EPA PM2.5 CHEMICAL SPECIATION NETWORK
CARBON SAMPLER REPLACEMENT PROGRAM
PHASE I

Prepared for

EPA OAQPS
Implementation of URG 3000N Samplers
at EPA $PM_{2.5}$ Chemical Speciation Network (CSN) Sites
Under National Park Service Contracts C2350010850 & C2350064025

Prepared by

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August 1, 2007

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

In April 2005, the Clean Air Scientific Advisory Committee gave strong general support for making changes to the EPA $PM_{2.5}$ Chemical Speciation Network (CSN) to improve comparability with the rural Interagency Monitoring of Protected Visual Environments (IMPROVE) $PM_{2.5}$ carbon concentration data. The CSN currently includes about 185 sites and monitors $PM_{2.5}$ including mass, ions, elements, and carbon species. The program's objectives are to:

- Provide data to support the development of modeling tools.
- Assess the effectiveness of emission reduction strategies.
- Support other air quality programs and the National Ambient Air Quality Standards (NAAQS).
- Support research studies.

The EPA process, designed to achieve this comparability, includes replacing the CSN carbon sampling channel with an IMPROVE-like sampler and using the IMPROVE carbon Thermal Optical Reflectance (TOR) analysis method, instead of the Thermal Optical Transmittance (TOT) method. In addition, the EPA requested the manufacturer of the IMPROVE sampler, URG (Chapel Hill, NC) to modify the IMPROVE sampler to incorporate mass flow control versus fixed-orifice flow control. The result is a new instrument, the URG-3000N Sequential Particulate Speciation System.

The carbon sampler replacement project will occur in three phases. Phase I, the subject of this report, resulted in the replacement of 57 samplers and two collocated samplers for a total of 59 samplers at 56 sites. 53 sites received a single URG 3000N sampler, two sites received collocated samplers and one site received two single samplers.

1.1 EPA ROLE

The Environmental Protection Agency (EPA) is responsible for the coordination of the national $PM_{2.5}$ Chemical Speciation Network (CSN). The measurement of ambient carbon species is an important component of this network. To achieve national consistency in carbon measurements, the EPA has decided to replace the existing carbon sampling and analysis methods with the modified IMPROVE Version II Module C sampler, the URG 3000N. This change in sampling technology and the associated filter analysis techniques will provide the national consistency the EPA and other monitoring agencies desire.

The objective of this proposed effort is to procure and install URG 3000N samplers at 56 selected CSN sites. The Scope of Work for this modification consists of the following two (2) subtasks.

Subtask 1: Procure URG 3000N Samplers and Support Systems

Subtask 2: Install URG 3000N at 56 EPA-Selected Sites

This effort required a cooperative working dynamic among the EPA, other federal and state agencies, URG, RTI, and ARS. EPA provided ARS with a list of sites and a contact list of oversight personnel for each site. EPA initially contacted the oversight personnel to alert the site stakeholders of the required activities and stakeholders roles to accomplish the installations on schedule.

1.2 ARS ROLE

ARS procured 57 URG 3000N samplers and two (2) collocated URG 3000N samplers and support systems through URG Corporation. The support systems included; calibration/audit cartridges, leak check/flow assemblies, sampler operator manuals and five BGI TriCal flow calibrators.

ARS acceptance tested all samplers to resolve any operational issues directly with URG whenever possible. In early March 2007 when the delivery date and the installation date were too close to allow comprehensive acceptance testing, then only completeness inspections occurred. Table 1-1 lists time line details.

The samplers were installed by an ARS Field Specialist, generally in groups of 3 to 6 samplers. ARS assigned four (4) field specialists to support this project. The installation groups are indicated in Figure 1-1 and are detailed in Appendix A. ARS coordinated the installation, occasional field repairs, sampler calibrations, and operator training.

For the installations to occur efficiently, local agency site personnel were contacted by ARS to determine in advance of the installation trip where the unit was to be mounted, to identify any pre-visit preparation required (i.e. verify that an electrical outlet is available), and to be available during installation to receive training. Installations began on February 28, 2007 and were completed on May 3, 2007. The sampling program began on May 3 for 1-in-3 day sites and May 6 for 1-in-6 day sites.

ARS completed a Site Installation Summary Form for each installation that includes a completed installation log sheet, calibration values, and cardinal direction digital photographs when possible. Some sites were not prepared on time or were not operational at the time of installation and were not calibrated or photographed by ARS. Missing photo sites: Akron and Steubenville, OH; Duwamish, WA; and Commerce City, CO. Missing calibration form sites: Winston-Salem, NC; Greensburg, PA; Commerce City, CO; Amtrak, Philadelphia, PA.

The EPA upgraded all URG 3000N samplers with a mass flow controller. The flow controller enhanced the ability to more accurately calibrate the unit and to sustain the desired flow. This factory upgrade was performed by URG, with programming under subcontract to ARS.

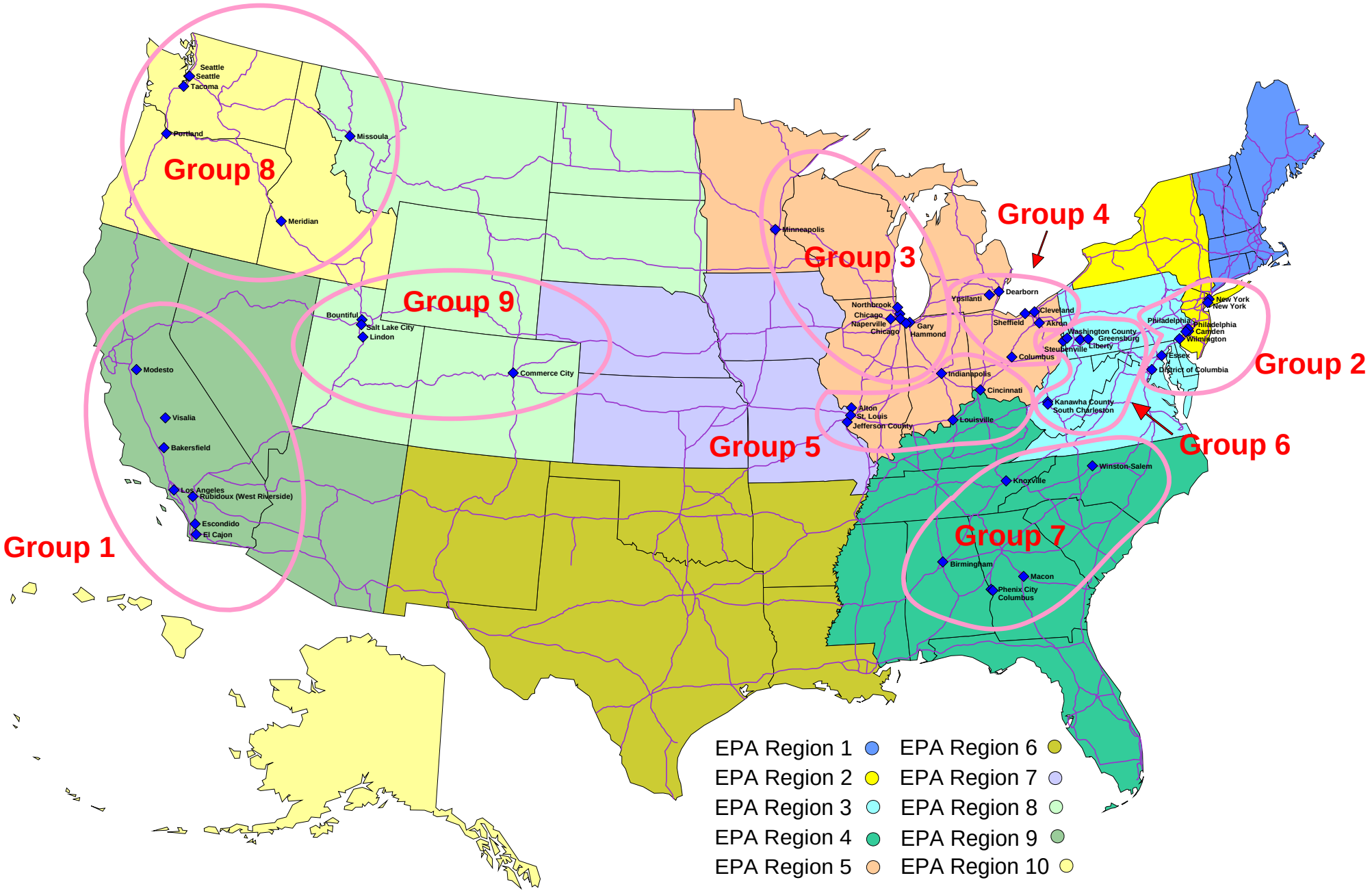

Figure 1-1. Installation Groups of EPA CSN Carbon Sampler Sites, April 2, 2007.

Table 1-1

Time Line Leading to the Installation of the URG 3000N

February 2006	ARS provided a preliminary cost estimate for installing, calibrating and training for the project.
March 23, 2006	ARS provided a Cost Estimate for planning purposes.
April 2006	A revised cost estimate was provided by ARS to EPA to investigate possible installation cost savings resulting from reorganizing the site list into select installation groups across the country.
May 2006	A brief meeting at RTP, North Carolina took place between EPA, URG, UCD, RTI and ARS to discuss initial challenges in manufacturing and implementing the IMPROVE Sampler. Participant roles were defined. ARS-software creation, installation, coordination; URG-design and manufacturing of instrument and support equipment; RTI-filter handling related assistance; EPA-project guidance and QA guidance; UCD-informal assistance and consultation, primarily with programming software.
May-June 2006	ARS wrote software to accommodate the Speciation Network with cooperation from URG. Software was based on existing, second generation (Compact Flash memory card based) IMPROVE sampler code, but was significantly enhanced to handle and record calibrations and fix persistent data corruption problems, among other things.
June 20, 2006	EPA decided to require Active Mass Flow Control, thus replacing original critical orifice control concept; other changes included a self-supporting stand, Compact Flash memory card technology, calibration methods, etc.
July 2006	ARS began rewrite of software for the renamed, mass-flow controlled URG 3000N with URG's cooperation abandoning the magnehelic flow calibration method. No detailed software specifications were provided and no MFC-based URG 3000N sampler was available during software development. ARS built a test MFC platform to simulate the URG 3000N. The test platform used a similar, but not identical MFC.
August 8, 2006	The first data file was generated for RTI review.

Table 1-1 (continued)

Time Line Leading to the Installation of the URG 3000N

September 2006	ARS met with EPA at the IMPROVE meeting in Kentucky to discuss changes that were required to assure the URG 3000N met sampling requirements of the Speciation Network. The stack height was questioned and determined to conflict with CSN requirements. URG 3000N inlets were made to match the inlet height of the routine CSN samplers.
September 20, 2006	RTI sent comments to ARS to refine the filter data files on the Compact Flash memory cards. ARS made the necessary software changes.
November 2006	An automated leak check method was conceived of and supported in software by ARS and hardware/theory by URG.
November 10, 2006	ARS received its first three URG 3000N's to test the software.
November 15, 2006	Testing began.
November 2006	ARS participated in a conference call with EPA and state representatives in Region 5. Discussions began between EPA and ARS regarding final list of sites. EPS decided on "final list of sites." EPA sent ARS the contact list for all sites.
December 2006	Leak check procedure was further changed. Automated audits, leak checks, and calibrations were refined in software.
December 12, 2006	Marks the first completely successful 24-hour run complete with Compact Flash card data, audits and calibration.
December 2006	ARS discovered a vacuum leak problem around the temperature probe and shares its findings with URG. URG corrected the problem.
December 19, 2006	ARS left a 3000N with Colorado Department of Public Health and Environment, CDPHE, for prototype testing in Denver Colorado.
January 4, 2007	URG and CDPHE found no problems with the software, and the first installation group in California was scheduled.

Table 1-1 (continued)

Time Line Leading to the Installation of the URG 3000N

January 2007	EPA QA group received its first URG 3000N. Testing in cooperation with RTI resulted in a list, requests for changes in the software, and identified a vacuum leak problem. The reason for the leak was isolated to poor cassettes and is no longer an issue. EPA sampler review based on pre-draft manual from URG. In the future, more leaks may be traced to bad O-rings.
January 25, 2007	ARS received final prioritized EPA/RTI software change requests and began modifications. January 30, the latest software version was completed and e-mailed to URG for subsequent transfer to EPROM and delivery to RTI for evaluation.
January 31, 2007	Software functional flow diagram completed by ARS for use by field installation staff.
February 5, 2007	Scheduling began, no further objections from EPA were received. Missing parts to a complete URG 3000N installation include: • Leak Check Kits • Filter Cassettes / Audit Cassettes • Instrument Manual
February 28, 2007	The first installation, Winston-Salem, NC occurred. ARS installed a URG 3000N close to Research Triangle Park so EPA staff could attend easily.
March 5, 2007	Group I installations began. ARS found a problem with the 1-in-6 day schedule. New EPROMs with the repair were successfully issued.
March 8, 2007	The Washington, DC and Essex, NJ sites were installed by ARS. The visit was linked to other ARS travel in the area to reduce the size of Group II and increasing the chances of completing Group II in one business week.
March 15, 2007	Audit cassettes arrived in batches of 10-20 per week. ARS decided to wait to distribute to sites until all have arrived. All but 10 leak check assemblies were received.
March 20, 2007	Group IX Utah sites were installed. The Bountiful site experienced problems and manufacturer repairs were required. UT staff installed the repaired unit on April 4, 2007.

