiation Licor 03/06/2013 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 9.0% 8.7% 0.0% 0.0% UseDescription: Measure Date MeasureTime Tfer Corr: DAS w/m2: PctDifference: 549 primary 3/6/2013 10:00 510 7.6% 9.7% 3/6/2013 11:00 517 567 primary primary 3/6/2013 12:00 690 750 8.7% 755 8.7% primary 3/6/2013 13:00 821 3/6/2013 14:00 589 648 10.0% 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	S	erial N	Number Ta	Site		Te	chnician		Site	Visit Date	Paramo	eter		Owner ID
Climatronics	il	legible)	BBE401		Er	ic Hebert		03/	06/2013	Precipit	ation	l	01474
DAS 1: DAS 2:							Mfg Serial Nu	nhor	PMF	06134-50				ecipitation Oml graduate
A Avg % Diff		x % D	oi A Avg %	Dif A	Max % Di		Tfer ID	mei	012			er D	esc. 23	omi graduate
							Slope			1.0000	0 Inte	rcep	t	0.00000
							Cert Date			9/5/200	Cori	rCof	f	1.00000
UseDesc.	Test t	ype:	TferVolume:	Iteration:	TimePerTi	ip:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Un	it: T	ferUnit:	s:PctDifference
primary	tip chec	k	10 manual	1	2 sec		1.00	1.0		mm	mm		ml	
primary	test 1		231.5	1	12 sec		5.00	5.	20	mm	mm		ml	4.0%
primary	test 2		231.5	2	8 sec		5.00	5.	10	mm	mm		ml	2.0%
Sensor Com	ponent	Syste	m Memo		Cond	itio	on				Status	pass	S	
Sensor Com	ponent	Senso	or Heater		Cond	itio	Not func	tioning			Status	Fail		
Sensor Com	ponent	Prope	erly Sited		Cond	itio	Properly	sited			Status	pass	S	
Sensor Com	ponent	Gaug	e Drain Scree	n	Cond	itio	Not insta	lled			Status	Fail		
Sensor Com	ponent	Level			Cond	itio	Level				Status	pass	S	
Sensor Com	ponent	Gaug	e Clean		Cond	itio	Clean				Status	pass	S	
Sensor Com	ponent	Funne	el Clean		Cond	itio	Clean				Status	pass	S	
Sensor Com	ponent	Condi	ition		Cond	itio	Good				Status	pass	S	
Sensor Com	ponent	Gaug	e Screen		Cond	itio	Installed				Status	pass	S	

Infrastructure Data For

Si	te ID	BBE401	Technician	Eric Hebert	Site Visit Date	03/06/2013	
	Shelter Ma	ake	Shelter Model	Sh	elter Size		
	Ekto		8814	896	6 cuft		
		WEST CONTROL OF THE STREET			TO SHAPE SHEET BY		

of Condition	Good	Status	pass
wer Type Condition	Type B	Status	pass
Condition	Good	Status	pass
ap Condition	Installed	Status	pass
les Condition	F air	Status	pass
Condition	Installed	Status	pass
Condition	N/A	Status	pass
wer Condition	Good	Status	pass
ndition Condition	Good	Status	pass
Condition Condition	Good	Status	pass
np Control Condition	Functioning	Status	pass
e Condition	Fair	Status	pass
e Condition	3/8 teflon	Status	pass
Condition Condition	Good	Status	pass
in Condition	Good	Status	pass
	Wer Type Condition Condition	Condition Type B Condition Good Condition Installed Condition Installed Condition Installed Condition N/A Condition Good Condition Good Condition Good Condition Fair Condition Fair Condition Food Condition Good Condition Food Condition Good	Condition Type B Status Condition Good Status Condition Installed Status Condition Fair Status Condition Installed Status Condition Installed Status Condition N/A Status Condition Good Status Condition Good Status Condition Functioning Status Condition Fair Status Condition Fair Status Condition Food Status

Shelter Temperature Data For

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none	BBE401	Eric Hebert	03/06/2013	Shelter Temperature	none
DAS 1:	DAS 2:		Mfg	Extech	Parameter She	lter Temperatur
Abs Avg Err Abs	0.61 Abs Avg	Err Abs Max Er	Serial Number	H232679	Tfer Desc. RTI	
			Tfer ID	01228		
			Slope	1.00732	Intercept	-0.12380
			Cert Date	1/12/2013	CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	21.63	21.60	0.000	22.2	С	0.61
primary	Temp Mid Range	24.32	24.27	0.000	23.9	С	-0.39
primary	Temp Mid Range	25.19	25.13	0.000	24.8	C	-0.32

Field Systems Comments

1 Parameter: SiteOpsProcedures

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

2 Parameter: ShelterCleanNotes

The shelter is clean, neat, and well organized.

3 Parameter: MetOpMaintCom

The signal cables are showing signs of wear. The precipitation gage signal cable is in poor condition.

F-02058-1500-S1-rev001

Site ID BBE401	Technician Eric Hebert	Site Visit Date 03/0	6/2013			
Site Sponsor (agency)	NPS/EPA	USGS Map	Panther Junction			
Operating Group	NPS	Map Scale				
AQS#	48-043-0101	Map Date				
Meteorological Type	Climatronics					
Air Pollutant Analyzer	Ozone, IMPROVE, PM2.5	QAPP Latitude	29.3022			
Deposition Measurement	dry, wet	QAPP Longitude	-103.1772			
Land Use	desert	QAPP Elevation Meters	1052			
Terrain	complex	QAPP Declination				
Conforms to MLM	Marginally	QAPP Declination Date				
Site Telephone	(432) 477-2258	Audit Latitude	29.302651			
Site Address 1	K-Bar Ranch	Audit Longitude	-103.177813			
Site Address 2	Big Bend National Park	Audit Elevation	1057			
County	Brewster	Audit Declination	7.0			
City, State	Big Bend National Park, TX	Present				
Zip Code	79834	Fire Extinguisher	Inspected Nov 2009			
Time Zone	Central	First Aid Kit				
Primary Operator	Keith Sauter	Safety Glasses				
Primary Op. Phone #	(432) 477-1150	Safety Hard Hat				
Primary Op. E-mail	Keith_Sauter@nps.gov	Climbing Belt				
Backup Operator	Jeff Bennett	Security Fence				
Backup Op. Phone #	(432) 477-1141	Secure Shelter				
Backup Op. E-mail	jeff_bennett@nps.gov	Stable Entry Step				
Shelter Working Room ✓	Make Ekto M	odel 8814	Shelter Size 896 cuft			
	Notes					
Driving Directions From interstate 10 in Fort Stockton, turn south on highway 385 and drive approximately 120 miles to Big Bend National Park. Continue on the park road past the entrance station 26 miles to the stop sign at Panther Junction near the visitor center. Turn left (east) and continue approximately 2.5 miles. Turn left on the dirt road marked K-Bar and continue approximately 0.5 miles. Turn right on the service road just past the Chihuahuan Desert Research Station (old house) on the right. The site is 400 meters at the end of the road.						

F-02058-1500-S2-rev001

Site ID BBE401 Technician Eric Hebert Site Visit Date 03/06/2013

Potential Interferent	Minimum Distance From Measurement Apparatus	Distance	Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km	2 (10)	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		v
Secondary road, heavily traveled	500 m		V
Secondary road, lightly traveled	200 m		v
Feedlot operations	500 m		✓
Intensive agricultural ops (including aerial spraying)	500 m		V
Limited agricultural operations	200 m		
Large parking lot	200 m		✓
Small parking lot	100 m		v
Tree line	50 m		✓
Obstacles to wind	10 times obstacle height		✓

Siting	Distances OK
Siting	Criteria Commen

		A CONTRACTOR OF THE PARTY OF TH
Field Sy	 10040	
		Karn
	Dava	

F-02058-1500-S3-rev001

Site	ID	BBE401	Technician	Eric Hebert		Site Visit Date 03/06/2013		
1		nd speed and dir influenced by obs	ection sensors sited so tructions?	as to avoid	✓			
2	(i.e. wi	nd sensors should	ted so as to minimize to the mounted atop the com >2x the max diang wind)	tower or on a	✓			
3	Are th	e tower and senso	ors plumb?		✓		Pop No. (19) (19) (19) (19)	
4			ields pointed north or rces such as buildings.	Positioned to	✓			
5	conditi	ions? (i.e. ground	H sensors sited to avoid below sensors should sloped. Ridges, hollow e avoided)	be natural	~			
6	Is the	solar radiation se	nsor plumb?		✓			
7	Is it sit light?	ted to avoid shadi	ng, or any artificial or	reflected	✓			
8	Is the	rain gauge plumb	?		✓			
9	Is it sit towers		ering effects from build	dings, trees,	✓			
10		surface wetness so north?	ensor sited with the gr	id surface	✓	N/A		
11	Is it in	iclined approxima	ately 30 degrees?		✓	N/A		
			anation (photograph o may affect the monitor			y) regarding conditions listed	above, or	any other features,

Fiel	2 6	ystems	Data	Form
LIC	u	Aprellip	Data	TUIII

F-02058-1500-S4-rev001

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? Cables deteriorating	ite	ID	BBE401	Technician	Eric Hebert		Site Visit Date 03/06/20	013	
Are the shields for the temperature and RH sensors clean? Are the shields for the temperature and RH sensors clean? Are the shields for the temperature and RH sensors clean? Are the sapirated 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 cables connections protected from the elements 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? 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? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cables intact, in good cables deteriorating Cables deteriorating S/N Client ID Tecipitation Climatronics 100508-2 Illegible 01474 Illegible 01497 Independent of the temperature of the connections of the connection of									
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 cables connections protected from the elements 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? 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? Are the sensor signal and power cables intact, in good condition, and well maintained? Are the sensor signal and power cables intact, in good conditions tisted above, or any other feature tural or man-made, that may affect the monitoring parameters:					intact, in good	✓			
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? arameter Manufacturer Model S/N Client ID recipitation Climatronics 100508-2 illegible 01474 hield (10 meter) Climatronics 100325 1275 00390 hield (2 meter) Climatronics 1000325 illegible 01497 emperature Climatronics 100093 missing 01049 hield Direction Climatronics 100076 1813 90885 olar Radiation Licor LI-200 Py35732 none elative Humidity Rotronic MP 601A 59221 none let tower Universal Tower unknown none none for Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature traral or man-made, that may affect the monitoring parameters:				l sensors operationa	l online, and	✓			
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? 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? Are the sensor signal and power cable connections protected from the elements and well maintained? Are the sensor signal and power cables connections protected from the elements and well maintained? Are the sensor signal and power cables on the sensor signal and power cables of the sensor signal and power cables on the sensor signal and power cables of the sensor signal and power cables on the sensor signal and power cables of the sensor signal and power cable sensor signal and power cable sensor signal and power cables of the sensor signal and power c		Are the	shields for the ter	mperature and RH s	sensors 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? 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? Are the sensor signal and power cable connections protected from the elements and well maintained? Are the sensor signal and power cables intact, in good cables deteriorating Cables deteriora		Are the	aspirated motors	working?		✓			
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? 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? Are the sensor signal and power cables intact, in good Cables deteriorating				sor's lens clean and	free of	✓			
Are the sensor signal and power cable connections protected from the elements and well maintained? arameter Manufacturer Model S/N Client ID recipitation Climatronics 100508-2 illegible 01474 hield (10 meter) Climatronics 100325 1275 00390 hield (2 meter) Climatronics 100325 illegible 01497 emperature Climatronics 100093 missing 01049 Vind Direction Climatronics 100076 1813 90885 olar Radiation Licor LI-200 PY35732 none eletive Humidity Rotronic MP 601A 59221 none fet tower Universal Tower unknown none none Vind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:		Is the si	urface wetness ser	nsor grid clean and u	ındamaged?	✓	N/A		
Are the sensor signal and power cable connections protected from the elements and well maintained? Arameter Manufacturer Model S/N Client ID recipitation Climatronics 100508-2 illegible 01474 hield (10 meter) Climatronics 100325 1275 00390 hield (2 meter) Climatronics 100325 illegible 01497 emperature Climatronics 100093 missing 01049 Vind Direction Climatronics 100076 1813 90885 olar Radiation Licor LI-200 PY35732 none elative Humidity Rotronic MP 601A 59221 none let tower Universal Tower unknown none none Vind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:					t, in good		Cables deteriorating		
recipitation Climatronics 100508-2 illegible 01474 hield (10 meter) Climatronics 100325 1275 00390 hield (2 meter) Climatronics 100325 illegible 01497 emperature Climatronics 100093 missing 01049 Vind Direction Climatronics 100076 1813 90885 olar Radiation Licor LI-200 PY35732 none relative Humidity Rotronic MP 601A 59221 none relative Humidity Rotronic unknown none none relative Humidity Rotronics 100075 1725 90921 relative Annual Climatronics 100075 1725 9092		Are the	sensor signal and	l power cable connec	ctions protected	✓			
hield (10 meter) Climatronics 100325 Ilegible 01497 emperature Climatronics 100093 missing 01049 Vind Direction Climatronics 100076 Is13 90885 olar Radiation Licor LI-200 PY35732 none relative Humidity Rotronic MP 601A 59221 none Indet tower Universal Tower unknown none vind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	ar	ameter		Manufacturer	Model		S/N	Client ID	
hield (2 meter) Climatronics 100325 illegible 01497 emperature Climatronics 100093 missing 01049 Vind Direction Climatronics 100076 1813 90885 olar Radiation Licor LI-200 PY35732 none elative Humidity Rotronic MP 601A 59221 none det tower Universal Tower unknown none none Vind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	rec	cipitation		Climatronics	100508-2	100.1	illegible	01474	
emperature Climatronics 100093 missing 01049 /ind Direction Climatronics 100076 1813 90885 olar Radiation Licor LI-200 PY35732 none elative Humidity Rotronic MP 601A 59221 none let tower Universal Tower unknown none none /ind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	hie	eld (10 m	eter)	Climatronics	100325	1/2000100	1275	00390	
/ind Direction Climatronics 100076 1813 90885 colar Radiation Licor LI-200 PY35732 none celative Humidity Rotronic MP 601A 59221 none celative Humidity Universal Tower unknown none none celative Humidity Rotronic 100075 1725 90921 celative Humidity 100075 1725 1725 celative Humidity 100075 celative Humidity 100075 1725 celative Humidit	hie	eld (2 me	ter)	Climatronics	100325	22.45%	illegible	01497	
olar Radiation Licor LI-200 PY35732 none elative Humidity Rotronic MP 601A 59221 none let tower Universal Tower unknown none /ind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	em	perature)	Climatronics	100093	Table Total	missing	01049	
elative Humidity Rotronic MP 601A 59221 none let tower Universal Tower unknown none find Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	/in	d Direction	on	Climatronics	100076	100000	1813	90885	
let tower Universal Tower unknown none none vind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	ola	ar Radiat	ion	Licor	LI-200	in a	PY35732	none	
/ind Speed Climatronics 100075 1725 90921 ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other feature tural or man-made, that may affect the monitoring parameters:	ela	ative Hun	midity	Rotronic	MP 601A	REES	59221	none	
ovide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other featur tural or man-made, that may affect the monitoring parameters:	let	tower		Universal Tower	unknown		none	none	
tural or man-made, that may affect the monitoring parameters:	/in	d Speed		Climatronics	100075		1725	90921	
	tui	cal or m	an-made, that ma	y affect the monitor	ing parameters:			d above, or any other	features,

Field Systems Data Form F-02058-1500-S5-rev001 **BBE401** Technician Eric Hebert Site Visit Date 03/06/2013 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. 1/2 teflon by 12 meters At inlet only Are in-line filters used in the ozone sample line? (if ves indicate location) **V** 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
Sample Tower	Aluma Tower	В	AT-5381-F9-1	none
Ozone	ThermoElectron Inc	49C	49C-58468-318	90517
Filter pack flow pump	Thomas	107CAB18B	070000012920	none
MFC power supply	Tylan	RO-32	FP9403013	03680
Zero air pump	Werther International	PC70/4	606489	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	BBE401	Technician Eri	c Hebert		Sit	te Vis	it Date 0	3/06/201	3				
	DAS, se	nsor translators,	and peripheral equipm	ent operation	ıs ar	ıd mai	ntena	nce						
1	Do the I	DAS instruments intained?	appear to be in good co	ndition and	✓									
2		the components of backup, etc)	of the DAS operational?	(printers,	✓									
3		nnalyzer and sens g protection circ	sor signal leads pass throuitry?	ough		Met se	ensors	only						
4		signal connection intained?	ns protected from the wo	eather and	✓									
5	Are the	signal leads conr	nected to the correct DA	S channel?	V									
6	Are the grounde		nslators, and shelter pro	perly	✓									
7	Does the	e instrument shel	ter have a stable power	source?	✓									
8	Is the in	strument shelter	temperature controlled	?	✓									
9	Is the m	et tower stable a	nd grounded?			Sta				Groun				
10	Is the sa	ample tower stab	le and grounded?			V	•			~				
11	Tower o	comments?									12791652 <u>2</u>			
Par	ameter		Manufacturer	Model			S/N				Clie	nt ID		
Cor	nputer		Gateway	Solo	123181	\$4450.5	00189	986902			9069	99	W. S. S. S.	
DAS	5	100 (200 (200 (200 (200 (200 (200 (200 (Environmental Sys Co	rp 8816	nesem	NAME OF THE PARTY OF	2689				9066	65		
F46	0 translat	tor	Climatronics	100163	360.4		688		ASSESSED AND A		none	e Alexandra	75354635	
Mai	nframe		Climatronics	100081	olense.	Sharks	1426				0184	47	8500 800	
Mai	nframe po	ower supply	Climatronics	101074	SSESE		unkno	own	REPUBLISHED		none	e Water		
Mod	dem		US Robotics	V.92	GO PAR	10.0000	unkno	own			none	e		
Prin	iter		Hewlett Packard	842C	9482000	303233	unkno	own	BIOLIS SAN		none	e Markanis		
Sola	ar Radiati	on Translator	Climatronics	100144	day.		385	SEAN (CASSES)			none	е		
Ten	nperature	Translator	Climatronics	100088-2	THE RESERVED		482				none	е		
			nation (photograph or s nay affect the monitorin			y) rega	ardin	g conditio	ons listed	d above	, or a	nny ot	her fea	atures,

F-02058-1500-S7-rev001

Site ID BBE401		Tech	nician	Eric Hebert	Site Visit Dat	e 03/06/2013	3	
Documentation								
Does the site have the requir	od in	4	nt and	equipment men	valo?			
Does the site have the requir	Yes	No.	N/.		<u>lais;</u>	Yes	No	N/A
Wind speed sensor		✓			logger	✓		
Wind direction sensor		✓			logger			V
Femperature sensor		V			chart recorder			V
Relative humidity sensor		✓		Comp			V	
Solar radiation sensor	V			Mode			~	
Surface wetness sensor		✓		Print	er		✓	
Wind sensor translator		✓		Zero	air pump		✓	
Femperature translator		✓		Filter	flow pump		~	
Humidity sensor translator		✓		Surge	protector			✓
Solar radiation translator		✓		UPS				✓
Γipping bucket rain gauge		✓		Light	ning protection devi	CONTRACTOR OF THE STREET		✓
Ozone analyzer	✓			Shelt	er heater		✓	
Filter pack flow controller		✓		Shelt	er air conditioner		V	
ilter pack MFC power supply	✓							
Does the site have the requ	ired :	and mo	st rece	nt QC document	s and report forms?			
	Pre	sent				Curre	nt	
Station Log		✓	Datavie	ew	HANDE TO SELECT HE DISEASE OF THE	✓		
SRF		✓				✓		
ite Ops Manual		✓				V		
ASP								
eld Ops Manual								
alibration Reports		✓	Electro	nic copy		~		
zone z/s/p Control Charts								
eventive maintenance schedu	ıl							
I Is the station log properly	com	pleted (during	every site visit?	✓ Dataview			
2 Are the Site Status Report current?	For	ms beir	ig comp	pleted and	Flow and observation	tion sections		
Are the chain-of-custody f sample transfer to and fro			rly use	d to document				
Are ozone z/s/p control chacurrent?	arts p	oroper	y comp	oleted and	Control charts not	used		
Provide any additional explana	tion	(nhoto	work	or akatah if nasas	ony) rogarding and	itions listed	ahowa	or ove
Provide any additional explana natural or man-made, that may					ary) regarding cond	itions usted (anove,	or any (
THE STATE OF THE S								
		100						

Field Systems Data Form F-02058-1500-S8-rev001 **BBE401** Site Visit Date 03/06/2013 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** ~ 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** Monthly and semiannually ~ **V** Daily **Automatic Zero/Span Tests** ~ Monthly Manual Zero/Span Tests **V** ~ Daily **Automatic Precision Level Tests** ~ **Manual Precision Level Test** Monthly ~ Alarm values only **Analyzer Diagnostics Tests** ~ Monthly **In-line Filter Replacement (at inlet)** ~ N/A In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water **Zero Air Desiccant Check** Unknown Do multi-point calibration gases go through the complete sample train including all filters? V 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 reported? If yes, how?

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

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

Field Systems Data Form F-02058-1500-S9-rev001 Site ID **BBE401** Technician Eric Hebert Site Visit Date 03/06/2013 Site operation procedures Is the filter pack being changed every Tuesday as scheduled? ✓ Filter changed morinings (90%) 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 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? **QC Check Performed** Compliant 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** V ✓ Semiannually **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
PAL	190-Eric H	ebert-03/07/2013				
1	3/7/2013	Computer	Dell	000262	D520	unknown
2	3/7/2013	DAS	Campbell	000347	CR3000	2126
3	3/7/2013	Elevation	Elevation	None	1	None
4	3/7/2013	Filter pack flow pump	Thomas	04286	107CA18B	12980000141
5	3/7/2013	Flow Rate	Apex	000604	AXMC105LPMDPCV	unknown
6	3/7/2013	Infrastructure	Infrastructure	none	none	none
7	3/7/2013	Met tower	Universal Tower	06322	unknown	none
8	3/7/2013	Modem	Raven	06808	H4223-C	0934411667
9	3/7/2013	Ozone	ThermoElectron Inc	000613	49i A1NAA	1009241783
10	3/7/2013	Ozone Standard	ThermoElectron Inc	000214	49i A3NAA	0622717855
11	3/7/2013	Precipitation	Texas Electronics	06307	TR-525i-HT	41276-107
12	3/7/2013	Relative Humidity	Vaisala	06223	HMP50	B3220003
13	3/7/2013	Sample Tower	Aluma Tower	missing	В	AT-7200-582
14	3/7/2013	Shelter Temperature	Campbell	none	107-L	10755-148
15	3/7/2013	Shield (10 meter)	RM Young	06167	Aspirated 43408	none
16	3/7/2013	Shield (2 meter)	RM Young	06166	Aspirated 43408	none
17	3/7/2013	Siting Criteria	Siting Criteria	None	1	None
18	3/7/2013	Solar Radiation	Licor	06311	LI-200	PY55110
19	3/7/2013	Solar Radiation Translator	RM Young	06310	70101-X	none
20	3/7/2013	Surface Wetness	RM Young	06288	58101	none
21	3/7/2013	Temperature	RM Young	06303	41342VO	12542
22	3/7/2013	Temperature2meter	RM Young	06302	41342VO	12541
23	3/7/2013	Wind Direction	RM Young	03421	AQ05305	17101wdr
24	3/7/2013	Wind Speed	RM Young	03421	AQ05305	17101wsp
25	3/7/2013	Zero air pump	Werther International	06929	C 70/4	000829173

DAS Data Form DAS Time Max Error: 0 Serial Number Site **Technician** Site Visit Date Parameter Use Desc. Mfg Campbell 2126 PAL190 Eric Hebert 03/07/2013 DAS Primary Das Date: 3 /7 /2013 **Audit Date** 3 /7 /2013 Datel **Parameter** DAS Mfg 13:32:20 13:32:20 Das Time: **Audit Time** 4000392 Tfer Desc. Source generator (D **Serial Number** Das Day: 66 **Audit Day** 66 Tfer ID 01321 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff:** Max Diff: 1.00000 0.00000 Slope **Intercept** 0.0000 0.0002 0.0000 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

0.7000

0.9000

0.9999

V

V

V

V

V

V

0.0000

0.0000

-0.0002

7

7

7

0.7000

0.9000

1.0000

0.7000

0.9000

1.0001

Flow Data Form

Mfg	Se	erial Num	ber Ta	Site	Tee	chnician	Site Visit I	Date Param	eter	Owner ID
Apex	u	ınknown		PAL190	Er	ic Hebert	03/07/2013	3 Flow R	ate	000604
						Mfg	BIOS	P	arameter Fl	ow Rate
						Serial Number	122974	Т	fer Desc. Bl	OS 220-H
						Tfer ID	01416			
						TICI ID			_	
						Slope	1.	00000 Inte	ercept	0.00000
						Cert Date	1/3	8/2013 Cor	rCoff	1.00000
DAS 1:			DAS 2:		L	Cal Factor Z	ero	-0.0)4	
A Avg % Diff:	A Ma	x % Di	A Avg %	Dif A Max	w % Di	Cal Factor F	ull Scale	0.9	97	
1.33%		1.43%				Rotometer R	eading:	3.2	25	
UseDescription:	Tes	st type:	Input 1/m:	: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSigna	IIPctDifference:
primary	pump	off	0.000	0.000	0.00	0.024	-0.02	1/m	1/m	
primary	leak c	check	0.000	0.000	0.02	0.038	0.00	1/m	1/m	
primary	test p		0.000	2.958	3.00	3.007	3.00	1/m	1/m	1.43%
primary	test p		0.000	2.960	3.00	3.007	3.00	1/m	1/m	1.36%
primary	test p	t 3	0.000	2.965	3.00	3.007	3.00	1/m	1/m	1.19%
Sensor Compo	onent	Leak Test			Conditio	on		Status	pass	
Sensor Compo	onent	Filter Azim	nuth		Conditio	135 deg		Status	pass	
Sensor Compo	onent	Filter Dep	th		Condition	1.0 cm		Status	pass	
Sensor Compo	onent	Filter Posi	ition		Conditio	Good		Status	pass	
Sensor Compo	onent	Moisture F	Present		Conditio	No moisture p	resent	Status	pass	
Sensor Compo	onent	Rotomete	r Conditio	n	Conditio	Clean and dry		Status	pass	
Sensor Compo	onent	System M	emo		Condition	on		Status	pass	
Sensor Compo	onent	Tubing Co	ondition		Conditio	Good		Status	pass	
Sensor Compo	onent	Filter Dista	ance		Conditio	5.5 cm		Status	pass	

Ozone Data Form

Mfg Se	rial Number Ta	Site	Te	chnician		Site Visi	it Date	Parame	eter	Owner ID
ThermoElectron Inc 10	009241783	PAL190	Er	ic Hebert		03/07/2	013	Ozone		000613
Intercept 0.63	Slope: Intercept COOOO CorrCoff	0.00000)	Mfg Serial Nun Tfer ID	ıber	ThermoE 5171121 01111			rameter 02 er Desc. 0	zone zone primary stan
DAS 1:	DAS 2:			Slope			0.9972	0 Inter	rcept	0.18428
A Avg % Diff: A Max	A Avg % 0.7%	oDif A Max (% Di	Cert Date			1/2/201	3 Corr	·Coff	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si			Unit:	PctDif	fference:
primary	1	-0.13	-0		0.3		ppb			0.7.10
primary	2	35.07	34.		35.		ppb			0.74%
primary primary	3 4	51.97 77.86	51. 77.		52. 77.		ppb ppb			-0.49%
primary	5	102.35	102		102		ppb			-0.44%
Sensor Component	-	102.33		1.3 ppb	102		PPC	Status	pass	0.1170
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	N/A				Status	pass	
Sensor Component	Inlet Filter Conditio	n	Conditio	Clean				Status	pass	
Sensor Component	Line Loss		Conditio	Not teste	d			Status	pass	
Sensor Component	Offset		Condition					Status	pass	
Sensor Component	Span		Conditio	1.001				Status	pass	
Sensor Component	Cell B Freq.		Conditio	92.5 kHz				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	0.65 lpm				Status	pass	
Sensor Component	Cell A Tmp.		Conditio	32.1 C				Status	pass	
Sensor Component	Cell A Pressure		Conditio	on 648 mml	łg			Status		
Sensor Component	Cell A Noise			0.6 ppb				Status		
Sensor Component				99.8 kHz				Status		
Sensor Component	Cell A Flow			0.64 lpm				Status		
Sensor Component	Battery Backup		Conditio					Status		
Sensor Component	Zero Voltage		Condition	on N/A				Status	pass	

Wind Speed Data Form Mfg Serial Number Ta Site **Technician** Site Visit Date Parameter Owner ID PAL190 Wind Speed 03421 RM Young Eric Hebert 03/07/2013 17101wsp Parameter wind speed Mfg RM Young Tfer Desc. wind speed motor (h Serial Number 01262 Tfer ID 0.00000 1.00000 **Slope Intercept** 68264 Prop or Cups SN 0.3 **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** 0.05 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 0.000 0.0 -0.20 primary 01262 200 1.02 0.000 1.0 0.00 primary primary 01262 400 2.05 0.000 2.1 0.00 4.10 4.1 0.00 01262 800 0.000 primary 6.1 primary 01262 1200 6.14 0.000 0.00% 12.29 12.3 0.00% primary 01262 2400 0.000 01262 4000 20.48 0.000 20.5 0.00% primary primary 01262 9400 48.13 0.000 48.1 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 **Status** pass Condition

Wind Direction Data Form

Sensor Component System Memo

Mfg	Serial Number	Ta Site		Technician	Site V	isit Date	Param	eter	Owner ID
RM Young	17101wdr	PAL190		Eric Hebert	03/07	7/2013	Wind D	irection	03421
Vane SN: N/A VaneTorque		C. A. Align. de	19. true: 360	Mfg Serial Nun Tfer ID Slope Cert Date Mfg Serial Nun Tfer ID	Ushika 19003 01265 RM Yo	1.00000 1/4/2011 Dung	Pa The	arameter fer Desc. tercept erCoff	wind direction
	AS 1: rientation Line 1.3		AS 2: cientation	Linearity:					
UseDescription:	TferID:	Input Raw:	Linearity	Output V:	Output Deg	:.: Differe	ence:	Change:	Error:
primary	01266	0	V	0.000	2		2	45	0
primary	01266	45	~	0.000	48		3	46	1
primary	01266	90	V	0.000	93		3	45	0
primary	01266	135	V	0.000	136		1	43	-2
primary	01266	180	V	0.000	180		0	44	-1
primary	01266	225	V	0.000	224		1	44	-1
primary	01266	270	V	0.000	270		0	46	1
primary	01266	315	~	0.000	317		2	47	2
primary	01265	90		0.000	93		3		3
primary	01265	180		0.000	180		0		0
primary	01265	270		0.000	270		0		0
primary	01265	360		0.000	2		2		2
Sensor Compon	nent Mast		Cond	ition Good			Status	pass	
Sensor Compon	nent Condition		Cond	ition Good			Status	pass	
Sensor Compon	nent Sensor Heate	er	Cond	ition N/A			Status	pass	
Sensor Compon	nent Sensor Plumb)	Cond	ition Plumb			Status	pass	
Sensor Compon	nent Torque		Cond	ition			Status	pass	
Sensor Compon	nent Vane Condition	on	Cond	ition Good			Status	pass	

Condition

Status pass

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg RM Young 12542 PAL190 Eric Hebert Temperature 06303 03/07/2013 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** 0.04 0.07 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: -0.03 0.09 0.000 -0.04 primary Temp Low Range 0.05 \mathbf{C} C -0.02 Temp Mid Range 26.20 26.13 0.000 26.11 primary C 0.07 primary Temp High Range 46.29 46.08 0.000 46.15 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

2 Meter Temperature Data For Calc. Difference Serial Number Ta **Technician** Site Visit Date Parameter Mfg Site **Owner ID** PAL190 RM Young 12541 Eric Hebert 03/07/2013 Temperature2meter 06302 Mfg Extech **Parameter** Temperature H232679 Tfer Desc. RTD **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** 0.04 0.07 InputTmpRaw | InputTmpCorrected: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDescription: Test type: 0.000 primary Temp Low Rang -0.03 0.09 0.04 C -0.05 Temp Mid Rang 26.20 0.000 26.14 C 0.01 primary 26.13 0.07 primary Temp High Ran 46.29 46.08 0.000 46.15 C Sensor Component Blower Status Switch **Condition** Functioning **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 Serial Number Ta **Technician** Site Visit Date Parameter **Owner ID** Mfg Site PAL190 Eric Hebert Relative Humidity Vaisala B3220003 03/07/2013 06223 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 9.1 Abs Avg Err 4.9 9.1 Abs Max Er UseDesc.: Test type: Device: Input RH: GTL Raw: RH Corr.: DAS Volts: DAS %RH: Difference: RH Low Range Hygroclip 32.8 35.0 32.8 0.000 34.4 primary 1.6 RH Low Range 51.2 0.000 -4.9 primary Hygroclip 52.9 52.9 48.0 -9.1 primary RH High Range Hygroclip 93.6 90.8 93.6 0.000 84.5 Status pass Sensor Component | System Memo **Condition** Sensor Component Blower Status pass **Condition** N/A 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 PY55110 PAL190 Eric Hebert Solar Radiation Licor 03/07/2013 06311 Mfg **Eppley** Parameter solar radiation RM Young Mfg Tfer Desc. SR transfer translat 10765 **Serial Number** 06310 **SN/Owner ID** none 01246 Tfer ID **Parameter** Solar Radiation Translator 0.00000 **Slope** 1.00000 **Intercept 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 0.9% 0.0% 0.0% 1.5% PctDifference: UseDescription: Measure Date MeasureTime Tfer Corr: DAS w/m2: 14:00 742 749 0.9% primary 3/7/2013 1.3% 3/7/2013 15:00 616 624 primary 3/7/2013 16:00 383 388 1.3% primary 227 4.4% primary 3/7/2013 17:00 237 Sensor Component | Sensor Level **Condition** Level Status pass Sensor Component | Sensor Clean **Condition** Clean **Status** pass Status pass Sensor Component Properly Sited Condition Properly sited **Sensor Component** System Memo **Status** pass Condition

Surface Wetness Data Form

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
RM Young	none	PAL190	Eric Hebert	03/07/2013	Surface Wetness	06288