Table 1-1 (continued)

Time Line Leading to the Installation of the URG 3000N

March 19, 2007	Group III was installed by ARS. The Naperville & Northbrook sites required manufacturer sampler repair. Repaired parts were reinstalled by the operator.
March 26, 2007	Group II was installed. The Philadelphia Ritner Street site sampler failed and was reinstalled by ARS on April 26, 2007.
April 4, 2007	UT staff reinstalled repaired sampler at Bountiful, UT in Group IX. See March 20, 2007 entry.
April 9, 2007	Group VII was installed successfully.
April 16, 2007	Group V was installed. The Bonne Terre, MO site was not ready for installation. The assembled sampler was left with MO staff for subsequent installation. Indianapolis sampler required manufacturer repair. The operator calibrated sampler upon return from URG.
April 16, 2007	Group VI was installed. The Steubenville, OH site was not ready for installation, the sampler was assembled and calibrated in the local office and left for staff to install.
April 20, 2007	ARS installed the Meridian, ID site in Group VIII while on other travel in the area.
April 23, 2007	ARS installed Group IV successfully.
April 26, 2007	ARS reinstalled the Philadelphia, PA Ritner Street site. See March 26th entry.
April 26, 2007	The Commerce City, CO site of Group IX was installed by ARS. The controller failed and was sent back to URG. URG discovered a poorly crimped wire in a mass flow controller connector and issued an email for CSN distribution on how to inspect and/or repair the problem. Another trip to reinstall and calibrate the sampler by ARS was unsuccessful because the operator removed the flow audit adapter from the site. The operator eventually calibrated the sampler.
May 1, 2007	ARS broke Group VIII into two groups to meet the deadline of 1 in 3 day sampling on May 3. Samplers were installed and calibrated to meet the May 3, 2007 start date.

Table 1-1 (continued)

Time Line Leading to the Installation of the URG 3000N

May 1, 2007	Five EPA-owned BGI TriCal flow calibrators were purchased on the project. The locations of each are: • Ohio EPA – 2 TriCals • Greensburg, PA – 1 TriCal • Indianapolis, IN – 1 TriCal • ARS – 1 TriCal
May 2, 2007	All cassettes were received at ARS and sent to the sites. After a couple of shipping address issues, all cassettes are delivered and accounted for.

Table 1-2

Installation Schedule

AQS	Install Group	City Name	State	Final Install Date
01-073-2003	7	Birmingham	AL	4/10/2007
01-113-0001	7	Phenix City	AL	4/9/2007
06-029-0014	1	Bakersfield(2)	CA	3/7/2007
06-037-1103	1	Los Angeles	CA	3/7/2007
06-065-8001	1	Rubidoux (2)	CA	3/6/2007
06-073-0003	1	El Cajon	CA	3/5/2007
06-073-1002	1	Escondido	CA	3/5/2007
06-099-0005	1	Modesto	CA	3/8/2007
06-107-2002	1	Visalia	CA	3/8/2007
08-001-0006	9	Commerce City	CO	4/26/2007
10-003-2004	2	Wilmington	DE	3/30/2007
11-001-0043	2	Near Washington	DC	3/8/2007
13-021-0007	7	Macon	GA	4/12/2007
13-115-0011	7	Columbus	GA	4/11/2007
16-001-0010	8	Near Boise, Meridian	ID	4/20/2007
17-031-0057	3	Chicago, Springfield	IL	3/21/2007
17-031-0076	3	Chicago, ComEd	IL	3/21/2007
17-031-4201	3	Northbrook	IL	3/20/2007
17-043-4002	3	Naperville	IL	3/20/2007
17-119-2009	5	Alton	IL	4/16/2007
18-089-0022	3	Gary	IN	3/22/2007
18-089-2004	3	Hammond	IN	3/22/2007
18-097-0078	5	Indianapolis, Washington Park	IN	4/18/2007
21-111-0043	5	Louisville	KY	4/19/2007
24-005-3001	2	Essex	MD	3/9/2007
26-161-0008	4	Ypsilanti	MI	4/23/2007
26-163-0033	4	Dearborn	MI	4/23/2007
27-053-0963	3	Minneapolis, Philips (2)	MN	3/19/2007
29-186-0005	5	Bonne Terre	MO	5/3/2007
29-510-0085	5	St. Louis	MO	4/17/2007
30-063-0031	8	Missoula	MT	5/2/2007
34-007-0003	2	Camden	NJ	3/29/2007
36-005-0110	2	Bronx	NY	3/26/2007
36-061-0134	2	Manhattan, New York	NY	3/26/2007
37-067-0022	6	Winston-Salem	NC	2/28/2007
39-035-0038	4	Cleveland,	OH	4/25/2007
39-049-0081	4	Columbus, Maple Canyon	OH	4/26/2007
39-061-0040	5	Cincinnati, Taft	OH	4/20/2007
39-081-0017	6	Steubenville	OH	4/16/2007
39-093-3002	4	Sheffield, Lorain	OH	4/24/2007

Table 1-2

Installation Schedule

AQS	Install Group	City Name	State	Final Install Date
39-153-0023	4	Akron, 5 Points	OH	4/26/2007
41-051-0080	8	Portland	OR	5/1/2007
42-003-0064	6	Liberty	PA	4/17/2007
42-101-0004	2	Philadelphia	PA	4/26/2007
42-101-0136	2	Philadelphia	PA	4/26/2007
42-125-5001	6	East of Pittsburgh	PA	4/18/2007
42-129-0008	6	Greensburg	PA	4/17/2007
47-093-1020	7	Knoxville	TN	4/13/2007
49-011-0004	9	Bountiful	UT	4/4/2007
49-035-3006	9	Salt Lake City	UT	3/21/2007
49-049-4001	9	Lindon	UT	3/20/2007
53-033-0057	8	Duwamish	WA	5/1/2007
53-033-0080	8	Beacon Hill	WA	5/1/2007
53-053-0029	8	Tacoma	WA	5/2/2007
54-039-0011	6	Charleston	WV	4/19/2007
54-039-1005	6	Charleston	WV	4/19/2007

2.0 DEVIATIONS

Several installation trip changes occurred during the February 28 to May 3, 2007 period that deserve explanation. Changes in sampler and support hardware delivery dates, site stakeholder requirements and the desired sampler startup date required flexibility and a number of installation visit changes listed below:

- Group II was modified during the continuous site selection process by the EPA and was therefore subdivided removing the Washington DC (AQS 11-001-0043) and Essex (AQS 24-005-3001) sites and installing those two sites on a separate trip. This made it feasible to install the remaining sites on a single business week.

- The Winston-Salem (AQS 37-067-0022) site was installed first and alone to provide an opportunity for EPA OAQPS project personnel to observe and approve of the installation, calibration and training process.

- A return trip was conducted at the Philadelphia, PA (AQS 42-101-0136) site after the scheduled installation because of multiple sampler component failures.

- A return trip was conducted at the Commerce City, CO (AQS 08-001-0006) site after the scheduled installation because of multiple sampler component failures.

- The Meridian, ID (AQS 16-001-0010) site was installed alone when ARS was already in the area on other work.

- The final installations occurred in Group VIII. To meet the project start date of May 3, the group was divided into two trips. The Washington state group was installed by one technician and the Portland, OR (AQS 45-051-0080) and Missoula, MT (AQS 30-063-0031) sites were installed by a second technician.

3.0 CALIBRATION FORMS

Whenever possible, ARS conducted a post installation temperature and barometric sensor calibration, system leak check and flow rate calibration. The sampler was initialized for site specific operations including setting the sampler AQS and POC number, the sampler date and local standard time, the sample frequency and duration, and the initial stacked filter configuration.

Missing calibration forms occurred for a number of reasons. In order of frequency, the causes were: the installed sampler malfunctioned, the flow calibrator malfunctioned and at one site the flow adaptor was taken off-site by the operator.

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URG 3000N Carbon Sampler
Installation Form

Station:	**N. Birmingham, AL**	**AQS #:**	01-073-0023
Controller S/N:	**3N-B0160**	**Date/Time:**	4/10/2007
Sampler Module S/N:	**3N-B0263**	**Technician:**	Martin H Valvur
Pump Box S/N:	**3N-B0219**	**Site Operator(s):**	Randy Dillard

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**304019**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**274**	**107**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1405	27	18.1	18.1	0	Pass
Barometric Pressure Calibration	3295	26	744	744	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3228	19.66	19.70
22.00	3579	21.80	21.70
24.00	3937	24.05	23.72

New gain= 5.459 **, offset=** 1.85 **, correlation=** 0.999

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.94	22.14	0.20

PASS

Auditor's Signature: _____

Notes:

[X] Cardinal Photos? [5] Attendance [ ]

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URG 3000N Carbon Sampler
Installation Form

Station:	**Phenix City, AL**	**AQS #:**	01-113-0001
Controller S/N:	**3N-B0277**	**Date/Time:**	4/9/2007 14:00
Sampler Module S/N:	**3N-B0260**	**Technician:**	Martin H Valvur
Pump Box S/N:	**3N-B0228**	**Site Operator(s):**	Toby Mallory

Flow Transfer Standard Model:	TriCal	**S/N:**	**00263-1**	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**304019**	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:** 1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**328**	**53**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1446	37	621.6	14.9	1.5	Pass
Barometric Pressure Calibration	3355	35	757.2	754	7	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3318	19.98	21.24
22.00	3682	27.19	23.45
24.00	4054	24.40	25.72

New gain= 6.089 **, offset=** 0.96 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.94	22.26	0.32

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Bakersfield**	**AQS #:**	06-029-0014
Controller S/N:	**3N-B0113**	**Date/Time:**	3/7/2007
Sampler Module S/N:	**3N-B0114**	**Technician:**	MS
Pump Box S/N:	**3N-B0115**	**Site Operator(s):**	Debbie Hensen

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**305454**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	**W12537**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**315**	**65**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1435	10	22.4	22.4	0	Pass
Barometric Pressure Calibration	3329	52	746	746	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3330	20.51	17.78
22.00	3610	22.41	19.41
24.00	3924	24.41	21.18

New gain= 5.109 **, offset=** 0.36 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.98	22.21	-0.23

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Bakersfield Co-Located**	**AQS #:**	06-029-0014
Controller S/N:	**3N-B0113**	**Date/Time:**	3/7/2007
Sampler Module S/N:	**3N-B0118**	**Technician:**	MS
Pump Box S/N:	**3N-B0120**	**Site Operator(s):**	Debbie Hensen

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**305454**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	**W12537**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**324**	**57**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1435	10	22.4	22.4	0	Pass
Barometric Pressure Calibration	3329	52	746	746	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3223	17.67	17.67
22.00	3560	19.48	19.48
24.00	3905	21.28	21.28

New gain= 4.947 **, offset=** 1.24 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.97	22.02	-0.03

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Los Angeles, CA**	**AQS #:**	06-0371103 POC 5 Schedule 1 in 6
Controller S/N:	**3N-B0142**	**Date/Time:**	3/7/2007 10:00
Sampler Module S/N:	**3N-B0143**	**Technician:**	Dave Beichley
Pump Box S/N:	**3N-B0129**	**Site Operator(s):**	Brian Vlasich

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263**	**Cal. Date:** 10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**101611**	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**W12537**	**Cal. Date:** 10/12/2006

	Max	Min	Diff			
Leak Check Results:	**381**	**289**	**92**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1526	58	26.7	26.7	0	Pass
Barometric Pressure Calibration	3336	24	753	753	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	2285	20.35	19.31
22.00	3642	22.55	21.33
24.00	4001	24.81	23.38

New gain= 5.488 **, offset=** 0.68 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.90	21.94	-0.04

PASS

Auditor's Signature: _____

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Notes:
Missing 2nd roof rain guard (rubber). No manual. Filter change: set to 3/10/07 (1 in 6). On site SASS is running.

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URG 3000N Carbon Sampler
Installation Form

Station:	**Rubidoux**	**AQS #:**	06-065-8001-6
Controller S/N:	**3N-B0154**	**Date/Time:**	3/6/2007
Sampler Module S/N:	**3N-B0288**	**Technician:**	MS, DB
Pump Box S/N:	**3N-B0132**	**Site Operator(s):**	Don / Ricardo

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**SN99FL01611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	**W12537**	**Cal. Date:**	10/12/2006

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**303**	**78**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1507	38	26.8	26.8	0	Pass
Barometric Pressure Calibration	3281	28	741	741	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3165	19.90	19.87
22.00	3489	21.80	21.80
24.00	3832	23.97	23.97

New gain= 5.58 **, offset=** 1.16 **, correlation=** 0.999

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.90	22.02	-0.12

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Rubidoux Co-located**	**AQS #:**	06-065-8001-6
Controller S/N:	**3N-B0154**	**Date/Time:**	3/6/2007
Sampler Module S/N:	**3N-B0155**	**Technician:**	MS, DB
Pump Box S/N:	**3N-B0138**	**Site Operator(s):**	Don / Ricardo

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**99F101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	**W12537**	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	**380**	**345**	**35**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1507	38	26.8	26.8	0	Pass
Barometric Pressure Calibration	3251	28	741	741	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3108	18.96	18.96
22.00	3429	21.07	21.07
24.00	3777	23.14	23.14

New gain= 5.763 **, offset=** -0.3 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.93	21.95	0.02

PASS

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Station:	El Cajon	**AQS #:**	06-073-0003
Controller S/N:	3N-B0145	**Date/Time:**	3/5/2007 8:30
Sampler Module S/N:	3N-B0152	**Technician:**	Dave B/Mike Slate
Pump Box S/N:	3N-B0177	**Site Operator(s):**	Noel Seefeldt, David Bowers, Victor Padilla

Flow Transfer Standard Model:	TriCal	**S/N:**	000190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	90769	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	369	12	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1452	24	22.7	22.7	0	Pass
Barometric Pressure Calibration	3321	24	750	750	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3194	20.15	20.54
22.00	3599	22.31	22.47
24.00	3954	24.52	24.57

New gain= 5.493 **, offset=** 2.02 **, correlation=** 0.999

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.89	22.11	-0.22

PASS

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Notes:
Module C is on the East side.