Ohmite Parameter surface wetness Mfg 296-1200 Tfer Desc. decade box **Serial Number** 01210 Tfer ID 1.00000 0.00000 Slope Intercept 1/4/2011 1.00000 **Cert Date** CorrCoff

✓ Manual Test Pass

UseDescription:	Test Type:	Tfer kOhms:	OutputSignal:	DAS eng:	OutputSignalEngUni	TferUnits:	OutputSignalUnit
primary	wet	N/A	1.023	1.02	V	N/A	V
primary	dry	N/A	0.009	0.01	V	N/A	V
primary	Decade box on	210	1.022	1.02	V	kOhm	V
primary	Decade box off	220	0.009	0.01	V	kOhm	V

Sensor Component	Grid Orientation	Condition	northwest	Status	pass
Sensor Component	Grid Clean	Condition	Clean	Status	pass
Sensor Component	Grid Angle	Condition	about 45 deg	Status	pass
Sensor Component	Grid Condition	Condition	Fair	Status	pass
Sensor Component	Properly Sited	Condition	Properly sited	Status	pass
Sensor Component	System Memo	Condition		Status	pass
Sensor Component	Grid Type	Condition	Grid with holes	Status	pass

Precipitation Data Form

Mfg		Serial N	Number Ta	Site	ŗ	Tec	hnician		Site	Visit Date	Paramo	eter		Owner ID
Texas Electron	nics	41276-	107	PAL190		Eric	c Hebert		03/0	07/2013	Precipit	ation		06307
							Mfg		PMF)	Pa	rame	ter Pr	ecipitation
DAS 1:			DAS 2:				Serial Nur	nber	EW-	06134-50	Tf	er De	sc. 25	0ml graduate
A Avg % Diff		2.0		bDif A I	Max % Di		Tfer ID		012	50				
							Slope			1.0000	0 Inte	rcept		0.00000
							Cert Date			9/5/200	5 Cor	rCoff		1.00000
UseDesc.	Test	type:	TferVolume:	Iteration:	TimePerTi	p:	Eq.Ht:	DAS	eng:	Eq.HtUnit:	OSE Un	it: Tf	erUnit	s:PctDifference
primary	tip che	••	10 manual	1	2 sec		0.10	0.		in	in		ml	
primary	test 1		231.5	1	8 sec		0.50	0.:	50	in	in		ml	0.0%
primary	test 2		231.5	2	8 sec		0.50	0.4	49	in	in		ml	-2.0%
Sensor Com	nponen	Syste	m Memo		Condi	itio	n				Status	pass		
Sensor Com	iponen	t Sense	or Heater		Condi	itio	n Function	ing			Status	pass		
Sensor Com	ponen	Prope	erly Sited		Condi	itio	n Properly	sited			Status	pass		
Sensor Com	ponen	t Gaug	e Drain Scree	en	Condi	itio	n Installed				Status	pass		
Sensor Com	nponen	Level			Condi	itio	n Level				Status	pass		
Sensor Com	iponen	t Gaug	e Clean		Condi	itio	n Clean				Status	pass		
Sensor Com	ponen	t Funne	el Clean		Condi	itio	n Clean				Status	pass		
Sensor Com	ponen	t Cond	ition		Condi	itio	Good				Status	pass		
Sensor Com	ponen	t Gaug	e Screen		Condi	itio	n Installed				Status	pass		

Infrastructure Data For

Site ID PAL190 Technician Eric Hebert Site Visit Date 03/07/2013

Shelter Make	Shelter Model	Shelter Size	
Met One	E-8109-26012-2	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	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	Good	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

Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
10755-148	PAL190	Eric Hebert	03/07/2013	Shelter Temperature	none
DAS 2:		Mfg	Extech	Parameter She	Iter Temperatur
Max Er Abs Avg 0.77	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	CorrCoff	1.00000
	10755-148 DAS 2: Max Er Abs Avg	DAS 2: Max Er Abs Avg Err Abs Max Er	DAS 2: Max Er 0.77 DAS 2: Mfg Serial Number Tfer ID Slope	DAS 2: Mfg Extech	10755-148 PAL190 Eric Hebert 03/07/2013 Shelter Temperature DAS 2: Mfg Extech Parameter She Serial Number H232679 Tfer Desc. RTD Tfer ID 01228 Slope 1.00732 Intercept

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	24.70	24.64	0.000	24.0	C	-0.68
primary	Temp Mid Range	19.78	19.76	0.000	20.5	С	0.75
primary	Temp Mid Range	23.38	23.33	0.000	22.6	C	-0.77

Field Systems Comments

1 Parameter: DasComments

The lower temperature sensor is mounted 1.75 meters above the ground and not 2 meters as stated in the QAPP. This condition was observed and reported during the two previous audit visits.

2 Parameter: SiteOpsProcedures

The ozone sample train is leak tested every two weeks.

3 Parameter: DocumentationCo

The site logbook is not used for routine weekly site visits.

4 Parameter: SitingCriteriaCom

The site is located 40 km southeast of Amarillo TX which has a population of approximately 178,000.

5 Parameter: ShelterCleanNotes

New shelter, in very good condition.

6 Parameter: MetSensorComme

The surface wetness sensor grid is inclined approximately 45 degrees and is oriented to the northwest.

7 Parameter: MetOpMaintCom

Temperature and 2 meter temperature blowers are functioning. The blower status can be observed on the computer screen when testing the blowers, however the data status cannot be verified in the DAS.

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Site ID PAL190	Technician Eric Hebert	Site Visit Date 03/0	7/2013			
Site Sponsor (agency)	EPA	USGS Map	Fortress Cliff			
Operating Group	TX A&M University	Map Scale				
AQS#	48-381-9991	Map Date				
Meteorological Type	R.M. Young					
Air Pollutant Analyzer	Ozone	QAPP Latitude				
Deposition Measurement	dry, wet	QAPP Longitude				
Land Use	agriculture	QAPP Elevation Meters				
Terrain	complex	QAPP Declination				
Conforms to MLM	Marginally	QAPP Declination Date				
Site Telephone		Audit Latitude	34.88061			
Site Address 1		Audit Longitude	-101.664703			
Site Address 2		Audit Elevation	1053			
County	Randall	Audit Declination	6.6			
City, State	Canyon, TX	Present				
Zip Code	79015	Fire Extinguisher	No inspection date			
Time Zone	Central	First Aid Kit				
Primary Operator	Brent Auvermann	Safety Glasses				
Primary Op. Phone #	(806) 677-5663	Safety Hard Hat				
Primary Op. E-mail	b-auvermann@tamu.edu	Climbing Belt				
Backup Operator	Jack Bush	Security Fence				
Backup Op. Phone #	(806) 677-5657	Secure Shelter				
Backup Op. E-mail		Stable Entry Step				
Shelter Working Room ✓	Make Met One Met One	odel E-8109-26012-2	Shelter Size 720 cuft			
	Notes New shelter, in very good cond	lition.				
	Notes	road to the first star size.	right (couth) arts Festare which is			
Driving Directions From I27 take exit 99 and go east on Hungate road to the first stop sign. Turn right (south) onto Eastern which is a dirt road. At the next intersection turn left (east) on Lawrence (also dirt). Continue and follow sharp left turn onto Pullman. Continue and follow sharp right turn onto game lands. Continue through two gates and past storage building. Site will be visible on the left.						

F-02058-1500-S2-rev001

Site ID PAL190 Technician Eric Hebert Site Visit Date 03/07/2013

Potential Interferent	Minimum Distance From Dis Measurement Apparatus	tance Pass = Checked
Large Point Source of SO2 or NOx	20 to 40 km	<u> </u>
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	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

The site is located 40 km southeast of Amarillo TX which has a population of approximately 178,000.

		A CONTRACTOR OF THE PARTY OF TH
Field Sy	 10040	
		Karn
	Dava	

F-02058-1500-S3-rev001

Site	· ID	PAL190		Technician	Eric Hebert		Site Visit Date 03/07/2013
1		vind speed and influenced by		ensors sited so	as to avoid	V	
2					e tower or on a	V	
3						✓	
4	Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?				AND RESIDENCE OF THE PARTY OF T	✓	
5					l be natural	V	
6	Is the	Is the solar radiation sensor plumb?				✓	
7	Is it s light?		hading, or a	nny artificial o	r reflected	✓	
8	Is the	rain gauge pl	umb?			✓	
9		ited to avoid s s, etc?	heltering ef	fects from bui	ldings, trees,	✓	
10		surface wetn g north?	ess sensor si	ted with the g	rid surface	✓	NW
11	Is it i	inclined appro	oximately 30	degrees?		✓	Approximately 45 degrees
					or sketch if neco		y) regarding conditions listed above, or any other features,
The	surfac	e wetness sen	sor grid is in	clined approxim	ately 45 degrees	and	is oriented to the northwest.

Fiel	dS	ystems	Data	Form
		OCCILIO	Dutu	TOTIL

F-02058-1500-S4-rev001

Site ID	PAL190	Technician E	ric Hebert		Site Visit Date 03/07/20)13	
 Do all condit Are al report 	ion, and well mail the meteorologi ing data?	ıl sensors appear to be in	ntact, in good	>			
4 Are th	e aspirated moto	ors working?		✓			
5 Is the scratch		ensor's lens clean and fro	ee of	V			
7 Are th	e sensor signal an		in good	V			
8 Are th	e sensor signal a he elements and	nd power cable connecti well maintained?	ons protected				
Parameter		Manufacturer	Model		S/N	Client ID	
Solar Radia	ation	Licor	LI-200		PY55110	06311	
Surface We	etness	RM Young	58101		none	06288	
Temperatur	re	RM Young	41342VO		12542	06303	
Temperatu	re2meter	RM Young	41342VO		12541	06302	
Shield (10 r	meter)	RM Young	Aspirated	43408	none	06167	
Shield (2 m	eter)	RM Young	Aspirated	43408	none	06166	
Wind Spee	nd Speed RM Young AQ0530		AQ05305		17101wsp	03421	
Wind Direct	tion	RM Young	AQ05305		17101wdr	03421	
Precipitatio	n	Texas Electronics	TR-525i-H	T	41276-107	06307	
Met tower		Universal Tower	unknown		none	06322	
Relative Hu	ımidity	Vaisala	HMP50		B3220003	06223	

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:

Temperature and 2 meter temperature blowers are functioning. The blower status can be observed on the computer screen when testing the blowers, however the data status cannot be verified in the DAS.

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Site	ID	PAL190	Technician	Eric Hebert		Site Visit Date 03/07/2013	3				
	Siting (Criteria: Are the	pollutant analyzers a	nd deposition eq	<u>uipm</u>	ent sited in accordance with	1 40 CFR 5	8, Appendix l	<u>E</u>		
1		sample inlets hav	e at least a 270 degre	e arc of	✓						
2	Are the	sample inlets 3 -	15 meters above the	ground?	V						
3		sample inlets > 1 meters from tree	meter from any maj s?	or obstruction,	V						
	Polluta	nt analyzers and	deposition equipmen	t operations and	mair	<u>itenance</u>					
1		analyzers and equon and well main	uipment appear to be tained?	in good	V						
2		analyzers and m	onitors operational, o	on-line, and	✓						
3	Describ	oe ozone sample to	ube.			1/4 teflon by 12 meters					
4	Describ	e dry dep sample	tube.			3/8 teflon by 12 meters					
5		line filters used in e location)	n the ozone sample lin	ne? (if yes	V	At inlet only					
6	Are sar		ree of kinks, moisture	e, and	✓						
7	Is the z	ero air supply des	siccant unsaturated?		~						
8	Are the	ere moisture traps	s in the sample lines?								
9	Is there clean?	e a rotometer in tl	he dry deposition filte	er line, and is it	✓ (Clean and dry					
Par	ameter		Manufacturer	Model		S/N	Cli	ent ID			
San	nple Tow	er	Aluma Tower	В	e e e e e e e e e e e e e e e e e e e	AT-7200-582	mis	ssing			
Ozo	ne	e de la companya del companya de la companya del companya de la co	ThermoElectron Inc	49i A1NAA		1009241783	000	0613			
Filte	r pack fl	ow pump	Thomas	107CA18B		12980000141	042	286			
Zero	air pum	np	Werther Internation	al C 70/4		000829173	069	929			
			ation (photograph or ny affect the monitori		ary)	regarding conditions listed a	above, or a	ny other featu	res,		

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te ID P	PAL190	Technician	Eric Hebert		Site Visit Dat	e 03/07/2013	
DAS, sens	or translators,	and peripheral equi	pment operatio	ns and	maintenance		
Do the DA well maint	S instruments tained?	appear to be in good	d condition and	V			
	e components of ackup, etc)	f the DAS operation	al? (printers,	V			
	alyzer and senso protection circu	or signal leads pass nitry?	through	V			
Are the sig		s protected from th	e weather and	✓			
5 Are the sig	gnal leads conn	ected to the correct	DAS channel?	V			
Are the Dagrounded		slators, and shelter	properly	V			
Does the in	nstrument shelt	ter have a stable po	wer source?	V			
3 Is the inst	rument shelter	temperature contro	lled?	V			
9 Is the met	tower stable ar	ıd grounded?			Stable	Grounder	1
0 Is the sam	ple tower stabl	e and grounded?			✓	V	
11 Tower con	nments?						
Parameter		Manufacturer	Model		S/N	Cl	ient ID
Computer		Dell	D520		unknown	00	0262
DAS		Campbell	CR3000		2126		0347
Modem		Raven	H4223-C		093441166		808
olar Radiation Translator RM Young 70101-X			none	06	310		

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

The lower temperature sensor is mounted 1.75 meters above the ground and not 2 meters as stated in the QAPP. This condition was observed and reported during the two previous audit visits.

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Site ID PAL190		Tech	nician [ric Hebert	Site Visit Date	03/07/2013	3	
Do sum out of in								
<u>Documentation</u>								
Does the site have the requir				<u>quipment m</u>	anuals?	•7		***
Wind speed sensor	Yes	No	N/A	Ds	ta logger	Yes	No 🗸	N/A
Wind direction sensor	✓		H		ita logger			✓
Temperature sensor	✓		H		rip chart recorder			
Relative humidity sensor		✓			mputer	✓		
Solar radiation sensor			\vdash		odem		_ _	\Box
Surface wetness sensor			H		inter			
Wind sensor translator			✓		ro air pump	✓		
Temperature translator			✓		ter flow pump	✓		
Humidity sensor translator			<u>.</u> ✓		rge protector		✓	
Solar radiation translator	✓			UI			✓	
Tipping bucket rain gauge		V			ghtning protection device			✓
Ozone analyzer	✓				elter heater	✓		
Filter pack flow controller		✓		Sh	elter air conditioner	✓		
Filter pack MFC power supply	, 🗆	✓						
Does the site have the requ	iired a	nd me	st recent	OC docum	ents and report forms?			
	Pres					Curre	nf	
Station Log		✓			14	✓ V		
SSRF		<u> </u>				✓		
Site Ops Manual			Feb 2005		-			
HASP		<u> 21 - 21 - 21 - 21 - 21 - 21 - 21 - 21 </u>	Nov 2009			✓		
Field Ops Manual			1400 2003					
Calibration Reports	•	_ _	Electronic	C CODV				
Ozone z/s/p Control Charts				, , ,				
reventive maintenance schedu	al [
1 Is the station log properly	comp	leted	during ev	ery site visit	?			
2 Are the Site Status Report current?	t Forn	ns bein	ng comple	eted and				
3 Are the chain-of-custody f	forms	nrone	rly used t	to document	V			
sample transfer to and fro			11) useu					
4 Are ozone z/s/p control ch current?	arts p	roper	ly comple	eted and	Control charts not us	sed		
			granh ar	sketch if ne	ressary) regarding conditi	ons listed	above, o	or any o
Provide any additional explana natural or man-made, that may The site logbook is not used for re	y affec	t the	monitorii	ng paramete				
natural or man-made, that may	y affec	t the	monitorii	ng paramete				

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Site	ID	PAL190	Technic	ian	Eric Hebert	24190	Site Visit Date	03/07/2013				
	a.											
1	Has th	eration procedures e site operator atte ? If yes, when and	nded a formal		TNET training		Trained by backup o	perator				
2		e backup operator g course? If yes, w				V	Trained on site by MACTEC during site installation					
	Is the si schedul	ite visited regularly e?	on the requir	ed T		✓						
	flollowe	standard CASTN ed by the site opera	tor?	Ī	ocuur oo ocuurg	✓		N. Sa Was Indian and Ballows and Ballow				
5	Is the si the requ	ite operator(s) know uired site activities	wledgeable of, ? (including do	and cum	able to perform entation)	\						
	Are reg	ular operational Q	A/QC checks	erfo	rmed on meteor	<u>rolo</u>	gical instruments?					
QC	Check I	Performed			Frequency			Complia	ant			
Mul	- Multipoint Calibrations				Semiannually	y		V				
	ıal Insp			V	Weekly	TWALL		V				
Tra	nslator	Zero/Span Tests (c	limatronics)		N/A		PROCESSOR STREET	V				
Mar	nual Rai	in Gauge Test		✓	Weekly	termina co		✓				
Con	firm Re	easonableness of Cu	urrent Values	V	Weekly			V				
Test	Surfac	e Wetness Respons	se	✓	Weekly	eekly						
QC	Check I	rular operational O	OA/QC checks		Frequency	one	analyzer?	Complia	ant			
		Calibrations		✓	AND DESCRIPTION OF THE PARTY NAMED IN	у	ANTE IZ TINGING HOUSE, UKZEROJ II. JA					
		Zero/Span Tests		✓	SERVICE CONTRACTOR OF THE SERVICE CONTRACTOR	MWIEGO.		V				
		o/Span Tests		✓ ✓	The second section is a second second	ar annie						
		Precision Level Tes	sts	<u>v</u>		200	ALCO THE STATE OF					
		ecision Level Test		<u>~</u>	ENGLY	wmee.	973-3-1-1101-8626-y-620-96002-5625-960-57-94-9658-8-3-3					
		iagnostics Tests	:	V	STATE OF THE PARTY	ko						
		r Replacement (at r Replacement (at			N/A	NO		<u> </u>				
		e Check for Dirt/W		V	SIES Same communication of the con-	200520	BROWN HER RESERVE AND STREET	✓				
		esiccant Check	ratei	✓	365033	WEATER		_				
1	Do mul sample	ti-point calibration train including all	filters?	ıgh t	he complete		Unknown					
	complet	omatic and manual te sample train incl	luding all filter	s?	ough the	<	0005					
		automatic and ma d? If yes, how?	nual z/s/p ched	ks m	ionitored and	•	SSRF					
		additional explana nan-made, that may					y) regarding conditi	ons listed above,	, or any other features,			
	CALCAST	ample train is leak te										
		-				S-7716-70						