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Station:	**Escondido**	**AQS #:**	06-073-1002
Controller S/N:	**3N-B0148**	**Date/Time:**	3/5/2007
Sampler Module S/N:	**3N-B0149**	**Technician:**	Dave B/Mike Slate
Pump Box S/N:	**3N-B0126**	**Site Operator(s):**	Garnet West, Nancy Burgeson

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**90769**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	**W12537**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**299**	**82**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1504	22	28.1	28.1	0	Pass
Barometric Pressure Calibration	3292	29	743	743	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3165	20.93	20.14
22.00	3570	23.19	23.19
24.00	3921	24.58	25.41

New gain= 6.125 **, offset=** 0.35 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.88	21.76	0.17

PASS

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Notes:
Initial leak check failed - swapped out cyclones with a spare cyclone and unit passed.

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Station:	Modesto	**AQS #:**	06-099-0005
Controller S/N:	3N-B0116	**Date/Time:**	3/8/2007
Sampler Module S/N:	3N-B0117	**Technician:**	Mike Slate
Pump Box S/N:	3N-B0119	**Site Operator(s):**	Diane Arnold

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	000190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4900	**S/N:**	305454	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	W12537	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	380	279	101	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1434	12	22.1	22.1	0	Pass
Barometric Pressure Calibration	3367	51	754	754	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3253	16.84	16.84
22.00	3604	18.57	18.57
24.00	3968	20.43	20.43

New gain= 4.884 **, offset=** 0.69 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.01	22.43	-0.46

PASS

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Installation Form

Station:	Visalia	**AQS #:**	06-107-2002
Controller S/N:	3N-B0151	**Date/Time:**	3/8/2007
Sampler Module S/N:	3N-B0146	**Technician:**	MS
Pump Box S/N:	3N-B0171	**Site Operator(s):**	George Jung

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	000190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	305454	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	W12537	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	330	50	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1385	56	12.8	12.85	0	Pass
Barometric Pressure Calibration	3360	63	750	750	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3385	17.17	17.17
22.00	3741	18.91	18.91
24.00	4111	20.21	20.21

New gain= 4.777 **, offset=** 1.21 **, correlation=** 0.999

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.01	22.24	-0.25

PASS

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Station:	Commerce City, CO	**AQS #:**	08-001-0006 POC 5
Controller S/N:	3N-B0211	**Date/Time:**	4/20/2007 10:00
Sampler Module S/N:	3N-B0209	**Technician:**	M. Tigges
Pump Box S/N:	3N-B0165	**Site Operator(s):**	Bradley Rink

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	380	342	38	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1394	-2	19.2	19.6	0.4	Pass
Barometric Pressure Calibration	2720	23	623	628	5	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80			
22.00			
24.00			

New gain= _____, **offset=** _____, **correlation=** _____

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00			

PASS/FAIL

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Wilmington**	**AQS #:**	10-003-2004-5
Controller S/N:	**3N-B0217**	**Date/Time:**	3/30/2007
Sampler Module S/N:	**3N-B0128**	**Technician:**	Dave Beichley
Pump Box S/N:	**3N-B0150**	**Site Operator(s):**	Ted Allen, Carl Dyer

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**W12537**	**Cal. Date:**	10/12/2006

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**145**	**234**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1371	33	13.7	13.7	0	Pass
Barometric Pressure Calibration	3414	24	769	769	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3488	20.31	18.46
22.00	3798	22.20	20.02
24.00	4180	24.40	22.01

New gain= 5.205 **, offset=** 0.84 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.00	22.10	-0.11

PASS

Auditor's Signature: _____

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Notes:
Initial leak check failed within 15 seconds. Tried several more before it passed by a slim margin (readjusted cyclone, tighten connection on flow adaptors).
Also had mysterious problem with display and instrument resetting for no apparent reasons while doing flow calibrations.
Rechecked cable and wire connections, checked flash card. Problem stopped after 3 or 4 instances for no apparent reason.

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URG 3000N Carbon Sampler
Installation Form

Station:	**Washington, DC**	**AQS #:**	11-001-0043
Controller S/N:	**3N-B0136**	**Date/Time:**	3/8/2007
Sampler Module S/N:	**3N-B0167**	**Technician:**	I. Rennat
Pump Box S/N:	**3N-B0204**	**Site Operator(s):**	Winston Thaung

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**00263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**00263**	**Cal. Date:**	10/12/2006

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**311**	**70**	**mmHg in**	**35 seconds**	**Pass**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1437	33	20.5	20.4	0.1	Pass
Barometric Pressure Calibration	3379	18	762.5	763	0.5	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3345	19.95	18.66
22.00	3719	22.15	20.71
24.00	4085	24.38	22.71

New gain= 5.491 **, offset=** 0.41 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.00	21.96	0.04

PASS

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URG 3000N Carbon Sampler
Installation Form

Station:	**Macon, GA**	**AQS #:**	13-021-0007
Controller S/N:	**3N-B0184**	**Date/Time:**	4/12/2007
Sampler Module S/N:	**3N-B0203**	**Technician:**	Martin H Valvur
Pump Box S/N:	**3N-B0225**	**Site Operator(s):**	Alison Ray

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**304019**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**308**	**72**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1455	37	21.8	21.6	0.2	Pass
Barometric Pressure Calibration	3330	43	755	748	7	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3207	19.80	19.40
22.00	3564	21.93	21.63
24.00	3918	24.18	23.69

New gain= 5.915 **, offset=** -0.07 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.02	22.09	-0.09

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Cusseta Road School, Columbus, GA	**AQS #:**	13-215-0011
Controller S/N:	3N-B0166	**Date/Time:**	4/11/2007 11:15
Sampler Module S/N:	3N-B0239	**Technician:**	Martin H Valvur
Pump Box S/N:	3N-B0246	**Site Operator(s):**	Ernesto / Ken Buckley

Flow Transfer Standard Model:	TriCal	**S/N:**	000263-1	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	304019	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	000263-1	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	380	240	140	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1409	37	17.1	17.1	0	Pass
Barometric Pressure Calibration	3306	19	748	747	1	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3547	20.00	19.51
22.00	3676	22.30	21.54
24.00	4048	24.45	23.61

New gain= 5.511 **, offset=** 1.12 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.95	22.06	-0.12

PASS

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Installation Form

Station:	**Meridian, ID**	**AQS #:**	16-001-0105 POC 5
Controller S/N:	**3N-B0205**	**Date/Time:**	4/20/2007
Sampler Module S/N:	**3N-B0272**	**Technician:**	Mark Tigges
Pump Box S/N:	**3N-B0189**	**Site Operator(s):**	Becky Goehring

Flow Transfer Standard Model:	BIOS DC2	**S/N:**	**H2185**	**Cal. Date:**	3/16/2007
Temperature Transfer Standard Model:	BGI	**S/N:**	**000229**	**Cal. Date:**	12/4/2006
Barometric Pressure Transfer Standard Model:	BGI	**S/N:**	**000229**	**Cal. Date:**	12/4/2006

	Max	Min	Diff			
Leak Check Results:	**380**	**328**	**53**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1371	56	11.5	11.5	0	PASS
Barometric Pressure Calibration	3020	38	686	686	0	PASS

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	N/A	19.80	19.30
22.00	N/A	22.00	21.80
24.00	N/A	24.00	23.80

New gain= 5.108 **, offset=** 2.22 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.00	22.00	0.00

PASS

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Installation Form

Station:	**Springfield**	**AQS #:**	17-031-0057
Controller S/N:	**3N-B0175**	**Date/Time:**	3/21/2007 9:00
Sampler Module S/N:	**3N-B0197**	**Technician:**	MAS
Pump Box S/N:	**3N-B0156**	**Site Operator(s):**	Bob Sanford

Flow Transfer Standard Model:	TriCal	**S/N:**	**190**	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**305454**	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**190**	**Cal. Date:** 1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**370**	**11**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1315	27	8.85	8.85	0	Pass
Barometric Pressure Calibration	3312	20	749	749	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3401	19.97	19.28
22.00	3774	22.23	21.22
24.00	4150	24.43	23.26

New gain= 5.346 **, offset=** 1.35 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.94	22.07	-0.13

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Chicago Com-Ed	**AQS #:**	17-031-0076
Controller S/N:	3N-B0241	**Date/Time:**	3/21/2007 11:00
Sampler Module S/N:	3N-B0137	**Technician:**	MAS
Pump Box S/N:	3N-B0162	**Site Operator(s):**	BQ

Flow Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** 305454	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	380	337	44	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1390	51	14.2	138	0.4	Pass
Barometric Pressure Calibration	3313	41	745	745	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3345	19.93	19.50
22.00	3719	22.15	21.56
24.00	4085	24.39	23.71

New gain= 5.705 **, offset=** 0.51 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.15	22.56	0.41

PASS

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Installation Form

Station:	Northbrook	**AQS #:**	17-031-4201 POC5
Controller S/N:	3N-B0232	**Date/Time:**	3/20/2007 10:00
Sampler Module S/N:	3N-B0194	**Technician:**	MAS
Pump Box S/N:	3N-B0135	**Site Operator(s):**	Jeff Flick

Flow Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** 305454	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	313	67	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1446	48	19.7	19.7	0	Pass
Barometric Pressure Calibration	3362	36	756	756	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3291	19.81	19.67
22.00	3653	22.03	21.18
24.00	4020	24.22	23.92

New gain= 5.774 **, offset=** 0.59 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.96	22.15	-0.19

PASS

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URG 3000N Carbon Sampler
Installation Form

Station:	Naperville	**AQS #:**	17-043-4002 POC5
Controller S/N:	3N-B0139	**Date/Time:**	3/20/2007 15:20
Sampler Module S/N:	3N-B0173	**Technician:**	MAS
Pump Box S/N:	3N-B0154	**Site Operator(s):**	Jeff Flick, Glen Johnson

Flow Transfer Standard Model:	TriCal	**S/N:**	190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	305454	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	380	125	255	mmHg in	11 seconds	FAIL

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1395	38	19.5	15.65	0	Pass
Barometric Pressure Calibration	3343	36	759	752	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3362	19.96	18.52
22.00	3739	22.16	20.32
24.00	4115	24.45	22.31

New gain= 5.212 **, offset=** 1.11 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.01	22.16	-0.15

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Alton, IL**	**AQS #:**	17-119-2009
Controller S/N:	**3N-B0262**	**Date/Time:**	4/16/2007
Sampler Module S/N:	**3N-B0248**	**Technician:**	I. Rennat
Pump Box S/N:	**3N-B0249**	**Site Operator(s):**	Jay Turner

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**304020**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**270**	**110**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1426	0	22.6	22.6	0	Pass
Barometric Pressure Calibration	3314	17	753.6	750	3.6	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3220	19.69	19.76
22.00	3575	21.86	21.87
24.00	3935	24.08	23.95

New gain= 5.71 **, offset=** 1.02 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.07	22.18	-0.11

PASS

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Station:	Gary	**AQS #:**	18-084-0022
Controller S/N:	3N-B0223	**Date/Time:**	3/22/2007 10:00
Sampler Module S/N:	3N-B0158	**Technician:**	MAS
Pump Box S/N:	3N-B0183	**Site Operator(s):**	Scott

Flow Transfer Standard Model:	TriCal	**S/N:**	190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	305454	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	322	9	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1460	45	26.1	26.8	0	Pass
Barometric Pressure Calibration	3289	27	743	748	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3217	19.90	22.58
22.00	3576	22.05	25.09
24.00	3941	24.30	27.53

New gain= 6.776 **, offset=** 0.17 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.02	21.59	0.43

PASS

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Notes:
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URG 3000N Carbon Sampler
Installation Form

Station:	**Purdue**	**AQS #:**	18-089-2004
Controller S/N:	**3N-B0199**	**Date/Time:**	3/22/2007 12:00
Sampler Module S/N:	**3N-B0200**	**Technician:**	MAS
Pump Box S/N:	**3N-B0141**	**Site Operator(s):**	Eric Courtright

Flow Transfer Standard Model:	TriCal	**S/N:**	**190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**305454**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**190**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**336**	**45**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1467	64	20.7	20.8	0	Pass
Barometric Pressure Calibration	3227	14	746	743	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	32.75	20.10	22.73
22.00	36.32	22.33	25.62
24.00	39.93	24.55	28.27

New gain= 7.64 **, offset=** -2.78 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.74	21.65	0.09

PASS

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URG 3000N Carbon Sampler
Installation Form

Station:	**Indianapolis, IN**	**AQS #:**	18-097-0078
Controller S/N:	**3N-B0226**	**Date/Time:**	4/18/2007
Sampler Module S/N:	**3N-B0284**	**Technician:**	I. Rennat
Pump Box S/N:	**3N-B0258**	**Site Operator(s):**	Dan Short

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**304020**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**1357**	**225**	**mmHg in**	**14 seconds**	**FAIL**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1357	27	13	12.94	0.06	Pass
Barometric Pressure Calibration	3249	31	734	734	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3261	19.78	19.14
22.00	3647	22.13	21.16
24.00	4007	24.30	23.17

New gain= 5.35 **, offset=** 1.46 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.06	21.96	0.10

PASS

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Notes:
This unit would not pass the leak check. Returned to URG for repair.