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Site	ID	PAL190	'echn	ician Eric Hebert	S 245	Site Visit Dat	ite	03/07/2013			
	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 corre	he Site Status Report Forms ctly?	being	completed and filed							
3	Are d	ata downloads and backups uled?	being	performed as		No longer required	ed				
4	Are g	eneral observations being m	ide ai	nd recorded? How?	✓	SSRF, logbook					
5	Are s	ite supplies on-hand and rep on?	enish	ed in a timely	✓						
6	Are s	ample flow rates recorded? I	Iow?		✓	SSRF					
7	Are s	amples sent to the lab on a ro	gulaı	schedule in a timely	✓						
8		ilters protected from contam hipping? How?	natio	on during handling	✓	Clean gloves on and off					
9		he site conditions reported retions manager or staff?	gulaı	ly to the field	✓						
QC	Check	Performed		Frequency				Compliant			
N	Iulti-p	oint MFC Calibrations	V	Semiannually	M M						
F	low Sy	stem Leak Checks	✓	Weekly							
		ack Inspection			*******						
		ate Setting Checks	3000	Weekly	BHELLING						
		Check of Flow Rate Rotomet		A CHARLES TO DESCRIPTION OF THE PROPERTY OF TH	27770						
		Filter Inspection/Replacement	0.00	As needed	D4462770						
S	ample	Line Check for Dirt/Water	V	Weekly	621						
		y additional explanation (phoman-made, that may affect t				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
CKT1	36-Sandy	Grenville-03/09/2013				
1	3/9/2013	Computer	Dell	000247	D520	unknown
2	3/9/2013	DAS	Campbell	000354	CR3000	2132
3	3/9/2013	Elevation	Elevation	None	1	None
4	3/9/2013	Filter pack flow pump	Thomas	02361	107CA18	0290006116
5	3/9/2013	Flow Rate	Apex	000468	AXMC105LPMDPCV	illegible
6	3/9/2013	Infrastructure	Infrastructure	none	none	none
7	3/9/2013	Modem	Raven	06585	H4223-C	0844381259
8	3/9/2013	Ozone	ThermoElectron Inc	000617	49i A1NAA	1009241780
9	3/9/2013	Ozone Standard	ThermoElectron Inc	000433	49i A3NAA	CM08200009
10	3/9/2013	Sample Tower	Aluma Tower	03512	Α	none
11	3/9/2013	Shelter Temperature	Campbell	none	107-L	none
12	3/9/2013	Siting Criteria	Siting Criteria	None	1	None
13	3/9/2013	Temperature	RM Young	06500	41342VC	14605
14	3/9/2013	Zero air pump	Werther International	06902	PC70/4	000829157

DAS Data Form DAS Time Max Error: 0 Mfg **Serial Number** Site **Technician** Site Visit Date Parameter Use Desc. Campbell 2132 CKT136 Sandy Grenville 03/09/2013 DAS Primary Das Date: 3 /9 /2013 **Audit Date** 3 /9 /2013 Datel **Parameter** DAS Mfg 13:32:00 13:32:00 Das Time: **Audit Time** 15510194 Tfer Desc. Source generator (D **Serial Number** Das Day: 68 **Audit Day** 68 Tfer ID 01320 **Low Channel: High Channel: Avg Diff: Max Diff: Avg Diff: Max Diff:** 1.00000 0.00000 **Slope Intercept** 0.0002 0.0003 0.0002 0.0003 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	-0.0001	0.0000	V	V	0.0001
7	0.1000	0.0998	0.1000	V	V	0.0002
7	0.3000	0.2997	0.2999	V	V	0.0002
7	0.5000	0.4996	0.4998	V	V	0.0002
7	0.7000	0.6996	0.6999	V	V	0.0003
7	0.9000	0.8995	0.8997	V	V	0.0002
7	1.0000	0.9994	0.9997	V	V	0.0003

Flow Data Form

Mfg	Serial Nun	nber Ta	Site	Teo	chnician	Site Visit I	Oate Param	eter	Owner ID
\pex	illegible		CKT136	Sa	indy Grenville	03/09/2013	Flow R	ate	000468
					Mfg	BIOS	P	arameter Flo	w Rate
					Serial Number	103471	Т	fer Desc. ne	xus
					Tfer ID	01420			
					Slope	1.	00000 Inte	ercept	0.00000
					Cert Date	6/1:	3/2012 Cor	rCoff	1.00000
					Mfg	BIOS	P	arameter Flo	ow Rate
					Serial Number	103424	Т	fer Desc. Blo	OS cell
					Tfer ID	01410			
	Slope 1.00000					00000 Inte	ercept	0.00000	
					Cert Date	1/2	7/2012 Cor	rCoff	1.00000
DAS 1:		DAS 2:			Cal Factor Z	aro	-0.0	14	
A Avg % Diff:	A Max % Di	A Avg %	Dif A Max	% Di	Cal Factor E	_	0.9		
1.27%	1.32%	THIS /		70 151	Rotometer R			.4	
JseDescription:	Test type:	Input 1/m	: Input STP:	MfcDisp.:	OutputSignal:	Output S E:	InputUnit:	OutputSignal	PctDifference:
primary	pump off	0.000	0.000	0.01	0.005	-0.03	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	1.545	1.520	1.53	1.528	1.50	1/m	1/m	-1.32%
primary	test pt 2	1.545	1.519	1.54	1.530	1.50	1/m	1/m	-1.25%
primary	test pt 3	1.545	1.519	1.54	1.528	1.50	1/m	1/m	-1.25%
	onent Leak Tes			Conditio			Status	pass	
Sensor Comp	onent Filter Azi	muth		Conditio	330 deg		Status	pass	
Sensor Comp	onent Filter Dep	oth		Conditio	1.4 cm		Status	pass	
Sensor Comp	onent Filter Pos	sition		Conditio			Status		
	onent Moisture			_	No moisture p	resent	Status		
	onent Rotomete		on		Clean and dry		Status		
	onent System M			_	See comments		Status		
	onent Tubing C			Conditio		-	Status		
					4.7 cm		Status		
Lamaan Camp	Sensor Component Filter Distance			Condition	n 4 / cm	Status	nass		

Ozone Data Form

Mfg S	erial Number Ta	Site To		echnician		Site Visit	Date Param	eter	Owner ID	
ThermoElectron Inc 1	1009241780	CKT136		Sandy Grenville		03/09/20	13 Ozone		000617	
Slope: 0.9	99158 Slope:	0.00000	Mfg		ThermoEl	ectron Inc P	arameter	zone		
•	26696 Intercept	0.00000	_	Serial N	umber	49C-7310	14-373 T	fer Desc.	Ozone transfer	
CorrCoff 0.9	99999 CorrCoff	0.00000	0 01100					,		
				Her ID		01100				
DAS 1:	DAS 2:	(D:C A M 0	/ D !	Slope			1.00121 Into	ercept	-0.18383	
A Avg % Diff: A Ma	2.4% A Avg %	6Dif A Max %	70 DI	Cert Da	te	1	1/2/2013 Con	rCoff	1.00000	
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Unit:	PctDi	fference:	
primary	1	0.10	0.2		0.		opb			
primary	2	36.89	37.				pb		-2.38%	
primary	3	51.32	51.				pb		-1.44%	
primary primary	5	80.11	80. 101		79. 100		opb opb		-0.92% -1.13%	
	<u> </u>	101.29				7.20 p	opb	nana	-1.13%	
Sensor Component	Cell B Noise		Conditio	0.8 pp	טט		Status	pass		
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	on Clean			Status	pass		
Sensor Component	Line Loss		Condition	on < 1 %			Status	pass		
Sensor Component	Offset							pass		
Sensor Component	Span		Conditio	1.008			Status	pass		
Sensor Component	Cell B Freq.		Conditio	on 85.2 k	Hz		Status	pass		
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	on 0.63 lp	om		Status	pass		
Sensor Component	Cell A Tmp.		Conditio	on 31.3 C	;		Status	pass		
Sensor Component	Cell A Pressure		Conditio	709 m	mHg		Status	pass		
Sensor Component	Cell A Noise		Conditio	on 1.2 pp	b		Status	pass		
Sensor Component	nponent Cell A Freq.			dition 78.9 kHz			Status	Fail		
Sensor Component	Cell A Flow		Conditio	0.67 lpm			Status	pass		
Sensor Component	Battery Backup		Conditio	lition N/A				pass		
Sensor Component	Zero Voltage		Condition	on N/A			Status	pass		

Temperature Data Form Serial Number Ta Site **Technician** Site Visit Date Parameter **Owner ID** Mfg Sandy Grenville RM Young 14605 CKT136 03/09/2013 Temperature 06500 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** 0.20 0.27 InputTmpRaw | InputTmpCorr.: | OutputTmpSignal: | OutputSignalEng: | OSE Unit: | Difference: UseDesc.: Test type: 0.10 0.000 0.23 primary Temp Low Range 0.18 0.4 C 25.0 C 0.09 Temp Mid Range 24.93 24.91 0.000 primary 48.7 C -0.27 primary Temp High Range 49.10 48.97 0.000 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	ck 1136	Technician Sandy	Grenville Site Visit Date 03/09/2013	
	Shelter Make	Shelter Model	Shelter Size	
	Ekto	8810 (s/n 2116-2)	640 cuft	

Sensor Component	Shelter Roof	Condition	Good	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	Poor	Status	Fail
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

Mfg	Serial Number Ta	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	Campbell none CKT136		Sandy Grenville	03/09/2013	Shelter Temperatu	ure none
DAS 1:	DAS 2:		Mfg	Extech	Parameter S	Shelter Temperatur
Abs Avg Err Abs Max Er Abs Avg Err Abs Max Er 0.42 0.42		Serial Number	H232734	Tfer Desc.	RTD	
			Tfer ID	01227		
		Slope	1.00435	Intercept	-0.08480	
			Cert Date	1/12/2013	3 CorrCoff	1.00000

UseDesc.:	Test type:	InputTmpRaw	InputTmpCorr.:	OutputTmpSignal:	OutputSignalEng:	OSE Unit:	Difference:
primary	Temp Mid Range	23.40	23.38	0.000	23.8	C	0.42
primary	Temp Mid Range	23.20	23.18	0.000	23.6	С	0.42
primary	Temp Mid Range	23.20	23.18	0.000	23.6	С	0.42

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	d Problem
Flow Rate The filter sample tubing	CKT136 has drops of mo	Sandy Grenville isture in low section		Moisture Present nelter.	Apex	3721		
Ozone This analyzer diagnostic	CKT136	Sandy Grenville the manufacturer's		Cell A Freq. value.	ThermoElectron	3464		✓

Field Systems Comments

1 Parameter: SiteOpsProcComm

The filter is changed with the sample pump running while the tower is in the down position. This may be due to a mislabeled switch for the sample pump. This condition was also reported following the previous audit visit.

2 Parameter: ShelterCleanNotes

The shelter is very clean and well organized.

3 Parameter: PollAnalyzerCom

The meteorological tower has been removed. The sample tower is in poor condition. The upper section is bent, and the lower section will not align and lock in place. Wire ties are used to secure the tower in the upright position.

4 Parameter: MetOpMaintCom

The temperature sensor has been installed at approximately 8 meters from the ground on the sample tower in a naturally aspirated shield.

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Site ID CKT136	Technician Sandy Grenville	Site Visit Date 03/0	9/2013
Site Sponsor (agency)	EPA	USGS Map	Dingus
Operating Group	private	Map Scale	
AQS#	21-175-9991	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone	QAPP Latitude	37.9211
Deposition Measurement	dry	QAPP Longitude	-83.0658
Land Use	woodland - mixed	QAPP Elevation Meters	455
Terrain	rolling	QAPP Declination	5.9
Conforms to MLM	Yes	QAPP Declination Date	2/22/2006
Site Telephone	(606) 522-3560	Audit Latitude	37.92146
Site Address 1	7687 Highway 437	Audit Longitude	-83.066295
Site Address 2		Audit Elevation	376
County	Morgan	Audit Declination	-6.1
City, State	West Liberty, KY	Present	
Zip Code	41472	Fire Extinguisher 🔽	Inspected May 1993
Time Zone	Eastern	First Aid Kit	
Primary Operator	Carolyn Montgomery	Safety Glasses	
Primary Op. Phone #	(606) 522-4318	Safety Hard Hat	
Primary Op. E-mail		Climbing Belt	
Backup Operator	Mason Montgomery	Security Fence	
Backup Op. Phone #	(606) 522-4318	Secure Shelter	
Backup Op. E-mail		Stable Entry Step	
Shelter Working Room ✓	Make Ekto M	odel 8810 (s/n 2116-2)	Shelter Size 640 cuft
	Notes The shelter is very clean and v	vell organized.	THE ALL PANCES TAKES TO SHEET THE STATE OF T
	Notes		
onto re turn rie dirt ro	I-64 in Morehead go south on route 519 toute 460. Continue approximately 1 mile ght onto route 437. Continue approximate ad at the top of the hill before the closed grigography 1/2 mile on the left.	and turn left onto route 172. cely 8 miles staying on 437. The	ontinue approximately 8 miles and then e road will climb a hill, turn left onto a

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Site ID CKT136 Technician Sandy Grenville Site Visit Date 03/09/2013

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		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	27	
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 Commen

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Site	ID	CKT136	Technician Sandy Grenville		Site Visit Date 03/09/2013
1		ind speed and dire	ction sensors sited so as to avoid ructions?	✓	N/A
2	(i.e. wi horizo	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 wind)	✓	N/A
3		e tower and sensor		✓	N/A
4			elds pointed north or positioned to ces such as buildings, walls, etc?	✓	
5	conditation surface	ions? (i.e. ground l	I sensors sited to avoid unnatural below sensors should be natural loped. Ridges, hollows, and areas of avoided)	V	
6	Is the	solar radiation sen	sor plumb?	~	N/A
7	Is it sit light?	ted to avoid shadin	ng, or any artificial or reflected	✓	N/A
8	Is the	rain gauge plumb?		~	N/A
9	Is it sit towers		ring effects from buildings, trees,	✓	N/A
10		surface wetness ser	nsor sited with the grid surface	✓	N/A
11	Is it in	nclined approxima	tely 30 degrees?	✓	N/A
			nation (photograph or sketch if neco nay affect the monitoring parameter		y) regarding conditions listed above, or any other features,

		the state of the state of		
Field	Systa	eme	ata	Horm
I lelu	Dysu		rata	LUIII

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Site	e ID	CKT136	Technician	Sandy Grenville		Site Visit Date	03/09/2013		
	Da all 41		4.1		✓	Temperature only			
1		ne meterological senso n, and well maintaine		intact, in good		remperature only			
2	Are all t	he meteorological sen g data?	sors operationa	l online, and	V	Temperature only			
3	Are the	shields for the temper	rature and RH s	ensors clean?	✓				
4	Are the	aspirated motors wor	king?		✓	N/A			
5	Is the so scratche	lar radiation sensor's es?	lens clean and	free of	✓	N/A			
6	Is the su	rface wetness sensor	grid clean and u	ındamaged?	✓	N/A			
7		sensor signal and pown, and well maintaine		, in good	✓				
8		sensor signal and pow e elements and well m		ctions protected	V				Signature
Par	rameter	M	anufacturer	Model		S/N	C	Client ID	
Ter	nperature	RI	M Young	41342VC	J. Styles	14605	0	6500	

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

The temperature sensor has been installed at approximately 8 meters from the ground on the sample tower in a naturally aspirated shield.