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URG 3000N Carbon Sampler
Installation Form

Station:	Louisville, KY	**AQS #:**	21-111-0043
Controller S/N:	3N-B0124	**Date/Time:**	4/19/2007
Sampler Module S/N:	3N-B0251	**Technician:**	I. Rennat
Pump Box S/N:	3N-B0289	**Site Operator(s):**	Susan Bowman

Flow Transfer Standard Model:	BGI TriCal	**S/N:** 000190	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** 304020	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:** 000190	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	380	300	80	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1473	37	23.6	21.9	1.7	Pass
Barometric Pressure Calibration	3312	35	746	746	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3268	20.06	20.55
22.00	3621	22.23	22.94
24.00	3979	24.43	25.09

New gain= 6.006 **, offset=** 0.64 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.97	22.15	-0.20

PASS

Auditor's Signature: _____

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Installation Form

Station:	**Essex, MD**	**AQS #:**	24-005-3001
Controller S/N:	**3N-B0190**	**Date/Time:**	3/9/2007
Sampler Module S/N:	**3N-B0176**	**Technician:**	I. Rennat
Pump Box S/N:	**3N-B0210**	**Site Operator(s):**	Ryan Auvic

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**00263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**00263**	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	**380**	**285**	**95**	**mmHg in**	**35 seconds**	**Pass**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1260	0	6	2.52		
Barometric Pressure Calibration	3443	-2	780.2	772		

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3599	19.94	17.91
22.00	3991	22.17	19.74
24.00	4383	24.37	21.71

New gain= 5.141 **, offset=** 0.87 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.04	22.19	-0.16

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Ypsilanti, MI	**AQS #:**	26-161-0008
Controller S/N:	3N-B0253	**Date/Time:**	4/23/2007
Sampler Module S/N:	3N-B0227	**Technician:**	M H Valvur
Pump Box S/N:	3N-B0213	**Site Operator(s):**	Matt Nowak

Flow Transfer Standard Model:	TRI-CAL	**S/N:**	000263-1	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	EUTECHNICS	**S/N:**	304019	**Cal. Date:** 1/19/2007
Barometric Pressure Transfer Standard Model:	TRI-CAL	**S/N:**	000263-1	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	371	10	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1481	33	24.5	24.5	0	Pass
Barometric Pressure Calibration	3241	-8	734	734	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3482	19.45	20.34
22.00	3511	22.12	20.55
24.00	3869	24.34	24.68

New gain= 5.813 **, offset=** 1.04 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.95	21.80	0.15

PASS

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URG 3000N Carbon Sampler
Installation Form

Station:	**Dearborn, MI**	**AQS #:**	26-163-0033
Controller S/N:	**3N-B0259**	**Date/Time:**	4/23/2007 10:00
Sampler Module S/N:	**3N-B0242**	**Technician:**	M H Valvur
Pump Box S/N:	**3N-B0267**	**Site Operator(s):**	Brian Lomerson / Peter DeHart

Flow Transfer Standard Model:	TRI-CAL	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	EUTECHNICS	**S/N:**	**304019**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TRI-CAL	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**314**	**67**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1493	62	23	23	0	Pass
Barometric Pressure Calibration	3280	32	746	740	6	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3249	19.75	19.75
22.00	3595	21.79	21.79
24.00	3948	23.88	23.88

New gain= 5.584 **, offset=** 0.91 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.85	21.97	-0.12

PASS

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URG 3000N Carbon Sampler
Installation Form

Station:	**Uninstalled Minneapolis**	**AQS #:**	27-053-0963 POC5
Controller S/N:	**3N-B0163**	**Date/Time:**	3/19/2007 12:00
Sampler Module S/N:	**3N-B0170**	**Technician:**	MAS
Pump Box S/N:	**3N-B0147**	**Site Operator(s):**	Don Bock

Flow Transfer Standard Model:	TriCal	**S/N:** **190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** **305454**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:** **190**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**244**	**136**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1483	79	20.3	20.3	0	Pass
Barometric Pressure Calibration	3283	30	741	741	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3267	20.53	20.53
22.00	3631	22.29	22.72
24.00	4062	24.53	24.72

New gain= 5.558 **, offset=** 1.94 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.94	22.14	-0.20

PASS

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Installation Form

Station:	**Minneapolis**	**AQS #:**	27-053-0963 POC 5
Controller S/N:	**3N-B0256**	**Date/Time:**	3/19/2007 10:10
Sampler Module S/N:	**3N-B0140**	**Technician:**	MAS
Pump Box S/N:	**3N-B0195**	**Site Operator(s):**	Don Bock

Flow Transfer Standard Model:	TriCal	**S/N:** **190**	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** **305454**	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:** **190**	**Cal. Date:** 1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**381**	**306**	**74**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1328	43	8.3	8.3	0	Pass
Barometric Pressure Calibration	3259	26	737	737	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3402	20.14	18.50
22.00	3775	22.01	20.35
24.00	4140	24.56	22.92

New gain= 5.08 **, offset=** 1.45 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.08	22.18	-0.11

PASS

Auditor's Signature: _____

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Station:	**Arnold Tenbrook & Tenbrook, near St.**	**AQS #:**	29-099-0012
Controller S/N:	**3N-B0202**	**Date/Time:**	
Sampler Module S/N:	**3N-B0218**	**Technician:**	
Pump Box S/N:	**3N-B0264**	**Site Operator(s):**	Robert Nilges

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**304020**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**000190**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:				**mmHg in**	**seconds**	

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration						
Barometric Pressure Calibration						

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80			
22.00			
24.00			

New gain= _____, **offset=** _____, **correlation=** _____

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00			

Auditor's Signature: _____

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Installation Form

Station:	St. Louis, Blair Street, MO	**AQS #:**	29-510-0085
Controller S/N:	3N-B0268	**Date/Time:**	4/17/2007
Sampler Module S/N:	3N-B0266	**Technician:**	I. Rennat
Pump Box S/N:	3N-B0273	**Site Operator(s):**	Robert Berri

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	000190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	304020	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	000190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	374	340	34	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1442	24	21.7	21.64	0.06	Pass
Barometric Pressure Calibration	3310	-6	754.2	754	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3230	19.85	20.29
22.00	3575	22.01	22.41
24.00	3940	24.25	24.61

New gain= 5.89 **, offset=** 0.8 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.03	22.04	0.02

PASS

Auditor's Signature: _____

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Notes:
Wood base for sampler to be constructed at a later date by onsite personnel.

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URG 3000N Carbon Sampler
Installation Form

Station:	Missoula, MT	**AQS #:**	30-063-0031 POC 5
Controller S/N:	3N-B0244	**Date/Time:**	5/2/2007
Sampler Module S/N:	3N-B0275	**Technician:**	Mike Slate
Pump Box S/N:	3N-B0252	**Site Operator(s):**	Eric Englebert

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	000263	**Cal. Date:** 10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	101611	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	000263	**Cal. Date:** 10/12/2006

	Max	Min	Diff			
Leak Check Results:	380	354	27	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1422	38	18.4	19.08	0	Pass
Barometric Pressure Calibration	2916	28	666.9	668	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	2963	20.10	19.08
22.00	3275	22.32	21.21
24.00	3595	24.52	23.24

New gain= 5.626 **, offset=** 0.24 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.00	22.04	-0.16

PASS

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URG 3000N Carbon Sampler
Installation Form

Station:	**Camden, NJ**	**AQS #:**	34-007-0003-5
Controller S/N:	**3N-B0214**	**Date/Time:**	3/29/2007
Sampler Module S/N:	**3N-B0188**	**Technician:**	Dave Beichley
Pump Box S/N:	**3N-B0186**	**Site Operator(s):**	Paul, Toppin, Tom McKenna, Jim Oxley

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**W12537**	**Cal. Date:**	10/12/2006

	Max	**Min**	**Diff**			
Leak Check Results:	**128**	**6**	**122**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1328	26	10.1	10.1	0	Pass
Barometric Pressure Calibration	3428	28	771	771	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3523	20.07	18.06
22.00	3908	22.32	19.96
24.00	4294	24.55	21.85

New gain= 5.136 **, offset=** 0.93 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.01	22.14	-0.14

PASS

Auditor's Signature: _____

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Notes:
Pump did not work on start up. Manually turned pump fan blades before it started working.

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URG 3000N Carbon Sampler
Installation Form

Station:	Bronx, NY	**AQS #:**	36-005-0110-5
Controller S/N:	3N-B0172	**Date/Time:**	3/26/2007
Sampler Module S/N:	3N-B0164	**Technician:**	Dave Beichley
Pump Box S/N:	3N-B0198	**Site Operator(s):**	Rich Colas

Flow Transfer Standard Model:	TriCal	**S/N:**	000263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	363	295	68	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1387	60	12.6	12.6	0	Pass
Barometric Pressure Calibration	3411	35	766	766	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3415	19.91	17.69
22.00	3818	22.12	19.52
24.00	4203	24.39	21.40

New gain= 5.025 **, offset=** 1.04 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.94	22.23	-0.29

PASS

Auditor's Signature: _____

☐ Cardinal Photos? ☐ Attendance ☐

Notes:
Tried 2 other Module C units before passing the leak check. Slope seems too low.
Site also moved from original area. Now located on top of junior high school.

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Station:	New York	**AQS #:**	36-061-0134-5
Controller S/N:	3N-B0220	**Date/Time:**	3/26/2007 10:00
Sampler Module S/N:	3N-B0134	**Technician:**	Dave Beichley
Pump Box S/N:	3N-B0192	**Site Operator(s):**	Emanuel Joseph

Flow Transfer Standard Model:	TriCal	**S/N:**	000263	**Cal. Date:** 10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:** 10/12/2006

	Max	Min	Diff			
Leak Check Results:	372	355	17	mmHg in	35 seconds	Pass

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1297	23	7.3	7.3	0	Pass
Barometric Pressure Calibration	3416	31	768	768	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3460	19.82	17.05
22.00	3849	22.07	18.93
24.00	4238	24.25	20.87

New gain= 5.163 **, offset=** -0.02 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.00	22.29	-0.29

Pass

Auditor's Signature: _____

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Notes:
Site moved from Canal St. to an Elementary school.
Initial leak check failed, installed new module.

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URG 3000N Carbon Sampler
Audit Form

Station:	**Winston-Salem**	**AQS #:**	37-067-0110 POC 5
Controller S/N:	**3N-B0127**	**Date/Time:**	2/28/2007 10:00
Sampler Module S/N:	**3N-B0191**	**Technician:**	M Tigges - ARS
Pump Box S/N:	**3N-B0207**	**Site Operator(s):**	Pat Reaga

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Futechnics 4600	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**306**	**74**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration						
Barometric Pressure Calibration						

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80			
22.00			
24.00			

New gain= 5364 **, offset=** 0.88 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00			

PASS/FAIL

Auditor's Signature: _____

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URG 3000N Carbon Sampler
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Station:	Cleveland, OH	**AQS #:**	39-035-0038
Controller S/N:	3N-B0250	**Date/Time:**	4/25/2007
Sampler Module S/N:	3N-B0257	**Technician:**	M H Valvur
Pump Box S/N:	3N-B0144	**Site Operator(s):**	Mike Becker / Frank Reed

Flow Transfer Standard Model:	TRI-CAL	**S/N:**	000263-1	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	EUTECHNICS	**S/N:**	304019	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TRI-CAL	**S/N:**	000263-1	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	377	4	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1476	41	24	24	0	Pass
Barometric Pressure Calibration	3258	6	738	738	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3222	20.15	20.61
22.00	3578	22.36	22.82
24.00	3924	24.58	24.75

New gain= 5.994 **, offset=** 0.47 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.89	21.72	0.17

PASS

Auditor's Signature: _____

N Cardinal Photos? 8 Attendance

Notes:

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URG 3000N Carbon Sampler
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Station:	**Columbus, Maple Canyon, OH**	**AQS #:**	39-049-0081
Controller S/N:	**3N-B0169**	**Date/Time:**	4/26/2007
Sampler Module S/N:	**3N-B0281**	**Technician:**	M H Valvur
Pump Box S/N:	**3N-B0234**	**Site Operator(s):**	Rob Twynham / Chris Hussey

Flow Transfer Standard Model:	TRI-CAL	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	EUTECHNICS	**S/N:**	**304019**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TRI-CAL	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**307**	**73**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1440	0	20	20	0	Pass
Barometric Pressure Calibration	3233	1	730	730	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3150	19.77	20.28
22.00	3489	20.01	22.36
24.00	3843	24.20	24.54

New gain= 5.751 **, offset=** 1.26 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	21.96	21.76	0.20

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Cincinnati, OH	**AQS #:**	39-061-0040
Controller S/N:	3N-B0271	**Date/Time:**	4/20/2007
Sampler Module S/N:	3N-B0182	**Technician:**	I. Rennat
Pump Box S/N:	3N-B0279	**Site Operator(s):**	Ofori Bandoh

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	000190	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	304020	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	000190	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	380	262	118	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1339	8	13.9	13.01	0.9	Pass
Barometric Pressure Calibration	3297	34	743	743	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3269	19.59	19.94
22.00	3615	21.76	22.11
24.00	3963	23.89	24.19

New gain= 5.915 **, offset=** 0.62 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.08	22.22	-0.14

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Steubenville, OH / Logan, OH	**AQS #:**	39-081-0017
Controller S/N:	3N-B0245	**Date/Time:**	4/16/07
Sampler Module S/N:	3N-B0130	**Technician:**	Mitch Walker
Pump Box S/N:	3N-B0255	**Site Operator(s):**	Mike Murphy

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:** 10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	99F101611	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:** 10/12/2006

	Max	Min	Diff			
Leak Check Results:	381	375	6	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1303	41	23.1	23.1	0	Pass
Barometric Pressure Calibration	3221	38	737	737	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3181	19.36	19.36
22.00	3783	21.54	21.54
24.00	4152	23.68	23.68

New gain= 5.863 **, offset=** -0.58 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.93	21.81	0.12

PASS

Auditor's Signature: _____

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Notes:
Not installed, operator will do this later…no photos.

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URG 3000N Carbon Sampler
Installation Form

Station:	Barr School, Sheffield, Lorraine, OH	**AQS #:**	39-093-3002
Controller S/N:	3N-B0178	**Date/Time:**	4/24/2007
Sampler Module S/N:	3N-B0287	**Technician:**	M H Valvur
Pump Box S/N:	3N-B0231	**Site Operator(s):**	Rick Smith

Flow Transfer Standard Model:	TRI-CAL	**S/N:**	**000263-1**	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	EUTECHNICS	**S/N:**	**304019**	**Cal. Date:** 1/12/2007
Barometric Pressure Transfer Standard Model:	TRI-CAL	**S/N:**	**000263-1**	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	**380**	**334**	**46**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1467	51	21.5	21.5	0	Pass
Barometric Pressure Calibration	3313	36	746	746	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3253	20.20	19.70
22.00	3621	22.22	21.75
24.00	3986	24.38	24.15

New gain= 5.578 **, offset=** 1.06 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.95	22.03	-0.08

PASS

Auditor's Signature: _____

Notes:

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URG 3000N Carbon Sampler
Installation Form

Station:	Akron, OH	**AQS #:**	39-153-0023
Controller S/N:	3N-B0187	**Date/Time:**	4/26/2007
Sampler Module S/N:	3N-B0254	**Technician:**	M H Valvur
Pump Box S/N:	3N-B0216	**Site Operator(s):**	Alan Richardson

Flow Transfer Standard Model:	TRI-CAL	**S/N:**	000263-1	**Cal. Date:** 1/31/2007
Temperature Transfer Standard Model:	EUTECHNICS	**S/N:**	304019	**Cal. Date:** 1/19/2007
Barometric Pressure Transfer Standard Model:	TRI-CAL	**S/N:**	000263-1	**Cal. Date:** 1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	320	61	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1389	50	15	15	0	Pass
Barometric Pressure Calibration	3221	-1	735	735	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3443	19.84	18.85
22.00	3625	22.12	20.88
24.00	3987	24.35	21.35

New gain= 5.426 **, offset=** 0.87 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.95	21.79	0.16

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Portland, OR**	**AQS #:**	41-051-0080 POC 6
Controller S/N:	**3N-B0238**	**Date/Time:**	5/1/2007
Sampler Module S/N:	**3N-B0131**	**Technician:**	Mike Slate
Pump Box S/N:	**3N-B0261**	**Site Operator(s):**	Christopher McGarry

Flow Transfer Standard Model:	Tri-Cal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	Tri-Cal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	**381**	**238**	**143**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1415	29	18.6	18.16	0	Pass
Barometric Pressure Calibration	3342	37	751.7	752	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3305	19.80	18.34
22.00	3063	22.00	20.30
24.00	4032	24.19	22.29

New gain= 5.458 **, offset=** 0.31 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.02	22.10	0.08

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	**Liberty, PA**	**AQS #:**	42-003-0064
Controller S/N:	**3N-B0133**	**Date/Time:**	4/17/07 10:30 AM
Sampler Module S/N:	**3N-B0179**	**Technician:**	Mitch Walker
Pump Box S/N:	**3N-B0290**	**Site Operator(s):**	Darrell Stern

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	**263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	**263**	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	**380**	**325**	**55**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1302	43	5.8	5.9	0.1	Pass
Barometric Pressure Calibration	3219	35	727.1	727	0.1	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3610	12.10	19.15
22.00	4210	21.45	21.45
24.00	4603	23.18	23.21

New gain= 5.41 **, offset=** 6.56 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.10	22.10	0.00

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Philadelphia AMS Lab	**AQS #:**	42-101-0004-7
Controller S/N:	3N-B0157	**Date/Time:**	3/27/2007
Sampler Module S/N:	3N-B0161	**Technician:**	Dave Beichley
Pump Box S/N:	3N-B0168	**Site Operator(s):**	Kia Hence, Kyle Robinson, Robert Thomas, Thom

Flow Transfer Standard Model:	TriCal	**S/N:**	000263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	381	368	13	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1443	47	19.5	19.5	0	Pass
Barometric Pressure Calibration	3376	35	759	759	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3340	19.80	18.75
22.00	3682	22.26	20.65
24.00	4042	24.41	22.54

New gain= 5.207 **, offset=** 1.34 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.98	22.10	-0.12

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	24th & Ritner, Philadelphia, PA	**AQS #:**	42-101-0004
Controller S/N:	3N-B0283	**Date/Time:**	4/26/2007
Sampler Module S/N:	3N-B0230	**Technician:**	Mike Slate
Pump Box S/N:	3N-B0243	**Site Operator(s):**	Loretta Hyden

Flow Transfer Standard Model:	BIOS Base	**S/N:**	**Base: B295, Cell: 1461**	**Cal. Date:** 4/12/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	**305454**	**Cal. Date:** 3/7/2007
Barometric Pressure Transfer Standard Model:	BIOS	**S/N:**	**Base: B295, Cell: 1461**	**Cal. Date:** 4/12/2007

	Max	**Min**	**Diff**			
Leak Check Results:	**380**	**320**	**60**	**mmHg in**	**35 seconds**	**PASS**

	Raw	**Offset**	**Sampler**	**Reference**	**Difference**	**Pass/Fail**
Temperature Calibration	1409	37	17.2	15.87	0	Pass
Barometric Pressure Calibration	3387	35	761.3	761	0	Pass

Flow Rate Calibration

Set Point	**Raw**	**Sampler Flow**	**Reference Flow**
19.80	3382	19.83	20.09
22.00	3761	22.04	22.27
24.00	4129	24.22	24.45

New gain= 5.965 **, offset=** 0.35 **, correlation=** 1.000

Flow Rate Audit

Set Point	**Sampler Flow**	**Reference Flow**	**Difference**
22.00	22.00	22.11	0.11

PASS

Auditor's Signature: _____

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Notes:
Training completed on previous trip.

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URG 3000N Carbon Sampler
Installation Form

Station:	Amtrack - Philly	**AQS #:**	42-101-0136-5
Controller S/N:	3N-B0208	**Date/Time:**	3/26/2007
Sampler Module S/N:	3N-B0209	**Technician:**	Dave Beichley
Pump Box S/N:	3N-B0201	**Site Operator(s):**	Kia Hence, Kyle Robinson, Robert Thomas, Thom

Flow Transfer Standard Model:	TriCal	**S/N:**	000263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	381	344	37	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1492	11	28	28	0	Pass
Barometric Pressure Calibration	3362	21	759	759	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80		10.71	10.83
22.00			
24.00			

New gain= _____, **offset=** _____, **correlation=** _____

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00			

Auditor's Signature: _____

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Notes:
Flow failed too low - switched out cable to controller & module & MFC no help - Disconnected reconnected all cables and hoses - no help. Will check tomorrow.
Tried several combinations of equipment and instruments to correct the flow, but failed.
Site located at 24th & W. Ritner St.
4/2/07 - Sent boxes to retrieve failed equipment.

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URG 3000N Carbon Sampler
Installation Form

Station:	Florence, PA	**AQS #:**	42-125-5001
Controller S/N:	3N-B0265	**Date/Time:**	4/18/07
Sampler Module S/N:	3N-B0221	**Technician:**	Mitch Walker
Pump Box S/N:	3N-B0237	**Site Operator(s):**	Rob Valentich

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	381	361	20	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1328	53	7.5	7.5	0	Pass
Barometric Pressure Calibration	3216	42	725	725	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3368	20.19	18.14
22.00	3744	22.36	20.15
24.00	4103	24.66	22.07

New gain= 5.37 **, offset=** 0.07 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.00	22.12	0.12

PASS

Auditor's Signature: _____

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URG 3000N Carbon Sampler
Installation Form

Station:	Greensburg, PA	**AQS #:**	42-129-0008
Controller S/N:	3N-B0280	**Date/Time:**	4/17/07 2:30 PM
Sampler Module S/N:	3N-B0269	**Technician:**	Mitch Walker
Pump Box S/N:	3N-B0222	**Site Operator(s):**	Ros Valentich

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	89	-4	93	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1280	9	7.1	7.2	0.1	Pass
Barometric Pressure Calibration	3199	35	723	723	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80			
22.00			
24.00			

New gain= _____ **, offset=** _____ **, correlation=** _____

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00			

Auditor's Signature: _____

[X] Cardinal Photos? [ ] Attendance [ ]

Notes:
Sampler flow rate too low for flow calibration. Unit will be sent back to URG for repair.

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URG 3000N Carbon Sampler
Installation Form

Station:	**Springhill/Knoxville, TN**	**AQS #:**	47-093-1020
Controller S/N:	**3N-B0193**	**Date/Time:**	4/13/2007 8:00
Sampler Module S/N:	**3N-B0224**	**Technician:**	Martin H Valvur
Pump Box S/N:	**3N-B0285**	**Site Operator(s):**	Amber Talgo, Kelly Vaughn

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**304019**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**000263-1**	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	**381**	**284**	**97**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1318	0	11.8	11.7	0.1	Pass
Barometric Pressure Calibration	3275	2	745	739	6	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3006	19.53	19.43
22.00	3627	21.80	21.29
24.00	3990	23.98	23.55

New gain= 5.652 **, offset=** 0.92 **, correlation=** 0.998

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.02	22.16	-0.14

PASS

Auditor's Signature: _____

[X] Cardinal Photos? [2] Attendance [ ]

Notes:

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URG 3000N Carbon Sampler
Installation Form

Station:	**Bountiful - Utah**	**AQS #:**	49-011-0004
Controller S/N:	**3N-B0235**	**Date/Time:**	4/4/2007 12:00
Sampler Module S/N:	**3N-B0215**	**Technician:**	Neal Olson
Pump Box S/N:	**3N-B0180**	**Site Operator(s):**	Neal Olson

Flow Transfer Standard Model:	TriCal	**S/N:**	**000263**	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	**101611**	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	**W12537**	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	**380**	**319**	**61**	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1400	1	19.8	19.8	0	Pass
Barometric Pressure Calibration	2847	37	651	651	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	2778	19.62	19.56
22.00	3091	21.71	21.68
24.00	3391	23.88	23.88

New gain= 5.965 **, offset=** 0.11 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.04	21.89	0.15

PASS

Auditor's Signature: _____

☐ Cardinal Photos? ☐ Attendance ☐

Notes:

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URG 3000N Carbon Sampler
Installation Form

Station:	Salt Lake City - UT	**AQS #:**	49-035-3006-5
Controller S/N:	3N-B0229	**Date/Time:**	3/21/2007 8:00
Sampler Module S/N:	3N-B0212	**Technician:**	Dave Beichley
Pump Box S/N:	3N-B0153	**Site Operator(s):**	Kevin Hart, Ken Simmons, Bruce Allen, Ray Pace

Flow Transfer Standard Model:	TriCal	**S/N:**	000263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	352	326	26	mmHg in	35 seconds	Pass

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1462	4	25.7	25.7	0	Pass
Barometric Pressure Calibration	2829	29	648.9	648.9	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	2737	19.60	18.86
22.00	3042	21.78	21.05
24.00	3341	23.95	23.21

New gain= 5.999 **, offset=** 0.62 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.08	22.30	-0.22

Pass

Auditor's Signature: _____

☐ Cardinal Photos? ☐ Attendance

Notes:
Performed group training at main office. Neal wanted to keep unit on site for guys to work with. Will install at Hawthorne - downtown Salt Lake and send photos.

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URG 3000N Carbon Sampler
Installation Form

Station:	Lindon, Utah	**AQS #:**	49-049-4001-5
Controller S/N:	3N-B0247	**Date/Time:**	3/20/2007 13:00
Sampler Module S/N:	3N-B0206	**Technician:**	Dave Beichley
Pump Box S/N:	3N-B0174	**Site Operator(s):**	Neal Olson

Flow Transfer Standard Model:	TriCal	**S/N:**	000263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	W12537	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	381	363	17	**mmHg in**	**35 seconds**	**PASS**

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1429	8	22.0	22.0	0	Pass
Barometric Pressure Calibration	2766	29	636.0	636.0	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	2770	20.06	18.82
22.00	3056	22.20	20.81
24.00	3361	24.45	22.92

New gain= 5.611 **, offset=** 0.04 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.86	22.18	-0.32

Pass

Auditor's Signature: _____

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Notes:
Unit performed well, all phases checked out good.

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URG 3000N Carbon Sampler
Installation Form

Station:	Duwamish/Yakima, WA	**AQS #:**	53-033-0057
Controller S/N:	3N-B0181	**Date/Time:**	5/1/2007 3:00
Sampler Module S/N:	3N-B0125	**Technician:**	I. Rennat
Pump Box S/N:	3N-B0282	**Site Operator(s):**	Anthony Leo

Flow Transfer Standard Model:	TriCal	**S/N:**	190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:**	90735	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:**	190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	381	297	83	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1404	31	17.2	17.24	0	Pass
Barometric Pressure Calibration	3314	27	748	748	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3312	20.10	20.48
22.00	3670	22.31	22.87
24.00	4035	24.54	25.07

New gain= 6.197 **, offset=** -0.24 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.95	21.94	0.01

PASS

Auditor's Signature: _____

[X] Cardinal Photos? [ ] Attendance [ ]

Notes:
Operator indicated that this sampler probably would be installed in Yakima at a later date. This unit was assembled, calibrated, and audited along with the Tacoma sampler at Washington State Dept. of Ecology Office in Bellvue, WA.

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URG 3000N Carbon Sampler
Installation Form

Station:	Beacon Hill, WA	**AQS #:**	53-033-0080
Controller S/N:	3N-B0286	**Date/Time:**	5/1/2007
Sampler Module S/N:	3N-B0233	**Technician:**	I. Rennat
Pump Box S/N:	3N-B0276	**Site Operator(s):**	Anthony Leo

Flow Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** 90735	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	379	218	162	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	4999	3659	13.9	13.9	0	Pass
Barometric Pressure Calibration	4095	803	749	749	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3372	19.93	19.38
22.00	3740	22.12	21.84
24.00	4106	24.28	24.04

New gain= 6.078 **, offset=** -0.59 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	21.96	22.09	-0.07

PASS

Auditor's Signature: _____

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Notes:

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URG 3000N Carbon Sampler
Installation Form

Station:	Tacoma, WA	**AQS #:**	53-053-0029
Controller S/N:	3N-B0208	**Date/Time:**	5/2/2007 11:00
Sampler Module S/N:	3N-B0185	**Technician:**	I. Rennat
Pump Box S/N:	3N-B0201	**Site Operator(s):**	Anthony Leo

Flow Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:**	1/31/2007
Temperature Transfer Standard Model:	Eutechnics 4400	**S/N:** 90735	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	TriCal	**S/N:** 190	**Cal. Date:**	1/31/2007

	Max	Min	Diff			
Leak Check Results:	368	318	50	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1384	9	17.4	17.4	0	Pass
Barometric Pressure Calibration	3318	31	748	748	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3282	19.82	19.75
22.00	3648	22.07	21.89
24.00	4010	24.27	24.00

New gain= 5.731 **, offset=** 0.8 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.01	22.04	-0.03

PASS

Auditor's Signature: _____

[X] Cardinal Photos? [ ] Attendance [ ]

Notes:
Sampler was installed but not connected to AC power due to:
*No dedicated circuits available (4) 20 amp circuits - all used)
*Operator could not supply extension cord.
*ALSO - Inlet approx. 3-4 ft. from building air conditioner.