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Site	ID	CKT136	Technician S	Sandy Grenville	2954	Site Visit Date 03/09/201	13		
	Siting C	riteria: Are the po	ollutant analyzers an	d deposition eq	uipı	ment sited in accordance wit	th 40 CFR 5	8, Appendix E	
1		ample inlets have cted airflow?	at least a 270 degree	arc of	>				
2	Are the sample inlets 3 - 15 meters above the ground?								
3	Are the sample inlets > 1 meter from any major obstruction and 20 meters from trees? Pollutant analyzers and deposition equipment operations an								
	Pollutan	t analyzers and de	eposition equipment	operations and	1000	<u>intenance</u>			
1	Do the analyzers and equipment appear to be in good condition and well maintained?			n good	✓				
2	Are the analyzers and monitors operational, on-line, and reporting data?				✓				
3	Describe ozone sample tube.					1/4 teflon by 15 meters			
4	Describe dry dep sample tube.					3/8 teflon by 12 meters			
5		ne filters used in t location)	the ozone sample line	? (if yes	✓	At inlet only			
6	Are sam		ee of kinks, moisture,	and	✓				
7	Is the ze	ro air supply desid	ccant unsaturated?		✓				
8	Are ther	e moisture traps i	n the sample lines?		✓				
9	Is there a rotometer in the dry deposition filter line, and is it clean?					Clean and dry			
Par	ameter		Manufacturer	Model		S/N	Cli	ent ID	
San	nple Towe	r	Aluma Tower	A		none	035	12	
Ozo	Ozone ThermoElectron Inc 49i A1NAA				1009241780	000	617		
Filte	er pack flo	w pump	Thomas	107CA18		0290006116 02361			
Zero	Zero air pump Werther International PC70/4				000829157	069	02		

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

The meteorological tower has been removed. The sample tower is in poor condition. The upper section is bent, and the lower section will

The meteorological tower has been removed. The sample tower is in poor condition. The upper section is bent, and the lower section will not align and lock in place. Wire ties are used to secure the tower in the upright position.

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Site	e ID	CKT136	Technician	Sandy Grenville		Site Visit Date	03/09/2013		
	DAS, se	nsor translators, an	d peripheral equi	pment operation	<u>s ai</u>	nd maintenance			
1		OAS instruments ap intained?	pear to be in good	l condition and	✓				
2		the components of the backup, etc)	ne DAS operation	al? (printers,	✓				
3		nalyzer and sensor g protection circuit		through	✓	Met sensors only			
4		signal connections pintained?	protected from the	e weather and	✓				
5	Are the	signal leads connect	ed to the correct	DAS channel?	✓				
6	Are the grounde	DAS, sensor transla	tors, and shelter		✓				
7	Does the	e instrument shelter	have a stable pov	ver source?	✓				
8	Is the in	strument shelter ter	nperature control	lled?	✓				
9		et tower stable and				Stable	Gro	ınded	
10 11		ample tower stable a comments?	na grounaea:			V)		
Pa	rameter		Manufacturer	Model		S/N		Clic	ent ID
100	mputer		Dell	D520		unknown		000	Market Street Street Street
DA	COLUMN TO SERVICE SERV		Campbell Raven	CR3000	2570 N	2132 0844381259		000	SECTION OF THE SECTIO
Pro	ovide any	additional explanat nan-made, that may	ion (photograph o	or sketch if nece			ions listed abov		

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Site ID CKT136		Fechnic	ian	Sandy Grenville	Site Visit Date	03/09/2013	3	
<u>Documentation</u>								
Does the site have the require								
Wind speed sensor	Yes	No	N/A	A Data logg	o r	Yes	No 🗸	N/A
Wind direction sensor				Data logg				✓
Temperature sensor	$\bar{\Box}$	_ _			t recorder			
Relative humidity sensor				Computer		✓		
Solar radiation sensor			✓	Modem		~		
Surface wetness sensor			V	Printer				V
Wind sensor translator			V	Zero air p	ump		V	
Temperature translator			V	Filter flov	NOT THE REPORT OF THE PARTY OF		✓	
Humidity sensor translator			V	Surge pro	tector			✓
Solar radiation translator			V	UPS				✓
Tipping bucket rain gauge			✓	Lightning	protection device			✓
Ozone analyzer		✓		Shelter he	ater		~	
Filter pack flow controller	✓			Shelter ai	r conditioner		✓	
Filter pack MFC power supply			V					
Does the site have the requi	red an	d most i	recei	nt QC documents and	l report forms?			
	Presei	nt				Curre	nt	
Station Log	✓		Electric St.			✓		
SSRF	V					✓		
Site Ops Manual								
HASP	✓	200000	v 200	01		✓		
Field Ops Manual	✓	2000000	t 200)1				
Calibration Reports	✓	Ele	ctron	nic copy		V		
Ozone z/s/p Control Charts								
Preventive maintenance schedu	l		272.74.20					
1 Is the station log properly	comple	tod dur	ina a	overy site visit?				
1 15 the station log property	compic	ica aur	mg (every site visit:				
2 Are the Site Status Report	Forms	being c	comp	oleted and				
current?								
3 Are the chain-of-custody for sample transfer to and from		roperly	used	d to document 🔽				
4 Are ozone z/s/p control chacurrent?	rts pro	perly c	omp	leted and	Control charts not us	sed		
Provide any additional explana natural or man-made, that may					regarding conditi	ions listed a	above,	or any o
natural of man-made, that may	arrect	the mol	ntof	ing parameters:				

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Site ID	CKT136 T	echnician S	andy Grenville	Site Visit Date 03/09/	2013		
G!4.							
1 Has	operation procedures the site operator attended a form rse? If yes, when and who insti		NET training	Trained on-site during site installation			
2 Has	the backup operator attended ning course? If yes, when and	d a formal CA		Trained on-site during site installation			
3 Is the sched	e site visited regularly on the r lule?	required Tue	sday]			
	the standard CASTNET operatived by the site operator?	ational proce	dures being				
5 Is the the r	e site operator(s) knowledgeab equired site activities? (includ	ble of, and ab ling documen	le to perform tation)				
Are i	regular operational QA/QC ch	necks perforn	ned on meteoro	ogical instruments?			
QC Chec	k Performed		Frequency		Compliant		
Multipoi	nt Calibrations	✓	Semiannually				
Visual In	spections	✓	N/A				
Translate	or Zero/Span Tests (climatron		N/A				
Manual I	Rain Gauge Test	~	N/A				
Confirm	Reasonableness of Current Va		N/A				
Test Surf	ace Wetness Response	✓	N/A				
<u>Are i</u>	regular operational QA/QC ch	necks perforn	ned on the ozon	e analyzer?			
QC Chec	k Performed		Frequency		Compliant		
	k Performed int Calibrations	~	Frequency Semiannually		✓		
Multi-po		✓					
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F-02058-1500-S9-rev001

Site	II	D	CKT136	Tec	hnician	Sandy Grenville		Site Visit Date	03/09/2013		
	S	ite one	eration proced	ures							
1	Is	s the fi	lter pack bein	g changed every	y Tuesd	ay as scheduled?	✓	Filter changed vario	ous times		
2		re the		eport Forms bei	ng com	pleted and filed	✓				
3		re dat		and backups bei	ng perf	formed as		No longer required			
4	4 Are general observations being made and recorded? How?			✓	SSRF, logbook						
5 Are site supplies on-hand and replenished in a timely fashion?			V								
6	Are sample flow rates recorded? How?				✓	SSRF, logbook, cal	l-in				
7		re san		he lab on a regu	lar sch	edule in a timely	✓				
8 Are filters protected from contamination during handling and shipping? How?				✓	Clean gloves on and off						
9			site condition ons manager o	s reported regu or staff?	larly to	the field	✓				
QC (Cl	heck P	erformed		Fre	equency			Compliant		
M	Iu	lti-poi	nt MFC Calib	rations	✓ Ser	niannually	26		V		
F	lo	w Syst	em Leak Che	cks	✓ We	ekly			✓		
F	ilt	er Pac	k Inspection								
F	lo	w Rate	e Setting Chec	ks	✓ We	ekly			✓		
V	isı	ual Ch	eck of Flow R	late Rotometer	✓ We	ekly	FF 420		✓		
Ir	ı-l	line Fil	ter Inspection	/Replacement	SALUTONIC CONTRACTOR	niannually	01037733		✓		
S	an	nple L	ine Check for	Dirt/Water	We	ekly	Take 1940		V		
		Maria May 274 2 12			200 CO. T. C.	or sketch if necess ring parameters:	ary) regarding conditi	ons listed above, or ar	ny other features,	
Γhe fi	ilte	er is cha	anged with the	sample pump ru	nning w	hile the tower is in	the	down position. This	may be due to a mislat	peled switch for the	
samp	le	pump.	This condition	was also reporte	ed follov	ving the previous a	udit	visit.			



Data Compiled: 5/25/2013 3:48:13 PM

SiteVisitDateSiteTechnician02/13/2013CVL151Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.16	c	P
2	Temperature max error	P	4	0.5	6	0.38	c	P
3	Ozone Slope	P	0	1.1	4	1.00458	unitless	P
4	Ozone Intercept	P	0	5	4	-0.04842	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	0.5	%	P
7	Ozone % difference max	P	7	10	4	0.6	%	P
8	Flow Rate average % difference	P	10	5	6	1.53	%	P
9	Flow Rate max % difference	P	10	5	6	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	3	0.06	c	P
13	Shelter Temperature max error	P	5	1	3	0.10	c	P

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Moisture Present CommentCode 72

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

Field Systems Comments

1 Parameter: DocumentationCo

The site operations manual does not apply to the currently installed instrumentation.

2 Parameter: SitingCriteriaCom

The site is located in a Pine forest on USFS managed land. The tree line has been cut back to at least 17 meters from the site.

3 Parameter: ShelterCleanNotes

The shelter is somewhat cluttered. The floor and lower walls are beginning to rot.

Data Compiled: 5/25/2013 4:35:44 PM

SiteVisitDate	Site	Technician
02/14/2013	CAD150	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.08	c	P
2	Temperature max error	P	4	0.5	6	0.13	c	P
3	Ozone Slope	P	0	1.1	4	0.98806	unitless	P
4	Ozone Intercept	P	0	5	4	0.40998	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	1.0	%	P
8	Flow Rate average % difference	P	10	5	6	2.02	%	P
9	Flow Rate max % difference	P	10	5	6	2.15	%	P
10	DAS Time maximum error	P	0	5	1	0.05	min	P
11	DAS Voltage average error	P	7	0.003	28	0.0002	V	P
12	Shelter Temperature average error	P	5	1	3	0.07	c	P
13	Shelter Temperature max error	P	5	1	3	0.14	c	P

Field Systems Comments

1 Parameter: SiteOpsProcedures

The ozone analyzer sample train is leak checked by capping the inlet every two weeks.

2 Parameter: ShelterCleanNotes

The bottom of the shelter walls are very badly deteriorated. The floor and ceiling have been repaired.

3 Parameter: PollAnalyzerCom

Both the filter pack flow tubing and ozone sample line fold tightly against the tower hinge when the tower is lowered. This could eventually cause damage to the tubing.

Data Compiled:

5/27/2013 3:04:11 PM

SiteVisitDate	Site	Technician
02/15/2013	ALC188	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	3	0.31	c	P
2	Temperature max error	P	4	0.5	3	0.36	c	P
3	Ozone Slope	P	0	1.1	4	1.01151	unitless	P
4	Ozone Intercept	P	0	5	4	-0.34553	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
6	Ozone % difference avg	P	7	10	4	0.8	%	P
7	Ozone % difference max	P	7	10	4	1.1	%	P
8	Flow Rate average % difference	P	10	5	2	3.75	%	P
9	Flow Rate max % difference	P	10	5	2	3.87	%	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	3	0.43	c	P
13	Shelter Temperature max error	P	5	1	3	0.93	c	P

02/15/2013

ALC188

Sandy Grenville

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator uses the same gloves to remove and install the filter pack.

2 Parameter: SitingCriteriaCom

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

3 Parameter: ShelterCleanNotes

The site is clean and neat.

4 Parameter: PollAnalyzerCom

The site was revisited on 3/3/2013 to complete the ozone performance evaluation. The level 2 ozone standard malfunctioned during the audit visit performed on 2/15/213.

5 Parameter: MetSensorComme

The temperature shield is pointing south and not north as stated in the QAPP. This condition was observed and reported during the previous site audit visits in February 2009 and 2011.

Data Compiled:

5/27/2013 2:50:58 PM

SiteVisitDate	Site	Technician
02/17/2013	SUM156	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.98315	unitless	P
2	Ozone Intercept	P	0	5	4	-0.12501	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99995	unitless	P
4	Ozone % difference avg	P	7	10	4	1.7	%	P
5	Ozone % difference max	P	7	10	4	2.4	%	P

Data Compiled:

5/27/2013 1:59:56 PM

SiteVisitDate	Site	Technician
02/28/2013	SND152	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00643	unitless	P
2	Ozone Intercept	P	0	5	4	-0.28276	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
4	Ozone % difference avg	P	7	10	4	0.2	%	P
5	Ozone % difference max	P	7	10	4	0.4	%	P

Data Compiled: 5/27/2013 1:47:10 PM

SiteVisitDate	Site	Technician
02/28/2013	GAS153	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.01205	unitless	P
2	Ozone Intercept	P	0	5	4	-0.25812	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99998	unitless	P
4	Ozone % difference avg	P	7	10	4	1.0	%	P
5	Ozone % difference max	P	7	10	4	1.8	%	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

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

Data Compiled:

5/27/2013 1:33:00 PM

SiteVisitDate	Site	Technicia	n			
02/20/2013	IRL141	Sandy Gren	ille	;		
Line Audited	l Parameter	DA	3	Ch. #	Criteria +/-	

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00192	unitless	P
2	Ozone Intercept	P	0	5	4	-0.84313	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99996	unitless	P
4	Ozone % difference avg	P	7	10	4	0.8	%	P
5	Ozone % difference max	P	7	10	4	1.1	%	P

MAC426

Data Compiled: 5/2

03/01/2013

5/27/2013 3:35:21 PM

SiteVisitDate Site Technician

Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	3	0.33	c	P
2	Temperature2meter max error	P	5	0.5	3	0.43	c	P
3	Wind Speed average error below 5m/s in m/s	P	3	0.5	4	0.01	m/s	P
4	Wind Speed max error below 5m/s in m/s	P	3	0.5	4	0.03	m/s	P
5	Wind Speed average % difference above 5 m/s	P	3	5	4	0.1	%	P
6	Wind Speed max % difference above 5 m/s	P	3	5	4	0.3	%	P
7	Wind Speed Torque average error	P	3	0.5	1	0.20	g-cm	P
8	Wind Speed Torque max error	P	3	0.5	1	0.2	g-cm	P
9	Wind Direction Input Deg True average error (de	P	2	5	10	1.4	degrees	P
10	Wind Direction Input Deg True max error (deg)	P	2	5	10	2	degrees	P
11	Wind Direction Linearity average error (deg)	P	2	5	16	1.5	degrees	P
12	Wind Direction Linearity max error (deg)	P	2	5	16	5	degrees	P
13	Wind Direction Torque average error	P	2	20	1	6	g-cm	P
14	Wind Direction Torque max error	P	2	20	1	7	g-cm	P
15	Temperature average error	P	4	0.5	3	0.31	c	P
16	Temperature max error	P	4	0.5	3	0.34	c	P
17	Relative Humidity average above 85%	P	6	10	2	2.2	%	P
18	Relative Humidity max above 85%	P	6	10	2	2.2	%	P
19	Relative Humidity average below 85%	P	6	10	4	14.9	%	Fail
20	Relative Humidity max below 85%	P	6	10	4	27.4	%	Fail
21	Solar Radiation % diff of avg	P	3	10	18	6.8	%	P
22	Solar Radiation % diff of max STD value	P	3	10	18	9.2	%	P
23	Precipitation average % difference	P	1	10	2	6.0	%	P
24	Precipitation max % difference	P	1	10	2	8.0	%	P
25	Ozone Slope	P	0	1.1	4	1.03139	unitless	P
26	Ozone Intercept	P	0	5	4	1.44173	ppb	P
27	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
28	Ozone % difference avg	P	7	10	4	5.4	%	P
29	Ozone % difference max	P	7	10	4	6.7	%	P
30	Flow Rate average % difference	P	10	5	2	0.84	%	P
31	Flow Rate max % difference	P	10	5	2	0.94	%	P
32	DAS Time maximum error	P	0	5	1	0.45	min	P
33	DAS Voltage average error	P	13	0.003	21	0.0001	V	P
34	DAS Voltage average error	P	8	0.003	21	0.0002	V	P

SiteVisitDate	Site	Technician		-			
3/01/2013	MAC426	Eric Hebert					
35 Shelter	Temperature average error	P	5	1	6	0.98	c
36 Shelter	Temperature max error	P	5	1	6	1.4	c

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Filter Position CommentCode 202

The filter attachment plate is mounted too high in the enclosure resulting in the filter being recessed in the enclosure and not exposed 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.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operators are very knowledgeable with air quality monitoring. They are doing a very good job with site activities and filter handling.