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URG 3000N Carbon Sampler
Installation Form

Station:	Guthrie, Charleston, WV	**AQS #:**	54-039-0011
Controller S/N:	3N-B0274	**Date/Time:**	4/19/07
Sampler Module S/N:	3N-B0278	**Technician:**	Mitch Walker
Pump Box S/N:	3N-B0240	**Site Operator(s):**	Jason Thomas

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	380	215	165	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1338	34	10.3	10.3	0	Pass
Barometric Pressure Calibration	3216	42	725	725	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3715	22.69	20.16
22.00	4131	25.17	22.26
24.00	4553	27.70	24.63

New gain= 5.436 **, offset=** 0.44 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.05	22.10	0.05

PASS

Auditor's Signature: _____

[X] Cardinal Photos? [ ] Attendance [ ]

Notes:
Bad controller. SN 0286 controller, after cal audit flow = ~24.5/pm not 22.
Replaced with new controller ok (SN 0274).

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URG 3000N Carbon Sampler
Installation Form

Station:	Library, Charleston, WV	**AQS #:**	54-039-1005
Controller S/N:	3N-B0196	**Date/Time:**	4/19/07
Sampler Module S/N:	3N-B0236	**Technician:**	Mitch Walker
Pump Box S/N:	3N-B0270	**Site Operator(s):**	Mark Drake, Matt Kemper, Derek Hancock, Joel A

Flow Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006
Temperature Transfer Standard Model:	Eutechnics 4600	**S/N:**	101611	**Cal. Date:**	1/12/2007
Barometric Pressure Transfer Standard Model:	BGI TriCal	**S/N:**	263	**Cal. Date:**	10/12/2006

	Max	Min	Diff			
Leak Check Results:	380	350	30	mmHg in	35 seconds	PASS

	Raw	Offset	Sampler	Reference	Difference	Pass/Fail
Temperature Calibration	1351	19	13.1	13.1	0	Pass
Barometric Pressure Calibration	2280	32	740	740	0	Pass

Flow Rate Calibration

Set Point	Raw	Sampler Flow	Reference Flow
19.80	3311	19.89	18.62
22.00	3670	22.12	20.53
24.00	4050	24.34	22.47

New gain= 5.276 **, offset=** 1.10 **, correlation=** 1.000

Flow Rate Audit

Set Point	Sampler Flow	Reference Flow	Difference
22.00	22.00	22.16	0.16

PASS

Auditor's Signature: _____

[X] Cardinal Photos? [ ] Attendance [ ]

Notes:

4.0 SITE PHOTOS

ARS took five photographs at each site. Four were taken in the cardinal directions and one good documentation image that showed all instrumentation in relation to the station after each installation. Missing images occurred for a number of reasons. In order of frequency, the causes were: the ARS field technician had trouble with a camera or forgot to photograph the site, the site was not prepared for installation and was left in a temporary storage location, and at one site ARS was informed that photography was not allowed.

View from the east – Birmingham, AL

View from the west – Birmingham, AL

View from the north – Birmingham, AL

View from the south – Birmingham, AL

View overall – Birmingham, AL

View from the east – Phenix City, AL

View from the west – Phenix City, AL

View from the north – Phenix City, AL

View from the south – Phenix City, AL

View overall – Phenix City, AL

View from the east – Bakersfield

View from the west – Bakersfield

View from the north – Bakersfield

View from the south – Bakersfield

View overall from northwest – Bakersfield

View overall – Bakersfield

View looking east – LA Central, CA

View looking west – LA Central, CA

View looking north – LA Central, CA

View looking south – LA Central, CA

View overall – LA Central, CA

View from the east – Rubidoux, CA

View from the west – Rubidoux, CA

View from the north – Rubidoux, CA

View from the south – Rubidoux, CA

View from the southeast – Rubidoux, CA

View overall – Rubidoux, CA

View looking east – El Cajon, CA

View looking west – El Cajon, CA

View looking north – El Cajon, CA

View looking south – El Cajon, CA

View from the east – Escondido, CA

View from the west – Escondido, CA

View from the north – Escondido, CA

View from the south – Escondido, CA

View overall – Escondido, CA

View from the east – Modesto, CA

View from the west – Modesto, CA

View from the north – Modesto, CA

View from the south – Modesto, CA

View overall – Modesto, CA

View overall with tower – Modesto, CA

View from the east – Visalia, CA

View from the west – Visalia, CA

View from the north – Visalia, CA

View from the south – Visalia, CA

View overall – Visalia, CA

View looking east – Wilmington, DE

View looking west – Wilmington, DE

View looking north – Wilmington, DE

View looking south – Wilmington, DE

View overall – Wilmington, DE

View to the east – Washington, DC

View to the west – Washington, DC

View to the north – Washington, DC

View to the south – Washington, DC

View overall – Washington, DC

View from the east – Macon, GA

View from the west – Macon, GA

View from the north – Macon, GA

View from the south – Macon, GA

View overall – Macon, GA

View from the east – Columbus, GA

View from the west – Columbus, GA

View from the north – Columbus, GA

View from the south – Columbus, GA

View overall – Columbus, GA

View from the east – Meridian, ID

View from the west – Meridian, ID

View from the north – Meridian, ID

View from the south – Meridian, ID

View overall – Meridian, ID

View from the east – Springfield Chicago, IL

View from the west – Springfield Chicago, IL

View from the north – Springfield Chicago, IL

AQS #17-031-0057

View from the south – Springfield Chicago, IL

View overall with pumping station behind – Springfield Chicago, IL

View looking east – Com Ed, Chicago, IL

View looking south – Com Ed, Chicago, IL

View from the east – Water Plant, Northbrook, IL

View from the west – Water Plant, Northbrook, IL

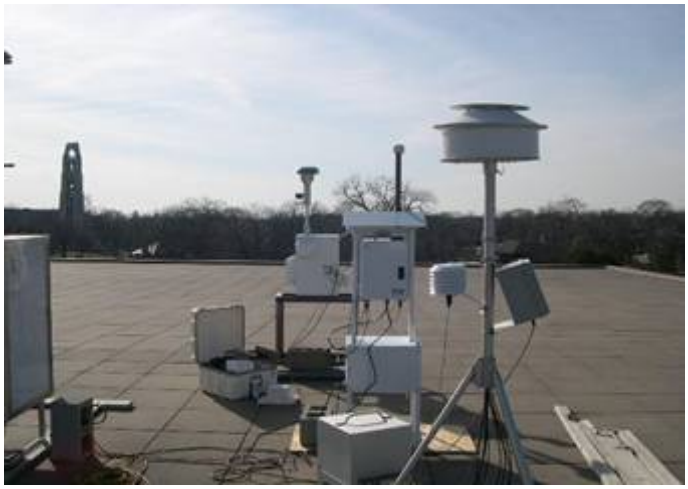
View from the north – Water Plant, Northbrook, IL

View from the south – Water Plant, Northbrook, IL

View overall – Water Plant, Northbrook, IL

View base – Water Plant, Northbrook, IL

View from the east – City Hall Naperville, IL



View from the west – City Hall Naperville, IL

View from the north – City Hall Naperville, IL

View from the south – City Hall Naperville, IL

View overall – City Hall Naperville, IL

View from the east – Alton, IL

View from the west – Alton, IL

View from the north – Alton, IL

View from the south – Alton, IL

View from the east – IITRI, Gary, IN

View from the west – IITRI, Gary, IN

View from the north – IITRI, Gary, IN

View from the south – IITRI, Gary, IN

View overall – IITRI, Gary, IN

View looking east – Purdue Hammond, IN

View looking west – Purdue Hammond, IN

View looking north – Purdue Hammond, IN

View looking south – Purdue Hammond, IN

View from the east – Indianapolis, IN

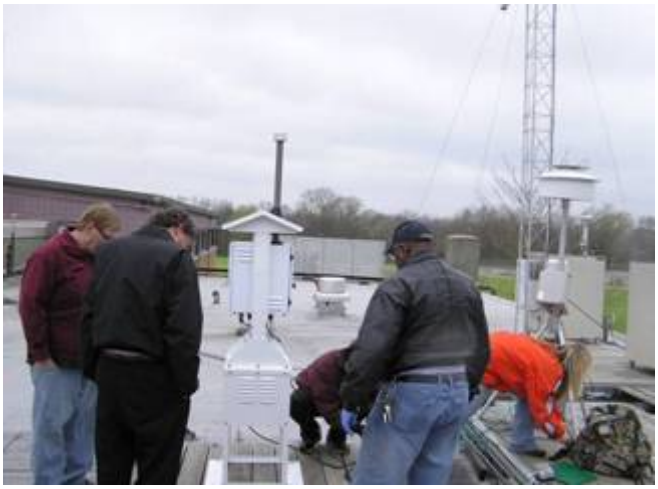
View from the west – Indianapolis, IN

View from the north – Indianapolis, IN

View from the south – Indianapolis, IN

View overall – Indianapolis, IN

View from the east – Louisville, KY



View from the west – Louisville, KY

View from the north – Louisville, KY

View from the south – Louisville, KY

View overall – Louisville, KY

View to the east – Essex, MD

View to the west – Essex, MD

View to the north – Essex, MD

View to the south – Essex, MD

View overall – Essex, MD

View from the east – Ypsilanti, MI

View from the west – Ypsilanti, MI

View from the south – Ypsilanti, MI

View from overall – Ypsilanti, MI

View from the east – Dearborn, MI

View from the west – Dearborn, MI

View from the north – Dearborn, MI

View from the south – Dearborn, MI

View overall – Dearborn, MI

View from the east – Anderson School, Minneapolis, MN

View from the west – Anderson School, Minneapolis, MN

View from the north – Anderson School, Minneapolis, MN

View from the south – Anderson School, Minneapolis, MN

View behind – Anderson School, Minneapolis, MN

View overall – Anderson School, Minneapolis, MN

View from the east – Bonne Terre, MO

View from the northwest – Bonne Terre, MO

View from the northeast – Bonne Terre, MO

View from the east – St. Louis, MO

View from the west – St. Louis, MO

View from the north – St. Louis, MO

View from the south – St. Louis, MO

View overall – St. Louis, MO

View looking east – Missoula, MT

View looking west – Missoula, MT

View looking north – Missoula, MT

View looking south – Missoula, MT

View overall – Missoula, MT

View looking east – Camden, NJ

View looking west – Camden, NJ

View looking north – Camden, NJ

View looking south – Camden, NJ

View overall – Camden, NJ

View looking east – Bronx

View looking west – Bronx

View looking north – Bronx

View looking south – Bronx

View from the east – New York City, NY

View from the west – New York City, NY

View from the north – New York City, NY

View from the south – New York City, NY

View overall – New York City, NY

View looking east – Winston-Salem

View looking west – Winston-Salem

View looking north – Winston-Salem

AQS #37-067-0022

View looking south – Winston-Salem

View overall – Winston-Salem

View from the east – Cleveland, OH

View from the west – Cleveland, OH

View from the north – Cleveland, OH

View from the south – Cleveland, OH

View overall – Cleveland, OH

View from the east – Columbus, OH

View from the west – Columbus, OH

View from the north – Columbus, OH

AQS #39-049-0081

View from the south – Columbus, OH

View overall – Columbus, OH

View from the east – Columbus, OH

View from the west – Columbus, OH

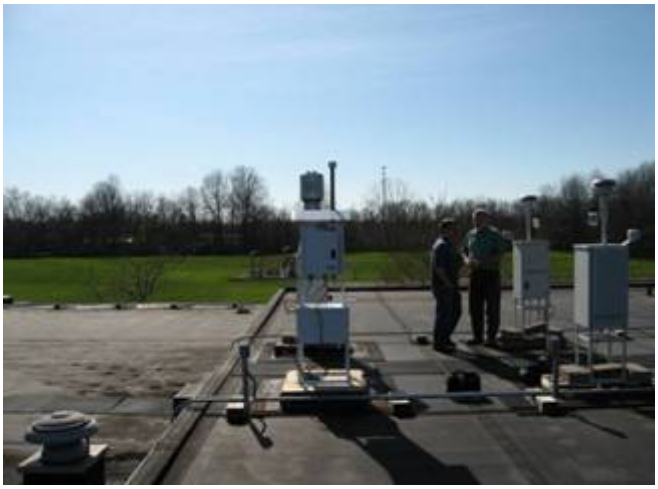
View from the north – Columbus, OH

AQS #39-049-0081

View from the south – Columbus, OH

View overall – Columbus, OH

View from the east – Sheffield, Lorain, OH



View from the west – Sheffield, Lorain, OH

View from the north – Sheffield, Lorain, OH

View from the south – Sheffield, Lorain, OH

View from the southeast – Sheffield, Lorain, OH

View overall – Sheffield, Lorain, OH

View looking east – Portland, OR

View looking west – Portland, OR

View looking north – Portland, OR

View looking south – Portland, OR

View overall – Portland, OR

View from the east – Liberty, PA

View from the west – Liberty, PA

View from the north – Liberty, PA

View from the south – Liberty, PA

View from the east – AMS Building, Philadelphia, PA

View from the west – AMS Building, Philadelphia, PA

View from the north – AMS Building, Philadelphia, PA

View from the south – AMS Building, Philadelphia, PA

View overall – AMS Building, Philadelphia, PA

View looking east – 24th & Ritner, Philadelphia, PA

View looking west – 24th & Ritner, Philadelphia, PA

View looking north – 24th & Ritner, Philadelphia, PA

View looking south – 24th & Ritner, Philadelphia, PA

View overall – 24th & Ritner, Philadelphia, PA

View looking east – Amtrak, Philadelphia, PA

View looking west – Amtrak, Philadelphia, PA

View looking north – Amtrak, Philadelphia, PA

View looking south – Amtrak, Philadelphia, PA

View overall – Amtrak, Philadelphia, PA

View from the east – Florence, PA

View from the west – Florence, PA

View from the north – Florence, PA

View from the south – Florence, PA

View from the east – Greensburg, PA

View from the west – Greensburg, PA

View from the north – Greensburg, PA

View from the south – Greensburg, PA

View from the east – Knoxville, TN

View from the west – Knoxville, TN

View from the north – Knoxville, TN

View from the south – Knoxville, TN

View overall – Knoxville, TN

View looking east – Bountiful, UT

View looking north – Bountiful, UT

View looking south – Bountiful, UT

View overall – Bountiful, UT

View looking east – Salt Lake City, UT

View looking west – Salt Lake City, UT

View looking south – Salt Lake City, UT

View overall – Salt Lake City, UT

View from the east – Lindon, UT

View from the west – Lindon, UT

View from the north – Lindon, UT

View from the northeast – Lindon, UT

View from the south – Lindon, UT

View overall – Lindon, UT

View from the east – Beacon Hill, WA

View from the west – Beacon Hill, WA

View from the north – Beacon Hill, WA

View from the south – Beacon Hill, WA

View overall – Beacon Hill, WA

View from the east – Tacoma, WA

View from the west – Tacoma, WA

View from the north – Tacoma, WA

View from the south – Tacoma, WA

View overall – Tacoma, WA

View from the east – Guthrie, WV

View from the west – Guthrie, WV

View from the north – Guthrie, WV

View from the south – Guthrie, WV

View overall – Guthrie, WV

View from the east – Library, Charleston, WV

View from the west – Library, Charleston, WV

View from the north – Library, Charleston, WV

View from the south – Library, Charleston, WV

5.0 SUMMARY

A number of challenges were overcome during the active phase of this project. In general, good cooperation from the stakeholders was responsible for the success of the project. It is significant to point out that the sampler bears little resemblance to the original concept of a wall-mounted Module C Improve Sampler with critical orifice flow control. Challenges included sampler hardware design changes, sampler firmware changes resulting from hardware changes, firmware changes resulting from QA requirements, and schedule changes. The schedule changes can be summarized into two categories. The first cause was site readiness and acceptance of the requested sampler changes. Siting changes occurred as late as three weeks before the scheduled May 3rd start date. EPA OAQPS managed site selection and negotiations. ARS managed the site visit scheduling. The second cause of the schedule change was the iterative process required to complete the sampler. The addition of the mass flow controller, MFC, the firmware changes required supporting the MFC, the RTI data storage requirements, and the EPA QA group requirements all took time to integrate.

All of us at ARS appreciated the trust and confidence you showed us in letting us help you in Phase I of this project. We eagerly anticipate working with OAQPS in Phase II of the Carbon Sampler Replacement Program. If you have any questions regarding the project or this report, please don't hesitate to contact Dave or me.

David Dietrich or Mark Tigges
Air Resource Specialists, Inc.
1901 Sharp Point Drive, Suite E
Fort Collins, Colorado 80525
Telephone: 970-484-7941
Fax: 970-484-3423
Dave Email: DDietrich@air-resource.com
Mark Email: MTigges@air-resource.com

APPENDIX A

STN Carbon Master Contact List
As of June 18, 2007

Install Group	Install Date	SiteID/Site Location	City Name/RTI Name, EPA Schedule, & POC	State	Controller/ Sampler/ Pump Serial #s	Contact Name(s)	Contact Title(s)	Contact Phone(s)	Contact E-mail(s)
7	4/10/2007	**01-073-0023**	**Birmingham**	**AL**	3N-B0160	Randy Dillard	Field Contact	205-930-1281	Randy.dillard@jcdh.org
					3N-B0263			205-960-7817 cell	
		3009 28th St. No.	SCHED: 3-Day		3N-B0219	Greg Noah	Oversight	706-355-8635	noah.greg@epa.gov
		Birmingham, AL	POC: 5						
7	4/9/2007	**01-113-0001**	**Phenix City**	**AL**	3N-B0277	Mike Malaier	Field Contact	334-260-2747	mml@adem.state.al.us
					3N-B0260	Tobey Malory		334-260-2789 ADEM	
		County Health Dept.	SCHED: 6-Day		3N-B0228	Greg Noah	Oversight	706-355-8635	noah.greg@epa.gov
		1320 Broad St.	POC: 5						
1	3/7/2007	**06-029-0014**	**Bakersfield(2)**	**CA**	3N-B0113	Ken Stroud	Oversight	916-445-3745	kstroud@arb.ca.gov
		Flat Terrain, Oil Refinery	California Ave.		3N-B0114	Debbie Henson	Field Contact	661-334-3992	dhenson@arb.ca.gov
		1.3 mi NNW, Train 1.4	SCHED: 3-day		3N-B0115			661-747-3131 cell	
		mi N, Freeway 1.3 mi E	POC: 5, 6						
					3N-B0118				
					3N-B0120				
1	3/7/2007	**06-037-1103**	**Los Angeles**	**CA**	3N-B0142	Phillip Fine	Oversight	909-396-2239	pmfine@aqmd.gov
					3N-B0143			310-486-4295 cell	
		1630 N. Main Street	SCHED: 6-Day		3N-B0129	Rene Bermudez	Field Contact	909-396-2136	rbermudez@aqmd.gov
			POC: 5					909-967-6179 cell	
1	3/6/2007	**06-065-8001**	**Rubidoux (2)**	**CA**	3N-B0154	Phillip Fine	Oversight	909-396-2239	pmfine@aqmd.gov
					3N-B0288			310-486-4295 cell	
		5888 Mission Boulevard	SCHED: 3-Day		3N-B0132	Rene Bermudez	Field Contact	909-396-2136	rbermudez@aqmd.gov
			POC: 5, 6					909-967-6179 cell	
					3N-B0155				
					3N-B0138				
1	3/5/2007	**06-073-0003**	**El Cajon**	**CA**	3N-B0145	Mahmood Hossain	Division Chief	858-586-2760	mahmood.hossain@sdcounty.ca.gov
		1155 Redwood Ave.	SCHED: 3-Day		3N-B0152	David Craig	Sec. Mgr. Field	858-586-2785	dcraig@sdapcd.org
			POC: 5		3N-B0177				
1	3/5/2007	**06-073-1002**	**Escondido**	**CA**	3N-B0148	Mahmood Hossain	Division Chief	858-586-2760	mahmood.hossain@sdcounty.ca.gov
		600 E. Valley Parkway	SCHED: 6-Day		3N-B0149	David Craig	Sec. Mgr. Field	858-586-2785	dcraig@sdapcd.org
			POC: 5		3N-B0126				

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1	3/8/2007	**06-099-0005** 814 14th Street	**Modesto** SCHED: 6-Day POC: 5	**CA**	3N-B0116 3N-B0117 3N-B0119	Ken Stroud Diane Arnold	Oversight Field Contact	916-445-3745 209-576-6253 209-988-0004 cell	kstroud@arb.ca.gov darnold@arb.ca.gov
1	3/8/2007	**06-107-2002** 310 N. Church Street	**Visalia** SCHED: 6-Day POC: 5	**CA**	3N-B0151 3N-B0146 3N-B0171	Ken Stroud George Jung	Oversight Field Contact	916-445-3745 559-734-0659 559-288-3379 cell	kstroud@arb.ca.gov gjung@arb.ca.gov
9	4/26/2007	**08-001-0006** 7101 Birch Street	**Commerce City** SCHED: 1-in-3 POC: 5	**CO**	3N-B0211 3N-B0209 3N-B0165	Pat McGraw Bradley Rink		303-692-3235 303-692-3225	Pat.McGraw@state.co.us Bradley.rink@state.co.us
2	3/30/2007	**10-003-2004** MLK Blvd. & Justison Street	**Wilmington** SCHED: 6-Day POC: 5	**DE**	3N-B0217 3N-B0128 3N-B0150	Joe Martini Ted Allen	Oversight Oversight	302-323-4542 302-324-2028	joseph.martini@state.de.us ted.allen@state.de.us
2	3/8/2007	**11-001-0043** Station 43 PAMS, Open Field SE end of McMillian Reservoir	**Near Washington** SCHED: 3-Day POC: 5	**DC**	3N-B0136 3N-B0167 3N-B0204	Winston Thaung	Oversight	202-535-2987 202-369-3594 cell	winston.thaung@dc.gov
7	4/12/2007	**13-021-0007** Allied Chemical 600 Guy Paine Road	**Macon** SCHED: 6-Day POC: 5	**GA**	3N-B0184 3N-B0203 3N-B0225	Greg Noah Susan Zimmer-Dauphinee Victor Barr	Oversight Field Contact	706-355-8635 404-363-7004 404-362-4862	noah.greg@epa.gov Susan_Zimmer-Dauphinee@dnr.state.ga.us
7	4/11/2007	**13-215-0011** Cusseta Road	**Columbus** SCHED: 6-Day POC: 5	**GA**	3N-B0166 3N-B0239 3N-B0246	Greg Noah Susan Zimmer-Dauphinee Victor Barr	Oversight Field Contact	706-355-8635 404-363-7004 404-362-4862	noah.greg@epa.gov Susan_Zimmer-Dauphinee@dnr.state.ga.us

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8	4/20/2007	**16-001-0010**	**Near Boise, Meridian**	**ID**	3N-B0205	Bruce Louks	Field Contact	208-373-0294	bruce.louks@deq.idaho.gov
					3N-B0272	Rebecca Goehring	Field Contact	208-863-3563 cell	Rebecca.Goehring@deq.idaho.gov
		520 S. Eagle Rd	SCHED: 3-Day		3N-B0189	Keith Rose	Oversight	206-553-1949	rose.keith@epa.gov
			POC: 5						
3	3/21/2007	**17-031-0057**	**Chicago, Springfield**	**IL**	3N-B0175	Bob Swinford	Field Manager	217-782-9323	Bob.swinford@illinois.gov
					3N-B0197	Terry Sweitzer	Oversight	217-782-7438	EPA2204@epa.state.il.us
		Springfield Pump Station	SCHED: 6-Day		3N-B0156	Jeff Flick	Field Operator	847-366-8769	
		1745 N. Springfield	POC: 5						
3	3/21/2007	**17-031-0076**	**Chicago, ComEd**	**IL**	3N-B0241	Bob Swinford	Field Manager	217-782-9323	Bob.swinford@illinois.gov
					3N-B0137	Terry Sweitzer	Oversight	217-782-7438	EPA2204@epa.state.il.us
		Com Ed Maint. Bldg.	SCHED: 3-Day		3N-B0162	Jeff Flick	Field Operator	847-366-8769	
		7801 Lawndale	POC: 5						
3	3/20/2007	**17-031-4201**	**Northbrook**	**IL**	3N-B0232	Bob Swinford	Field Manager	217-782-9323	Bob.swinford@illinois.gov
					3N-B0194	Terry Sweitzer	Oversight	217-782-7438	Terry.sweitzer@illiois.gov
		Northbrook Water Plant	SCHED: 6-Day		3N-B0135	Jeff Flick	Field Operator	847-366-8769	
		750 Dundee Rd.	POC: 5						
3	3/20/2007	**17-043-4002**	**Naperville**	**IL**	3N-B0139	Bob Swinford	Field Manager	217-782-9323	Bob.swinford@illinois.gov
					3N-B0173	Terry Sweitzer	Oversight	217-782-7438	Terry.sweitzer@illiois.gov
		City Hall	SCHED: 6-Day		3N-B0159	Jeff Flick	Field Operator	847-366-8769	
		400 S. Eagle St.	POC: 5						
5	4/16/2007	**17-119-2009**	**Alton**	**IL**	3N-B0262	Bob Swinford	Field Contact	217-782-9323	bob.swinford@illinois.gov
					3N-B0248	Terry Sweitzer	Oversight	217-782-7438	epa2204@epa.state.il.us
		SIU Dental Clinic	SCHED: 1 in 6		3N-B0249	Jim Henry	Field Contact	618-920-5571 cell	Jim.Henry@Illinois.gov
		1700 Annex St.	POC: 5					618-346-5120	
3	3/22/2007	**18-089-0022**	**Gary**	**IN**	3N-B0223	John Wicker	Field Contact	317-308-3257	jwicker@idem.in.gov slengeri@idem.in.gov
					3N-B0158	Steve Lengerich	Oversight	317-308-3264	slengeri@idem.in.gov
		IITRI Bunker	SCHED: 6-Day		3N-B0183				
		201 Mississippi Street	POC: 5						
3	3/22/2007	**18-089-2004**	**Hammond**	**IN**	3N-B0199	John Wicker	Field Contact	317-308-3257	jwicker@idem.in.gov
					3N-B0200	Steve Lengerich	Oversight	317-308-3264	slengeri@idem.in.gov
		Purdue Univ.	SCHED: 6-Day		3N-B0141				
		Calumet-Powers Bldg.	POC: 5						
		6937 Woodmar Avenue							