2 Parameter: SitingCriteriaCom

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

3 Parameter: ShelterCleanNotes

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

Data Compiled: 5/26/2013 4:28:14 PM

SiteVisitDate Site Technician

03/03/2013 CHE185 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	3	0.15	c	P
2	Temperature2meter max error	P	5	0.5	3	0.17	c	P
3	Wind Speed average error below 5m/s in m/s	P	3	0.5	8	0.12	m/s	P
4	Wind Speed max error below 5m/s in m/s	P	3	0.5	8	0.30	m/s	P
5	Wind Speed average % difference above 5 m/s	P	3	5	8	0.5	%	P
6	Wind Speed max % difference above 5 m/s	P	3	5	8	0.7	%	P
7	Wind Speed Torque average error	P	3	0.5	1	1.00	g-cm	Fail
8	Wind Speed Torque max error	P	3	0.5	1	1.1	g-cm	Fail
9	Wind Direction Input Deg True average error (de	P	2	5	8	0.5	degrees	P
10	Wind Direction Input Deg True max error (deg)	P	2	5	8	2	degrees	P
11	Wind Direction Linearity average error (deg)	P	2	5	16	1.0	degrees	P
12	Wind Direction Linearity max error (deg)	P	2	5	16	3	degrees	P
13	Wind Direction Torque average error	P	2	20	1	22	g-cm	Fail
14	Wind Direction Torque max error	P	2	20	1	30	g-cm	Fail
15	Temperature average error	P	4	0.5	3	0.13	c	P
16	Temperature max error	P	4	0.5	3	0.24	c	P
17	Relative Humidity average above 85%	P	6	10	1	1.5	%	P
18	Relative Humidity max above 85%	P	6	10	1	1.5	%	P
19	Relative Humidity average below 85%	P	6	10	2	7.2	%	P
20	Relative Humidity max below 85%	P	6	10	2	8.1	%	P
21	Solar Radiation % diff of avg	P	9	10	10	1.41	%	P
22	Solar Radiation % diff of max STD value	P	9	10	10	1.7	%	P
23	Precipitation average % difference	P	1	10	2	2.0	%	P
24	Precipitation max % difference	P	1	10	2	4.0	%	P
25	Ozone Slope	P	0	1.1	4	0.99014	unitless	P
26	Ozone Intercept	P	0	5	4	2.2714	ppb	P
27	Ozone correlation	P	0	0.995	4	0.99990	unitless	P
28	Ozone % difference avg	P	7	10	4	3.4	%	P
29	Ozone % difference max	P	7	10	4	6.5	%	P
30	Flow Rate average % difference	P	10	5	2	1.38	%	P
31	Flow Rate max % difference	P	10	5	2	1.65	%	P
32	DAS Time maximum error	P	0	5	1	0.03	min	P
33	DAS Voltage average error	P	6	0.003	7	0.0010	V	P
34	Surface Wetness Sensitivity test on	P	9	10000	1	230	k ohms	P

SiteV	isitDate	Site	Technician						
03/03/2	2013	CHE185	Eric Hebert						
35	Surface V	Vetness Sensitivity test off	P	9	10000	1	240	k ohms	P
36	Surface V	Vetness Response	P	9	0.5	1	1.05		P
37	Shelter T	emperature average error	P	5	1	9	0.58	c	P
38	Shelter T	emperature max error	P	5	1	9	0.82	c	P

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.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site is well maintained and operated. Very good sample change out procedures are being used by the site operator.

2 Parameter: SitingCriteriaCom

The site is located in a pasture with grazing cattle sometimes as close as 5 meters.

3 Parameter: ShelterCleanNotes

The shelter is in very good condition, clean, neat, and well organized.

4 Parameter: PollAnalyzerCom

The ozone analyzer response to audit gas was observed to be very slow. This was discussed with the site operator, and it was recommended that the monitor averaging interval be changed to a shorter period. It was also suggested that the sample line be changed from 3/8 inch tubing to 1/4 inch tubing.

Data Compiled: 5/26/2013 5:11:24 PM

SiteVisitDate	Site	Technician
03/05/2013	CDZ171	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.13	c	P
2	Temperature max error	P	4	0.5	6	0.21	c	P
3	Ozone Slope	P	0	1.1	4	1.01314	unitless	P
4	Ozone Intercept	P	0	5	4	-1.30738	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99996	unitless	P
6	Ozone % difference avg	P	7	10	4	0.7	%	P
7	Ozone % difference max	P	7	10	4	1.3	%	P
8	Flow Rate average % difference	P	10	5	3	2.95	%	P
9	Flow Rate max % difference	P	10	5	3	3.18	%	P
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	35	0.0001	V	P
12	Shelter Temperature average error	P	5	1	3	1.1	c	Fail
13	Shelter Temperature max error	P	5	1	3	1.23	c	Fail

Field Systems Comments

1 Parameter: SiteOpsProcComm

Tower is lowered and filter changed without downing ozone channel.

2 Parameter: SitingCriteriaCom

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

3 Parameter: ShelterCleanNotes

The shelter floor and door have been repaired since the previous audit visit. The shelter is still cluttered and dirty.

4 Parameter: MetSensorComme

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

Data Compiled: 5/26/2013 10:36:19 PM

SiteVisitDate Site Technician

03/06/2013 BBE401 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	0.01	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	0.2	%	P
4	Wind Speed max % difference above 5 m/s	P	3	5	4	0.4	%	P
5	Wind Speed Torque average error	P	3	0.5	1	0.25	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	12	1.8	degrees	P
8	Wind Direction Input Deg True max error (deg)	P	2	5	12	3	degrees	P
9	Wind Direction Linearity average error (deg)	P	2	5	24	0.8	degrees	P
10	Wind Direction Linearity max error (deg)	P	2	5	24	2	degrees	P
11	Wind Direction Torque average error	P	2	20	1	10	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	9	0.16	c	P
14	Temperature max error	P	4	0.5	9	0.22	c	P
15	Relative Humidity average above 85%	P	6	10	2	2.0	%	P
16	Relative Humidity max above 85%	P	6	10	2	2.0	%	P
17	Relative Humidity average below 85%	P	6	10	4	1.8	%	P
18	Relative Humidity max below 85%	P	6	10	4	2.5	%	P
19	Solar Radiation % diff of avg	P	9	10	15	8.95	%	P
20	Solar Radiation % diff of max STD value	P	9	10	15	8.7	%	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	0.98260	unitless	P
24	Ozone Intercept	P	0	5	4	2.099	ppb	P
25	Ozone correlation	P	0	0.995	4	0.99991	unitless	P
26	Ozone % difference avg	P	7	10	4	2.0	%	P
27	Ozone % difference max	P	7	10	4	3.5	%	P
28	Flow Rate average % difference	P	10	5	6	0.43	%	P
29	Flow Rate max % difference	P	10	5	6	0.70	%	P
30	DAS Time maximum error	P	0	5	1	0.02	min	P
31	DAS Voltage average error	P	10	0.003	35	0.0000	V	P
32	DAS Voltage average error	P	2	0.003	35	0.0000	V	P
33	Shelter Temperature average error	P	5	1	6	0.44	c	P
34	Shelter Temperature max error	P	5	1	6	0.61	c	P

SiteVisitDate Site

Technician

03/06/2013

BBE401

Eric Hebert

Field Systems Comments

1 Parameter: SiteOpsProcedures

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

2 Parameter: ShelterCleanNotes

The shelter is clean, neat, and well organized.

3 Parameter: MetOpMaintCom

The signal cables are showing signs of wear. The precipitation gage signal cable is in poor condition.

Data Compiled: 5/27/2013 9:39:16 AM

SiteVisitDate	Site	Technician			
03/06/2013	MCK131	Sandy Grenville			

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.08	c	P
2	Temperature max error	P	4	0.5	6	0.12	c	P
3	Ozone Slope	P	0	1.1	4	1.016	unitless	P
4	Ozone Intercept	P	0	5	4	-0.62386	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	0.5	%	P
7	Ozone % difference max	P	7	10	4	1.2	%	P
8	Flow Rate average % difference	P	10	5	3	0.24	%	P
9	Flow Rate max % difference	P	10	5	3	0.40	%	P
10	DAS Time maximum error	P	0	5	1	0.02	min	P
11	DAS Voltage average error	P	7	0.003	7	0.0001	V	P
12	Shelter Temperature average error	P	5	1	3	1.53	c	Fail
13	Shelter Temperature max error	P	5	1	3	1.7	c	Fail

Field Systems Comments

1 Parameter: ShelterCleanNotes

The shelter is neat, clean, and well organized.

Data Compiled: 5/27/2013 10:48:55 AM

SiteVisitDate	Site	Technician			
03/06/2013	MCK231	Sandy Grenville			

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	6	0.15	c	P
2	Temperature max error	P	4	0.5	6	0.30	c	P
3	Ozone Slope	P	0	1.1	4	0.86335	unitless	Fail
4	Ozone Intercept	P	0	5	4	-1.19057	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99997	unitless	P
6	Ozone % difference avg	P	7	10	4	15.7	%	Fail
7	Ozone % difference max	P	7	10	4	17.1	%	Fail
8	Flow Rate average % difference	P	10	5	4	2.81	%	P
9	Flow Rate max % difference	P	10	5	4	2.98	%	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	3	1.11	c	Fail
13	Shelter Temperature max error	P	5	1	3	1.25	c	Fail

Field Systems Comments

1 Parameter: ShelterCleanNotes

The site instruments are located in the MCK131 shelter. The same site operator is servicing both sites.

2 Parameter: PollAnalyzerCom

The ozone analyzer failed the performance evaluation. The field operations staff at AMEC were aware of the problem and had sent a replacement ozone monitor to the site operator for installation. The site operator had not been informed of the problem and had not replaced the site monitor prior to the audit visit. The site will be revisited for an ozone PE following the replacement of the site ozone analyzer.

PAL190

Data Compiled:

03/07/2013

5/27/2013 8:55:27 AM

SiteVisitDate Site Technician

Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	3	0.04	c	P
2	Temperature2meter max error	P	5	0.5	3	0.07	c	P
3	Wind Speed average error below 5m/s in m/s	P	3	0.5	8	0.05	m/s	P
4	Wind Speed max error below 5m/s in m/s	P	3	0.5	8	0.20	m/s	P
5	Wind Speed average % difference above 5 m/s	P	3	5	8	0.0	%	P
6	Wind Speed max % difference above 5 m/s	P	3	5	8	0.0	%	P
7	Wind Speed Torque average error	P	3	0.5	1	0.35	g-cm	P
8	Wind Speed Torque max error	P	3	0.5	1	0.4	g-cm	P
9	Wind Direction Input Deg True average error (de	P	2	5	8	1.2	degrees	P
10	Wind Direction Input Deg True max error (deg)	P	2	5	8	3	degrees	P
11	Wind Direction Linearity average error (deg)	P	2	5	16	1.0	degrees	P
12	Wind Direction Linearity max error (deg)	P	2	5	16	2	degrees	P
13	Wind Direction Torque average error	P	2	20	1	15	g-cm	P
14	Wind Direction Torque max error	P	2	20	1	18	g-cm	P
15	Temperature average error	P	4	0.5	9	0.04	c	P
16	Temperature max error	P	4	0.5	9	0.07	c	P
17	Relative Humidity average above 85%	P	6	10	2	9.1	%	P
18	Relative Humidity max above 85%	P	6	10	2	9.1	%	P
19	Relative Humidity average below 85%	P	6	10	4	3.3	%	P
20	Relative Humidity max below 85%	P	6	10	4	4.9	%	P
21	Solar Radiation % diff of avg	P	9	10	12	1.52	%	P
22	Solar Radiation % diff of max STD value	P	9	10	12	0.90	%	P
23	Precipitation average % difference	P	1	10	2	1.0	%	P
24	Precipitation max % difference	P	1	10	2	2.0	%	P
25	Ozone Slope	P	0	1.1	4	0.98874	unitless	P
26	Ozone Intercept	P	0	5	4	0.63510	ppb	P
27	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
28	Ozone % difference avg	P	7	10	4	0.5	%	P
29	Ozone % difference max	P	7	10	4	0.7	%	P
30	Flow Rate average % difference	P	10	5	3	1.33	%	P
31	Flow Rate max % difference	P	10	5	3	1.43	%	P
32	DAS Time maximum error	P	0	5	1	0.00	min	P
33	DAS Voltage average error	P	7	0.003	35	0.0000	V	P
34	Surface Wetness Sensitivity test on	P	12	10000	1	210	k ohms	P

SiteVisitDa	ate Site	Technician		_				
03/07/2013	PAL190	Eric Hebert		_				
35 Surfa	ce Wetness Sensitivity test off	P	12	10000	1	220	k ohms	P
36 Surfa	ce Wetness Response	P	12	0.5	1	1.02		P
37 Shelto	er Temperature average error	P	5	1	9	0.73	c	P
38 Shelte	er Temperature max error	P	5	1	9	0.77	c	P

Field Systems Comments

1 Parameter: DasComments

The lower temperature sensor is mounted 1.75 meters above the ground and not 2 meters as stated in the QAPP. This condition was observed and reported during the two previous audit visits.

2 Parameter: SiteOpsProcedures

The ozone sample train is leak tested every two weeks.

3 Parameter: DocumentationCo

The site logbook is not used for routine weekly site visits.

4 Parameter: SitingCriteriaCom

The site is located 40 km southeast of Amarillo TX which has a population of approximately 178,000.

5 Parameter: ShelterCleanNotes

New shelter, in very good condition.

6 Parameter: MetSensorComme

The surface wetness sensor grid is inclined approximately 45 degrees and is oriented to the northwest.

7 Parameter: MetOpMaintCom

Temperature and 2 meter temperature blowers are functioning. The blower status can be observed on the computer screen when testing the blowers, however the data status cannot be verified in the DAS.

Data Compiled:

5/27/2013 1:12:17 PM

SiteVisitDate	Site	Technician			
03/09/2013	CKT136	Sandy Grenville			

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	3	0.20	c	P
2	Temperature max error	P	4	0.5	3	0.27	c	P
3	Ozone Slope	P	0	1.1	4	0.99158	unitless	P
4	Ozone Intercept	P	0	5	4	-0.26696	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	1.5	%	P
7	Ozone % difference max	P	7	10	4	2.4	%	P
8	Flow Rate average % difference	P	10	5	2	1.27	%	P
9	Flow Rate max % difference	P	10	5	2	1.32	%	P
10	DAS Time maximum error	P	0	5	1	0.00	min	P
11	DAS Voltage average error	P	7	0.003	14	0.0002	V	P
12	Shelter Temperature average error	P	5	1	9	0.42	c	P
13	Shelter Temperature max error	P	5	1	9	0.42	c	P

03/09/2013

CKT136

Sandy Grenville

Field Performance Comments

1 Parameter: Flow Rate SensorComponent: Moisture Present CommentCode 72

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

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

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

Field Systems Comments

1 Parameter: SiteOpsProcComm

The filter is changed with the sample pump running while the tower is in the down position. This may be due to a mislabeled switch for the sample pump. This condition was also reported following the previous audit visit.

2 Parameter: ShelterCleanNotes

The shelter is very clean and well organized.

3 Parameter: PollAnalyzerCom

The meteorological tower has been removed. The sample tower is in poor condition. The upper section is bent, and the lower section will not align and lock in place. Wire ties are used to secure the tower in the upright position.

4 Parameter: MetOpMaintCom

The temperature sensor has been installed at approximately 8 meters from the ground on the sample tower in a naturally aspirated shield.