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5	4/18/2007	**18-097-0078**	**Indianapolis, Washington Park**	**IN**	3N-B0226	Steve Lengerich	Oversight	317-308-3264	slengeri@idem.in.gov
		Parking Lot, next to			3N-B0284	John Wicker	Field Contact	317-308-3257	jwicker@idem.in.gov
		Police Station	SCHED: 3-Day		3N-B0258	David Moore		317-327-2276	
								317-223-8727 cell	
		3120 E. 30th	POC: 5			Aaron Childs	Field Contact	317-327-2359	
5	4/19/2007	**21-111-0043**	**Louisville**	**KY**	3N-B0124	Cynthia Lee	Field Contact	502-574-7217	cynthia.lee@louisvilleky.gov
					3N-B0251	Greg Noah	Oversight	706-355-8635	noah.greg@epa.gov
		37th & Southern Ave.	SCHED: 6-Day		3N-B0289	Arthur Chang	Field Contact	502-574-7278	arthur.chang@louisvilleky.gov
			POC: 5			Tina Oakes	Field Contact	502-574-7294	Tina.Oakes@louisvilleky.gov
						Ron Jacobs		502-574-8032	
						Terry Canby		502-574-7250	
2	3/9/2007	**24-005-3001**	**Essex**	**MD**	3N-B0190	Ryan Auvil	Field Contact	410-537-3961	rauvil@mde.state.md.us
		Woodward & Franklin			3N-B0176			410-971-6968 cell	dkrask@mde.state.md.us
		Roads	SCHED: 3-Day		3N-B0210	David Krask	Oversight	410-537-3756	
			POC:5						
4	4/23/2007	**26-161-0008**	**Ypsilanti**	**MI**	3N-B0253	Dan Ling	Field Contact	517-335-6679	lingd@michigan.gov
		555 Towner St.	SCHED: 6-Day		3N-B0227	Maryann Heindorf	Oversight	517-373-2151	heindorm@michigan.gov
			POC: 5		3N-B0213	Craig Fitzner	Oversight	517-373-7044	fitzner@michigan.gov
4	4/23/2007	**26-163-0033**	**Dearborn**	**MI**	3N-B0259	Dan Ling	Field Contact	517-335-6679	lingd@michigan.gov
		Public School Property	SCHED: 6-Day		3N-B0242	Maryann Heindorf	Oversight	517-373-2151	heindorm@michigan.gov
		2842 Wyoming	POC: 5		3N-B0267	Craig Fitzner	Oversight	517-373-7044	fitzner@michigan.gov
3	3/19/2007	**27-053-0963**	**Minneapolis, Philips (2)**	**MN**	3N-B0256	Don Bock	Field	651-296-7329 office	donald.bock@pca.state.mn.us
					3N-B0140			651-260-2317 cell	rick.strassman@pca.state.mn.us
		Anderson School,	SCHED: 3-Day		3N-B0195	Rick Strassman	Oversight	651-296-7754	
		Phillips Neighborhood	POC: 5		3N-B0163				
		2727 10th Street			3N-B0170				
					3N-B0147				
5	5/3/2007	**29-186-0005**	**Bonne Terre**	**MO**	3N-B0202	Celeste Koon	Oversight	573-526-3363	celeste.koon@dnr.mo.gov
					3N-B0218				
		east of Hwy D, outside of	SCHED: 1 in 3						
		Bonne Terre	POC: 5		3N-B0264				
5	4/17/2007	**29-510-0085**	**St. Louis**	**MO**	3N-B0268	Bob Berri	Field Contact	314-641-8615	berrib@stlouiscity.com
					3N-B0266	Tom Wiese	Back-up	314-613-7300	wieset@stlouiscity.com
		Blair Street	SCHED: 1 in 3		3N-B0273				
			POC: 6						

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8	5/2/2007	**30-063-0031**	**Missoula**	**MT**	3N-B0244	Eric Englebert		406-258-3642	engleberte@ho.missoula.mt.us
					3N-B0275				
		Health Dept.	SCHED: 3-Day		3N-B0252				
		301 West Alder	POC: 5						
2	3/29/2007	**34-007-0003**	**Camden**	**NJ**	3N-B0214	Jim Oxley	Field Contact	609-633-1468 office	Jim.Oxley@DEP.State.NJ.US
					3N-B0188			609-462-1562 cell	
		Trailer Camden Lab	SCHED: 3-Day		3N-B0186	Tom McKenna	Back-up	609-530-4012	Tom.McKenna@dep.state.nj.us
		Copewood & E. Davis St.	POC: 5						
2	3/26/2007	**36-005-0110**	**Bronx**	**NY**	3N-B0172	Dirk Felton	Oversight	518-402-8502	hdfelton@gw.dec.state.ny.us
					3N-B0164	Dave Wheeler	Field	718-482-6333	
		681 Kelly Street	SCHED: 1 in 3		3N-B0198				
			POC: 5						
2	3/26/2007	**36-061-0134**	**Manhattan, New York**	**NY**	3N-B0220	Dirk Felton	Oversight	518-402-8502	hdfelton@gw.dec.state.ny.us
					3N-B0134	Dave Wheeler	Field	718-482-6333	
		40 Division Street	SCHED: 1 in 3		3N-B0192				
			POC: 5						
6	2/28/2007	**37-067-0022**	**Winston-Salem**	**NC**	3N-B0127	Pat Reagan	Oversight	336-703-2447 CP	reaganpa@forsyth.cc
					3N-B0191			336-703-2453	
		1300 Block Hattie Avenue	SCHED: 6-Day		3N-B0207				
			POC: 5						
4	4/25/2007	**39-035-0038**	**Cleveland, St. Theo**	**OH**	3N-B0250	George Young	Field Contact	216-664-7444	gyoung@city.cleveland.oh.us
					3N-B0257				
		2547 St. Kikhon	SCHED: 6-Day		3N-B0144				
			POC: 6						
4	4/26/2007	**39-049-0081**	**Columbus, Maple Canyon**	**OH**	3N-B0169	Rob Twynham	Field Contact	614-561-5620 cell	rtwynham@columbus.rr.com
					3N-B0281				
		5750 Maple Canyon	SCHED: 6-Day		3N-B0234				
			POC: 6						
5	4/20/2007	**39-061-0040**	**Cincinnati, Taft**	**OH**	3N-B0271	Ana Kelley	Oversight	513-946-7725	anna.kelley@hamilton-co.org
					3N-B0182	Ofori Bandoh	Field Contact	513-946-7720	Ofori.bandoh@hamilton-co.org
		HC-Does Office	SCHED: 6-Day		3N-B0279	Jim Hopkins	Field Contact	513-946-7750	Jim.Hopkins@hamilton-co.org
		250 William Howard Taft	POC: 5						

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6	4/16/2007	**39-081-0017**	**Steubenville**	**OH**	3N-B0245	Mike Murphy	Field Contact	740 385 8501	Mike.murphy@epa.state.oh.us
					3N-B0130	Randy Hock			randy.hock@epa.state.oh.us
		618 Logan St.	SCHED: 6-Day		3N-B0255	Gary Engler			gary.engler@epa.state.oh.us
			POC: 5						
4	4/24/2007	**39-093-3002**	**Sheffield, Lorain**	**OH**	3N-B0178	Randy Hock	Oversight	614-644-3619	randy.hock@epa.state.oh.us
					3N-B0287	Gary Engler	Data Contact	614-644-3623?	gary.engler@epa.state.oh.us
		2180 Lake Breeze	SCHED: 6-Day		3N-B0231	Richard Smith	Field Contact	330-963-1229	ricksmith@epa.state.oh.us
			POC: 5					330-608-7670 cell	
4	4/26/2007	**39-153-0023**	**Akron, 5 Points**	**OH**	3N-B0187	Alan Richardson	Field Contact	330-375-2480 x3950	richaal@ci.akron.oh.us
					3N-B0254				
		Roof of Head Start Center	SCHED: 6-Day		3N-B0216				
		660 W. Exchange St.	POC: 5						
8	5/1/2007	**41-051-0080**	**Portland**	**OR**	3N-B0238	Christopher McGarry	Field Contact	503-229-5983 x235	Mcgarry.christopher@deq.state.or.us
					3N-B0131			503-708-8744 cell	
		5824 SE Lafayette	SCHED: 3-Day		3N-B0261	Keith Rose	Oversight	206-553-1949	rose.keith@epa.gov
			POC: 6						
6	4/17/2007	**42-003-0064**	**Liberty**	**PA**	3N-B0133	Darrell Stern		412-578-8143	dstern@achd.net
		2743 Washington Blvd.			3N-B0179				
		Mckeesport; S. Allegheny	SCHED: 6-Day						
		HS	POC: 6		3N-B0290				
2	3/27/2007	**42-101-0004**	**Philadelphia**	**PA**	3N-B0157	Loretta Hyden	Oversight	215-685-1040	loretta.hyden@phila.gov
					3N-B0161				
		AMS Lab	SCHED: 3-Day		3N-B0168				
		1501 E. Lycoming St.	POC: 7						
2	4/26/2007	**42-101-0136**	**Philadelphia**	**PA**	3N-B0283	Loretta Hyden	Oversight	215-685-1040	loretta.hyden@phila.gov
					3N-B0230				
			SCHED: 6-Day		3N-B0243				
		24th & W. Ritner St.	POC: 5						
6	4/18/2007	**42-125-5001**	**East of Pittsburgh, Florence**	**PA**	3N-B0265	George Mentzer		717-783-9477	gmentzer@state.pa.us
					3N-B0221	Rob Valentich		724-544-8232 cell	rvalentich@state.pa.us
		Hillman State Park, Kings	SCHED: 6-Day		3N-B0237				
		Creek Road	POC: 5						

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6	4/17/2007	**42-129-0008**	**Greensburg**	**PA**	3N-B0280	George Mentzer		717-783-9477	gmentzer@state.pa.us
					3N-B0269	Rob Valentich		724-544-8232 cell	rvalentich@state.pa.us
		Donohoe Rd., Penn DOT	SCHED: 6-Day		3N-B0222				
		Maint. Dist., Bldg., Trailer	POC: 5						
7	4/13/2007	**47-093-1020**	**Knoxville**	**TN**	3N-B0193	Kelly Vaughn	Field Contact	865-215-5944	kwvaughn@aqm.co.knox.tn.us
					3N-B0224	Greg Noah	Oversight	706-355-8635	noah.greg@epa.gov
		4624 Mildred Drive	SCHED: 6-Day		3N-B0285	Amber Talgo	Field Contact	865-215-5942	
			POC: 5						
9	4/4/2007	**49-011-0004**	**Bountiful**	**UT**	3N-B0235	Robert (Neal) Olson		801-887-0760	rolson@utah.gov
					3N-B0215				
		171 West 1370 North	SCHED: 6-Day		3N-B0180				
			POC: 5						
9	3/21/2007	**49-035-3006**	**Salt Lake City**	**UT**	3N-B0229	Robert (Neal) Olson		801-887-0760	rolson@utah.gov
					3N-B0212				
		1675 South 600 East	SCHED: 3-Day		3N-B0153				
			POC: 5						
9	3/20/2007	**49-049-4001**	**Lindon**	**UT**	3N-B0247	Robert (Neal) Olson		801-887-0760	rolson@utah.gov
					3N-B0206				
		30 North Main Street	SCHED: 6-Day		3N-B0174				
			POC: 5						
8	5/1/2007	**53-033-0057**	**Duwamish**	**WA**	3N-B0181	John Williamson	Field Contact	425-649-7118	jwil461@ecy.wa.gov
					3N-B0125	Keith Rose	Oversight	206-553-1949	rose.keith@epa.gov
		4401 E Marginal Way S.	SCHED: 6-Day		3N-B0282				
		Seattle, WA	POC: 6						
8	5/1/2007	**53-033-0080**	**Beacon Hill**	**WA**	3N-B0286	John Williamson	Field Contact	425-649-7118	jwil461@ecy.wa.gov
		Beacon Hill Reservoir			3N-B0233	Keith Rose	Oversight	206-553-1949	rose.keith@epa.gov
		4103 Beacon Hills	SCHED: 3-Day		3N-B0276				
		Seattle, WA	POC: 6						
8	5/2/2007	**53-053-0029**	**Tacoma**	**WA**	3N-B0208	John Williamson	Field Contact	425-649-7118	jwil461@ecy.wa.gov
		S. Tacoma Community Ctr			3N-B0185	Keith Rose	Oversight	206-553-1949	rose.keith@epa.gov
		7802 South L Street	SCHED: 6-Day		3N-B0201	Anthony Leo	Field Contact	425-941-1655 cell	
			POC: 5					425-649-7119	

STN Carbon Master Contact List
As of June 18, 2007

Install Group	Install Date	SiteID/Site Location	City Name/RTI Name, EPA Schedule, & POC	State	Controller/ Sampler/ Pump Serial #s	Contact Name(s)	Contact Title(s)	Contact Phone(s)	Contact E-mail(s)
6	4/19/2007	**54-039-0011**	**Charleston**	**WV**	3N-B0274	Tim Carroll	Oversight	304-926-0499 x 1248	tcarroll@wvdep.org
					3N-B0278			304-926-3634	
		Guthrie Ag. Center	SCHED: 3-Day		3N-B0240	Joel Maddy	Oversight	304-926-0499 x 1249	jmaddy@wvdep.org
		4900 Brenda Ln, Bldg 14	POC: 5			Jason Thomas	Field Contact	304-558-4323	jthomas@wvdep.org
								304-389-7531 cell	
6	4/19/2007	**54-039-1005**	**Charleston**	**WV**	3N-B0196	Tim Carroll	Oversight	304-926-0499 x 1248	tcarroll@wvdep.org
					3N-B0236			304-926-3634	
		Public Library	SCHED: 6-Day		3N-B0270	Joel Maddy	Oversight	304-926-0499 x 1249	jmaddy@wvdep.org
		312 4th Ave.	POC: 5			Jason Thomas	Field Contact	304-558-4323	jthomas@wvdep.org
								304-389-7531 cell	