Data Compiled:

SiteVisitDate Site

2 Ozone Intercept

3 Ozone correlation

4 Ozone % difference avg

5 Ozone % difference max

5/27/2013 7:51:17 PM

03/29/2	2013	COW137	Sandy Grenville	e					
Line	Audite	d Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone S	lope	P	0	1.1	4	1.02623	unitless	P

0

0

7

7

5

10

10

0.995

-0.19778

0.99999

2.5

2.8

4

4

4

Technician

P

P

P

P

P

P

P

P

ppb

%

%

unitless

EEMS Spot Report

Data Compiled:

5/27/2013 8:04:59 PM

SiteVisitDate	Site	Technician
03/30/2013	ESP127	Sandy Grenville
Line Audited	d Parameter	DAS Ch. # Criteria +/- Counts QaResult

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00977	unitless	P
2	Ozone Intercept	P	0	5	4	-0.33906	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
4	Ozone % difference avg	P	7	10	4	0.6	%	P
5	Ozone % difference max	P	7	10	4	0.6	%	P

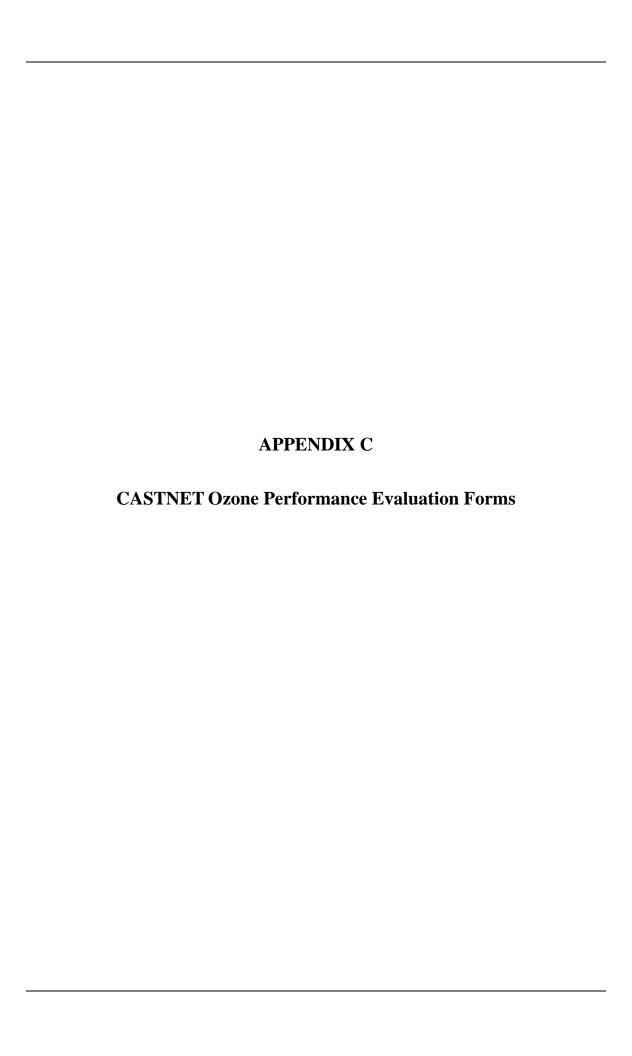
EEMS Spot Report

Data Compiled:

5/27/2013 8:19:25 PM

SiteVisitDate	Site	Technician
03/30/2013	SPD111	Sandy Grenville

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.0111	unitless	P
2	Ozone Intercept	P	0	5	4	-0.20253	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99995	unitless	P
4	Ozone % difference avg	P	7	10	4	1.0	%	P
5	Ozone % difference max	P	7	10	4	2.1	%	P



Site	Visit Date	Parameter	Mfg		Model Number	Serial Number
SUM	1156-Sandy	Grenville-02/17/2013				
1	2/17/2013	DAS	Campbell	000335	CR3000	2114
2	2/17/2013	Ozone	ThermoElectron Inc	00823	49i A1NAA	1009241790
3	2/17/2013	Ozone Standard	ThermoElectron Inc	000453	49i A3NAA	CM08200027
4	2/17/2013	Zero air pump	Werther International	06876	C 70/4	000814286

Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	t Date Par	ame	ter	Owner I	D
ThermoElectron Inc 1	009241790	SUM156	Sa	andy Grer	nville	02/17/20	020	ne		00823	
Slope: 0.9	98315 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	2501 Intercept	0.00000	=	Serial N	lumber	49C-7310	04-373	Tfe	er Desc. C	zone transfe	er
CorrCoff 0.9	9995 CorrCoff	0.00000			umber			110	or Desc.		
				Tfer ID		01100					
DAS 1:	DAS 2:			Slope			1.00121 I	nter	cept	-0.18	3383
A Avg % Diff: A Ma	2.4% A Avg %	6Dif A Max %	% Di	Cert Da	ite		1/2/2013	Corr	Coff	1.00	0000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Uni	t:	PctDi	fference:	
primary	1	0.25	0.4				ppb				
primary	2	46.96	47.				ppb			-0.62%	
primary	3	65.34	65.				ppb			-2.38%	
primary	4	85.70	85.			-	ppb			-2.19%	
primary	5	109.55	109			7.80	ppb			-1.64%	_
Sensor Component	Cell B Noise		Conditio	1.0 pp	ob		Sta	tus	pass		
Sensor Component	Cell B Tmp.		Conditio	on			Sta	tus	pass		
Sensor Component	Fullscale Voltage		Conditio	n N/A			Sta	tus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	Clean			Sta	tus	pass		
Sensor Component	Line Loss		Conditio	Not te	sted		Sta	tus	pass		
Sensor Component	Offset		Conditio	0.3			Sta	tus	pass		
Sensor Component	Span		Conditio	n 1.032			Sta	tus	pass		
Sensor Component	Cell B Freq.		Conditio	on 111.3	lHz		Sta	tus	pass		
Sensor Component	System Memo		Conditio	on			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	0.69 l	om		Sta	tus	pass		
Sensor Component	Cell A Tmp.		Conditio	39.2 C)		Sta	tus	pass		
Sensor Component	Cell A Pressure		Conditio	745 m	ımHg		Sta	tus	pass		
Sensor Component	Cell A Noise		Conditio	0.9 pp	b		Sta	tus	pass		
Sensor Component	Cell A Freq.		Conditio	n 105.8	kHz		Sta	tus	pass		
Sensor Component	Cell A Flow		Conditio	0.68 lj	om		Sta	tus	pass		
Sensor Component	Battery Backup		Conditio	n N/A			Sta	tus	pass		
Sensor Component	Zero Voltage		Condition	n N/A			Sta	tus	pass		

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
IRL1	41-Sandy (Grenville-02/20/2013				
1	2/20/2013	Computer	Dell	000245	D520	unknown
2	2/20/2013	DAS	Campbell	000340	CR3000	2119
3	2/20/2013	Modem	Raven	06384	H4222-C	0802310499
4	2/20/2013	Ozone	ThermoElectron Inc	000724	49i A1NAA	1105347328
5	2/20/2013	Ozone Standard	ThermoElectron Inc	000694	49i A3NAA	1030244815
6	2/20/2013	Sample Tower	Aluma Tower	000020	В	AT-61152-A-H8-F
7	2/20/2013	UPS	APC	06790	RS900	unknown
8	2/20/2013	Zero air pump	Werther International	06898	C 70/4	000821905

Note	Mfg S	erial Number Ta	Site	Tec	chnician		Site Visit	Date P	Parame	eter	Owner ID
Titer Dite	ThermoElectron Inc 1	105347328	IRL141	Sa	andy Gren	ville	02/20/20	13 C	Dzone		000724
DAS 1:	Intercept -0.8	4313 Intercept	0.00000		Ü	umber					
A Neg % Diff: A Max % Di	CorrCoff 0.9	09996 CorrCoff	0.00000)	Tfer ID		01100				
A Neg % Diff: A Max % Di	DAS 1:	DAS 2:			Slone			1.00121	Inter	cent	-0.18383
primary			6Dif A Max %	% Di	•	te					1.00000
primary 2 35.57 35.71 35.32 ppb -1.09%	UseDescription:	ConcGroup:	Tfer Raw:					Site U	J nit:	PctDi	fference:
primary 3 66.02 66.12 65.72 ppb -0.60% primary 4 85.84 85.91 85.30 ppb -0.71% primary 5 111.69 110.70 ppb -0.89% -0.71% primary 5 111.69 110.70 ppb -0.89% -0.71% primary 5 111.69 110.70 ppb -0.89% -0.89% -0.71% primary 5 111.69 110.70 ppb -0.89% -		1					1	_			
primary 4 85.84 85.91 85.30 ppb -0.71% primary 5 111.65 111.69 110.70 ppb -0.89% Sensor Component Cell B Noise Condition 1.4 ppb Status pass Sensor Component Fullscale Voltage Condition N/A Status pass Sensor Component Line Filter Condition Condition Not tested Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition O.10 Status pass Sensor Component Span Condition 1.011 Status pass Sensor Component Span Condition 1.011 Status pass Sensor Component System Memo Condition Status pass Sensor Component Cell B Freq. Condition 91.7 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Pressure Condition Not tested Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell A Tmp. Condition Not tested Status pass Sensor Component Cell A Pressure Condition Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Pressure Condition Not tested Status pass Sensor Component Cell A Flow Condition Not Intervent N	•										
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Sensor Component Cell B Noise Sensor Component Cell B Tmp. Condition Status pass Sensor Component Fullscale Voltage Condition Sensor Component Fullscale Voltage Condition Sensor Component Inlet Filter Condition Condition Condition Condition Condition Status pass Sensor Component Line Loss Condition Condition Sensor Component Condition Condition Condition Sensor Component Span Condition Sensor Component Span Condition Sensor Component System Memo Condition Sensor Component System Memo Condition 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 Condition Status Sensor Component Cell A Pressure Condition Status Sensor Component Cell A Flow Condition Status Sensor Component Cell A Flow Condition Condition Condition Condition Condition Status Condition Status Sensor Component Cell A Flow Condition Conditio	•						1	•			
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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 Status pass Sensor Component Span Condition Not tested Status pass Sensor Component Status pass Sensor Component Cell B Pressure Condition Not tested 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 B Flow 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 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 Flow Condition Not tested Status pass Sensor Component Dell A Flow Condition Not tested Status pass Sensor Component Dell A Flow Condition Not tested Status pass Sensor Component Dell A Flow Condition Not tested Status pass	Sensor Component	Cell B Noise		Condition	n 1.4 pp	b			Status	pass	
Sensor Component Inlet Filter Condition Condition Clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 0.10 Status pass Sensor Component Span Condition 1.011 Status pass Sensor Component Cell B Freq. Condition 91.7 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 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Cell A Flow Condition Functioning Status pass	Sensor Component	Cell B Tmp.		Conditio	on			S	Status	pass	
Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition -0.10 Status pass Sensor Component Span Condition 1.011 Status pass Sensor Component Cell B Freq. Condition 91.7 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Fullscale Voltage		Conditio	N/A			S	Status	pass	
Sensor Component Offset Condition -0.10 Status pass Sensor Component Span Condition 1.011 Status pass Sensor Component Cell B Freq. Condition Status pass Sensor Component Sample Train Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 89.5 kHz Status pass Sensor Component Cell A Freq. Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Inlet Filter Condition	n					S	Status	pass	
Sensor Component Span Condition 1.011 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.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 89.5 kHz Status pass Sensor Component Cell A Freq. Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Line Loss		Conditio	Not te	sted		S	Status	pass	
Sensor Component Cell B Freq. Condition 91.7 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition Functioning Status pass	Sensor Component	Offset		Conditio	on -0.10			S	Status	pass	
Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition Functioning Status pass	Sensor Component	Span		Conditio	1.011			S	Status	pass	
Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell B Freq.		Conditio	91.7 k	Hz		S	Status	pass	
Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.73 lpm Status pass Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	System Memo		Conditio	on			S	Status	pass	
Sensor ComponentCell B FlowCondition0.73 lpmStatuspassSensor ComponentCell A Tmp.Condition30.4 CStatuspassSensor ComponentCell A PressureCondition736 mmHgStatuspassSensor ComponentCell A NoiseCondition1.1 ppbStatuspassSensor ComponentCell A Freq.Condition89.5 kHzStatuspassSensor ComponentCell A FlowCondition0.74 lpmStatuspassSensor ComponentBattery BackupConditionFunctioningStatuspass	Sensor Component	Sample Train		Conditio	Good			S	Status	pass	
Sensor Component Cell A Tmp. Condition 30.4 C Status pass Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell B Pressure		Conditio	on			S	Status	pass	
Sensor Component Cell A Pressure Condition 736 mmHg Status pass Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell B Flow		Conditio	0.73 lp	m		S	Status	pass	
Sensor Component Cell A Noise Condition 1.1 ppb Status pass Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell A Tmp.		Conditio	30.4 C	}		S	Status	pass	
Sensor Component Cell A Freq. Condition 89.5 kHz Status pass Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell A Pressure		Conditio	736 m	mHg		S	Status	pass	
Sensor Component Cell A Flow Condition 0.74 lpm Status pass Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell A Noise		Conditio	1.1 pp	b		S	Status	pass	
Sensor Component Battery Backup Condition Functioning Status pass	Sensor Component	Cell A Freq.		Conditio	89.5 k	Hz		S	Status	pass	
	Sensor Component	Cell A Flow		Conditio	0.74 lp	om		S	Status	pass	
Sensor Component Zero Voltage Condition N/A Status pass	Sensor Component	Battery Backup		Conditio	Functi	oning		S	Status	pass	
	Sensor Component	Zero Voltage		Condition	N/A			S	Status	pass	

Site Vi	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
SND1.	52-Sandy	Grenville-02/28/2013				
1	2/28/2013	Computer	Dell	000260	D520	unknown
2	2/28/2013	DAS	Campbell	000357	CR3000	2135
3	2/28/2013	Modem	Raven	06458	V4221-V	0808337422
4	2/28/2013	Ozone	ThermoElectron Inc	000619	49i A1NAA	1009241791
5	2/28/2013	Ozone Standard	ThermoElectron Inc	000215	49i A3NAA	0622717856
6	2/28/2013	Sample Tower	Aluma Tower	000148	В	none
7	2/28/2013	Zero air pump	Werther International	06867	C 70/4	000814279

Mfg S	erial Number Ta	Site	Teo	chnician		Site Visi	it Date	Parame	ter	Owner ID
ThermoElectron Inc 1	009241791	SND152	Sa	ndy Gren	ville	02/28/20	013	Ozone		000619
•	Slope: Intercept	0.00000		Mfg Serial N	ımber	ThermoE			rameter ozo	one transfer
CorrCoff 0.9	99999 CorrCoff	0.00000	0	Tfer ID		01100				
DAS 1:	DAS 2:						1.0012	1 Inter	econt	-0.18383
A Avg % Diff: A Ma		6Dif A Max		Slope Cart Dat			1/2/201		-	1.00000
0.2%	0.4%			Cert Dat	e		1/2/201	Corr	Con	1.00000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Si			Unit:	PctDiff	erence:
primary	1	-0.08	0.1		-0.		ppb			0.1004
primary	2	30.69	30.		30.		ppb			0.10%
primary	3	50.66	50.		50.		ppb			0.37%
primary	5	79.72	79.		79.		ppb			0.03%
primary		102.01	102.		102	50	ppb	Gt. 4	200	0.42%
Sensor Component	Cell B Noise		Conditio	0.9 ppl)			Status		
Sensor Component	Cell B Tmp.		Conditio	on				Status	pass	
Sensor Component	Fullscale Voltage		Conditio	N/A				Status	pass	
Sensor Component	Inlet Filter Condition	n	Conditio	Clean				Status	pass	
Sensor Component	Line Loss		Conditio	Not tes	ted			Status	pass	
Sensor Component	Offset		Conditio	0.000				Status	pass	
Sensor Component	Span		Conditio	n 1.04				Status	pass	
Sensor Component	Cell B Freq.		Conditio	99.0 kl	Ηz			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	0.70 lp	m			Status	pass	
Sensor Component	Cell A Tmp.		Conditio	34.8 C				Status	pass	
Sensor Component	Cell A Pressure		Conditio	711 mi	nHg			Status	pass	
Sensor Component	Cell A Noise		Conditio	0.9 ppl)			Status	pass	
Sensor Component	Cell A Freq.		Conditio	n 108.9 l	κHz			Status	pass	
Sensor Component	Cell A Flow		Conditio	0.72 lp	m			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
GAS	153-Sandy	Grenville-02/28/2013				
1	2/28/2013	DAS	Campbell	000635	CR3000	4934
2	2/28/2013	Modem	Raven	06805	H4222-C	0934411884
3	2/28/2013	Ozone	ThermoElectron Inc	000729	49i A1NAA	1105347323
4	2/28/2013	Ozone Standard	ThermoElectron Inc	000697	49i A3NAA	1030244814
5	2/28/2013	Sample Tower	Aluma Tower	000138	В	none
6	2/28/2013	UPS	APC	missing	BP6505	NB0009260535
7	2/28/2013	Zero air pump	Werther International	06865	C 70/4	000814277

Mfg S	erial Number Ta	Site	Te	chnician		Site Visit	t Date Pa	arame	eter	Owner ID	,
ThermoElectron Inc 1	105347323	GAS153	Sa	andy Grer	nville	02/28/20)13 O:	zone		000729	
Slope: 1.0)1205 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	25812 Intercept	0.00000	_	Serial N	lumber	49C-7310	04-373	Tfo	er Desc. C	zone transfer	
CorrCoff 0.9	99998 CorrCoff	0.00000			umber				ci Desc.		
				Tfer ID		01100					
DAS 1:	DAS 2:			Slope			1.00121	Inter	cept	-0.183	83
A Avg % Diff: A Ma	1.8% A Avg %	6Dif A Max %	% Di	Cert Da	ite		1/2/2013	Corr	·Coff	1.000	00
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site U	nit:	PctDi	fference:	
primary	1	-0.01	0.1				ppb				
primary	2	30.70	30.				ppb			1.78%	
primary	3	49.84	49.				ppb			0.72%	
primary primary	5	80.64 99.81	80. 99.			-	ppb ppb			0.84%	
Sensor Component		77.01		on 0.9 pp). 70 j		tatus	nass	0.0370	
•			Conunc	JII 0.5 PF	,,,						
Sensor Component	Cell B Tmp.		Conditio	on			S	tatus	pass		
Sensor Component	Fullscale Voltage		Conditio	n N/A			S	tatus	pass		
Sensor Component	Inlet Filter Condition	n	Conditio	On Clean			S	tatus	pass		
Sensor Component	Line Loss		Conditio	Not te	sted		S	tatus	pass		
Sensor Component	Offset		Condition				S	tatus	pass		
Sensor Component	Span		Conditio	1.016			S	tatus	pass		
Sensor Component	Cell B Freq.		Conditio	78.6 k	hz		S	tatus	Fail		
Sensor Component	System Memo		Conditio	See c	omments	3	S	tatus	pass		
Sensor Component	Sample Train		Conditio	Good			S	tatus	pass		
Sensor Component	Cell B Pressure		Conditio	on			S	tatus	pass		
Sensor Component	Cell B Flow		Conditio	0.73 lj	om		S	tatus	pass		
Sensor Component	Cell A Tmp.		Conditio	30.9 C)		S	tatus	pass		
Sensor Component	Cell A Pressure		Conditio	716 m	ımHg		S	tatus	pass		
Sensor Component	Cell A Noise		Conditio	0.8 pp	bb		S	tatus	pass		
Sensor Component	Cell A Freq.		Conditio	79.8 k	Hz		S	tatus	Fail		
Sensor Component	Cell A Flow		Conditio	0.74 l	om		S	tatus	pass		
Sensor Component	Battery Backup		Conditio	Not fu	nctioning	I	S	tatus	Fail		
Sensor Component	Zero Voltage		Condition	on N/A			S	tatus	pass		

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	l Problem
Ozone This analyzer diagnostic	GAS153 check is outside	Sandy Grenville the manufacturer's		Cell B Freq. value.	ThermoElectron	3537		✓
Ozone This analyzer diagnostic	GAS153 check is outside	Sandy Grenville the manufacturer's		Cell A Freq.	ThermoElectron	3537		✓

Site \	Visit Date Parameter		Mfg	Owner ID	Model Number	Serial Number
СОИ	V137-Sandy	y Grenville-03/29/2013				
1	3/29/2013	DAS	Campbell	000401	CR3000	2529
2	3/29/2013	Ozone	ThermoElectron Inc	000622	49i A1NAA	1009241785
3	3/29/2013	Ozone Standard	ThermoElectron Inc	000686	49i A3NAA	1030244818
4	3/29/2013	UPS	APC	06744	RS900	unknown
5	3/29/2013	Zero air pump	Werther International	06878	C 70/4	000815254

ThermoElectron Inc 1009241785 COW137 Sandy Gronville 03/29/2013 Ozone 000822	Mfg S	Serial Number Ta Site		Technic		ınician		Date Par	Parameter		er Owner ID	
Titer Dite	ThermoElectron Inc 1	009241785	COW137	Sa	andy Grer	ville	03/29/20	13 Ozo	ne		000622	
DAS 1:												
A Neg % Diff: A Max % Di	CorrCoff 0.9	9999 CorrCoff	0.00000		Tfer ID		01100					
A Neg % Diff: A Max % Di	DAS 1:	DAS 2:			Slope			1.00121 T	nter	cent	-0.18383	
primary			6Dif A Max 9	% Di	•	te	1			_	1.00000	
primary 2 30.59 30.73 31.59 ppb 2.80% primary 3 49.81 49.93 51.09 ppb 2.37% primary 4 81.19 81.27 83.20 ppb 2.37% primary 5 100.79 100.85 103.20 ppb 2.37% primary 5 100.79 100.85 103.20 ppb 2.33% Sensor Component Cell B Noise Condition O.6 ppb Status pass Sensor Component Fullscale Voltage Condition N/A 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 O.10 Status pass Sensor Component Span Condition O.44 Status pass Sensor Component Cell B Freq. Condition 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 Status pass Sensor Component Cell A Tmp. Condition Condition Status pass Sensor Component Cell A Pressure Condition O.65 lpm Status pass Sensor Component Cell A Pressure Condition O.65 lpm Status pass Sensor Component Cell A Pressure Condition O.67 lpm Status pass Sensor Component Cell A Flow Condition O.67 lpm Status pass Sensor Component Cell A Flow Condition O.67 lpm Status pass Sensor Component Cell A Flow Condition O.67 lpm Status pass Sensor Component Cell A Flow Condition O.67 lpm Status Fail Fail Status	UseDescription:	ConcGroup:	Tfer Raw:			Si	te:	Site Uni	t:	PctDif	ference:	
primary 3 49.81 49.93 51.09 ppb 2.32% primary 4 81.19 81.27 83.20 ppb 2.37% primary 5 100.79 100.85 103.20 ppb 2.33% Sensor Component Cell B Noise Condition 0.6 ppb Status pass Sensor Component Tullet Filter Condition Condition N/A Status pass Sensor Component Inlet Filter Condition Condition N/A Status pass Sensor Component Unite Line Loss Condition Not tested Status pass Sensor Component Offset Condition Not tested Status pass Sensor Component Span Condition Status pass Sensor Component Span Condition 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 Status pass Sensor Component Cell B Flow Condition Not Status pass Sensor Component Cell A Tmp. Condition Not Status pass Sensor Component Cell A Freq. Condition Not Status pass Sensor Component Cell A Freq. Condition Not Status pass Sensor Component Cell A Freq. Condition Not functioning Status pass Sensor Component Cell A Flow Condition Not functioning Status Pass Sensor Component Cell A Flow Condition Not functioning Status Pass Sensor Component Cell A Flow Condition Not functioning Status Pass Sensor Component Cell A Flow Condition Not functioning Status Pass Status Pass Sensor Component Cell A Flow Condition Not functioning Status Pass Status Fail		1					1					
primary 4 81.19 81.27 83.20 ppb 2.37% primary 5 100.79 100.85 103.20 ppb 2.33% Sensor Component Cell B Noise Condition 0.6 ppb Status pass Sensor Component Cell B Tmp. Condition M/A Status pass Sensor Component Inlet Filter Condition Condition Moderately clean Status pass Sensor Component Line Loss Condition Moderately clean Status pass Sensor Component Unite Loss Condition Mot tested Status pass Sensor Component Offset Condition O.10 Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition 93.1 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 Status pass Sensor Component Cell A Tmp. Condition Good Status pass Sensor Component Cell A Pressure Condition Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Sensor Component Cell A Pressure Condition Good Status pass Status pass Sensor Component Cell A Flow Condition Door Hz Status pass Status Pass Sensor Component Cell A Flow Condition Not functioning Status Pass							1					
Sensor Component Cell B Noise Condition Status pass		-					-					
Sensor Component Cell B Noise Condition Sensor Component Cell B Tmp. Condition Status pass Sensor Component Fullscale Voltage Condition Sensor Component Fullscale Voltage Condition Condition NVA Status pass Sensor Component Linet Filter Condition Condition Condition Not tested Status pass Sensor Component Uffset Condition Sensor Component Offset Condition Condition Sensor Component Span Condition Sensor Component Syan Condition Sensor Component System Memo Condition Sensor Component System Memo 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 Pressure Condition Sensor Component Cell A Flow Condition Not functioning Status Sensor Component Cell A Flow Condition Not functioning Status Sensor Component Cell A Flow Condition Not functioning Status Sensor Component Cell A Flow Condition Not functioning Status Sensor Component Condition Status Sensor Component Cell A Flow Condition Not functioning Status Sensor Component Condition Status Sensor Component Cell A Flow Condition Not functioning Status Sensor Component Cell A Flow Condition Not functioning	•							•				
Sensor Component Cell B Tmp. Condition Status pass Sensor Component Inlet Filter Condition Condition N/A Status pass Sensor Component Inlet Filter Condition Condition Not tested Status pass Sensor Component Under Condition Outline Outline Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition Status pass Sensor Component System Memo Condition Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition O.65 lpm Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 0.67 lpm Status pass Sensor Component Cell A Flow Conditi			100.77				.20 p		4	nace	2.3370	
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 Status pass Sensor Component Span Condition Not tested Status pass Sensor Component Status pass Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition Not Status pass Sensor Component Cell A Pressure Condition Not Status pass Sensor Component Cell A Noise Condition Not Status pass Sensor Component Cell A Freq. Condition Not Status pass Sensor Component Cell A Freq. Condition Not Status pass Sensor Component Cell A Freq. Condition Not Status pass Sensor Component Cell A Freq. Condition Not Status pass Sensor Component Status pass Sensor Component Cell A Freq. Condition Not functioning Status Pass Sensor Component Senter Status Pass Senter Senter Status Pass Senter Senter Status Pass Senter Senter Senter Status Pass Senter	Sensor Component	Cell B Noise		Conditio	o.o pp	D		Sta	tus	pass		
Sensor Component Inlet Filter Condition Condition Moderately clean Status pass Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition 1.044 Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition 33.1 kHz Status pass Sensor Component System Memo Condition Good Status pass Sensor Component Cell B Pressure Condition Good Status pass Sensor Component Cell B Pressure Condition 0.65 lpm Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 10.9 ppb Status pass Sensor Component Cell A Freq. Condition 10.9 ppb Status pass Sensor Component Cell A Freq. Condition 10.9.0 kHz Status pass Sensor Component Cell A Flow Condition 10.67 lpm Status pass Sensor Component Cell A Flow Condition 10.67 lpm Status pass Sensor Component Cell A Flow Condition 10.67 lpm Status pass Sensor Component Cell A Flow Condition 10.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell B Tmp.		Conditio	on			Sta	tus	pass		
Sensor Component Line Loss Condition Not tested Status pass Sensor Component Offset Condition -0.10 Status pass Sensor Component Span Condition 1.044 Status pass Sensor Component Cell B Freq. Condition 93.1 kHz Status pass Sensor Component System Memo Condition Status pass Sensor Component Sample Train Condition Good Status pass Sensor Component Cell B Pressure Condition 0.65 lpm Status pass Sensor Component Cell A Trap. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition Not functioning Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Fullscale Voltage		Conditio	n N/A			Sta	tus	pass		
Sensor Component Offset Condition -0.10 Status pass Sensor Component Span Condition 1.044 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 Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 109.0 kHz Status pass Sensor Component Cell A Freq. Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Inlet Filter Condition	n	Condition Moderately clean			Sta	tus	s pass			
Sensor Component Span Condition 1.044 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 Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition Not functioning Status Fail	Sensor Component	Line Loss		Condition Not tested			Sta	tus	pass			
Sensor Component Cell B Freq. Condition 93.1 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 0.65 lpm Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition Not functioning Status Fail	Sensor Component	Offset		Condition -0.10			Sta	tus	pass			
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Sensor Component Cell B Pressure Condition Status pass Sensor Component Cell B Flow Condition 0.65 lpm Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	System Memo		Condition			Sta	tus	ıs pass			
Sensor Component Cell B Flow Condition 0.65 lpm Status pass Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Sample Train		Conditio	ondition Good			Sta	tus	us pass		
Sensor Component Cell A Tmp. Condition 32.4 C Status pass Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell B Pressure		Conditio	Condition			Sta	tus	pass		
Sensor Component Cell A Pressure Condition 685 mmHg Status pass Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell B Flow		Condition 0.65 lpm			Sta	tus	pass			
Sensor Component Cell A Noise Condition 0.9 ppb Status pass Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell A Tmp.		Condition 32.4 C			Sta	tus	pass			
Sensor Component Cell A Freq. Condition 109.0 kHz Status pass Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell A Pressure		Condition 685 mmHg			Sta	tus	pass			
Sensor Component Cell A Flow Condition 0.67 lpm Status pass Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell A Noise	Condition 0.9 ppb			Sta	tus	pass				
Sensor Component Battery Backup Condition Not functioning Status Fail	Sensor Component	Cell A Freq.		ndition 109.0 kHz			Sta	tus	ıs pass			
	Sensor Component	Cell A Flow		Conditio	tion 0.67 lpm					pass		
Sensor Component Zero Voltage Condition N/A Status pass	Sensor Component	Battery Backup		Conditio	ion Not functioning			Sta	tus	Fail		
	Sensor Component	Zero Voltage		Conditio	on N/A			Sta	tus	pass		

Site	Visit Date Parameter Mf		Mfg	Owner ID	Model Number	Serial Number	
ESP127-Sandy Grenville-03/30/2013							
1	3/30/2013	DAS	Campbell	illegible	CR3000	3817	
2	3/30/2013	Ozone	ThermoElectron Inc	000699	49i A1NAA	1030244804	
3	3/30/2013	Ozone Standard	ThermoElectron Inc	000687	49i A3NAA	1030244809	
4	3/30/2013	Zero air pump	Werther International	06909	C 70/4	000829161	

Mfg	erial Number Ta	Site	Tec	Technician Site Vi			Site Visit Date Parameter			Owner ID	
ThermoElectron Inc 1	030244804	ESP127	Sa	andy Grer	nville	03/30/20)13 O	zone		000699	
Slope: 1.0	00977 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	33906 Intercept	0.00000	_	Serial N	lumber	49C-7310	04-373	Tfo	er Desc. C	zone transfer	
CorrCoff 0.9	O9999 CorrCoff	0.00000)			01100					
				Tfer ID		01100					
DAS 1:	DAS 2:			Slope			1.00121	Inter	cept	-0.18383	
A Avg % Diff: A Ma 0.6%	0.7% A Avg %	6Dif A Max %	% Di	Cert Da	ite		1/2/2013	Corr	Coff	1.00000	
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site U	nit:	PctDi	fference:	
primary	1	-0.08	0.1				ppb				
primary	2	30.02	30.				ppb			0.56%	
primary	3	50.31	50.				ppb			0.58%	
primary	5	80.10	80.				ppb			0.65%	
primary	<u> </u>	99.60	99.			0.10	ppb			0.44%	
Sensor Component	Cell B Noise		Condition	on 1.1 pp)D		S	tatus	pass		
Sensor Component	Cell B Tmp.		Conditio	on			S	tatus	pass		
Sensor Component	Fullscale Voltage		Conditio	on N/A			S	tatus	pass		
Sensor Component	Inlet Filter Condition	n	Condition Clean			S	tatus	s pass			
Sensor Component	Line Loss		Condition Not tested			S	tatus	pass			
Sensor Component	Offset		Condition -0.20			S	tatus	pass			
Sensor Component	Span		Condition 1.009			S	tatus	pass			
Sensor Component	Cell B Freq.		Conditio	ondition 84.7 kHz			S	tatus	s pass		
Sensor Component	System Memo		Conditio	Condition			S	tatus	pass		
Sensor Component	Sample Train		Conditio	ondition Good			S	tatus	pass		
Sensor Component	Cell B Pressure		Conditio	ndition			S	tatus			
Sensor Component	Cell B Flow		Conditio	0.70 lj	om		S	tatus	pass		
Sensor Component	Cell A Tmp.		Conditio	ndition 30.1 C			S	tatus	s pass		
Sensor Component	Cell A Pressure		Conditio	715 m	ımHg		S	tatus	pass		
Sensor Component	Cell A Noise		Conditio	ondition 1.3 ppb			S	tatus	ıs pass		
Sensor Component	Cell A Freq.		Conditio	91.8 kHz			S	tatus	pass		
Sensor Component	onent Cell A Flow			ition 0.68 lpm			S	tatus	s pass		
Sensor Component	omponent Battery Backup			ition N/A			S	tatus	s pass		
Sensor Component	Zero Voltage		Conditio	on N/A			S	tatus	pass		

Site \	te Visit Date Parameter		Mfg	Owner ID	Model Number	Serial Number	
SPD111-Sandy Grenville-03/30/2013							
1	3/30/2013	DAS	Campbell	000342	CR3000	2121	
2	3/30/2013	Ozone	ThermoElectron Inc	000676	49i A1NAA	1030244794	
3	3/30/2013	Ozone Standard	ThermoElectron Inc	000515	49i A3NAA	0922236891	
4	3/30/2013	UPS	APC	06096	RS800	080331133278	
5	3/30/2013	Zero air pump	Werther International	06916	C 70/4	000829158	

Mfg S	erial Number Ta	Site	Te	Technician Site Visit Date			t Date Par	ame	ter	Owner ID)
ThermoElectron Inc 1	030244794	SPD111	Sa	andy Grer	nville	03/30/20	013 Ozo	ne		000676	
Slope: 1.0)1110 Slope:	0.00000		Mfg		ThermoE	lectron Inc	Pa	rameter 0	zone	
•	20253 Intercept	0.00000		Serial N	lumber	49C-7310	04-373	Tfe	er Desc. C	zone transfer	
CorrCoff 0.9	99995 CorrCoff	0.00000)			01100					
				Tfer ID		01100					
DAS 1:	DAS 2:			Slope			1.00121 J	nter	cept	-0.183	83
A Avg % Diff: A Ma	2.1% A Avg %	6Dif A Max %	% Di	Cert Da	ite		1/2/2013	Corr	Coff	1.000	000
UseDescription:	ConcGroup:	Tfer Raw:	Tfer (Corr:	Si	te:	Site Uni	t:	PctDi	fference:	
primary	1	-0.05	0.1				ppb				
primary	2	30.63	30.				ppb			0.45%	
primary	3	49.80	49.				ppb			2.06%	
primary	5	79.84 99.69	79. 99.			-	ppb			0.73%	
primary		99.09).40 <u>j</u>	ppb	, [0.05%	1
Sensor Component	Cell B Noise		Conditio	0.9 pp	OD		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	Condition Clean			Sta	tus	pass			
Sensor Component	Line Loss		Condition Not tested			Sta	tus	pass			
Sensor Component	Offset		Condition 0.20			Sta	tus	pass]	
Sensor Component	Span		Condition 1.021			Sta	tus	pass]	
Sensor Component	Cell B Freq.		Conditio	ondition 88.0 kHz			Sta	tus	Pass		
Sensor Component	System Memo		Condition			Sta	tus	pass]	
Sensor Component	Sample Train		Conditio	ndition Good			Sta	tus	pass		
Sensor Component	Cell B Pressure		Conditio	on			Sta	tus	pass]
Sensor Component	Cell B Flow		Conditio	on 0.62 l	om		Sta	tus	pass]
Sensor Component	Cell A Tmp.		Conditio	dition 30.1 C			Sta	tus	pass]
Sensor Component	Cell A Pressure		Conditio	704 m	ımHg		Sta	Status pass			
Sensor Component	t Cell A Noise		Conditio	ndition 1.4 ppb			Sta	tus	pass]
Sensor Component	Cell A Freq.		Conditio	89.9 kHz			Sta	tus	pass		
Sensor Component	Cell A Flow		Conditio	tion 0.61 lpm			Sta	tus	pass		
Sensor Component	Battery Backup		Conditio	Funct	oning		Sta	tus	pass		
Sensor Component	Zero Voltage		Conditio	on N/A			Sta	tus	pass		