

PAMS Quality Assurance Implementation Plan

What's it All About

PAMS Program is Revitalized



- Required Sites vs. Enhanced Monitoring
- Smaller required network but striving for more consistent/comparable data quality
- TAD and QA Old and does not represent new thinking
- New monitoring techniques for more frequent data collection
 - Auto GCs
 - Met- Ceilometers
 - Direct NO₂
- New methods may need training
- Needs to occur by July 2019.... Plenty of time right?

Quality Assurance Implementation Plan (QAIP)



Goal-

Lay out a documented game plan that will have us collecting data of acceptable data quality on July 2019 of the **PAMS Required Sites***

Does not provide the details- Provides the game plan that determines:

- what we need
- when we'll need "it"
- and who's responsible for "it"

*Plan does not address Enhanced Monitoring Program

Why?



- Establishes goals/expectations/commitments from EPA and Monitoring Orgs
- Provides a mechanism for communication and buy-in on ideas and new ways of developing and implementing the quality system
- Establishes early commitment to data quality indicators and measurement quality objectives
- To make sure we have a quality system in place before 2019
 - Approved QAPPs and SOPs developed in a way that provides less burden on any one monitoring org.

How?



- PAMS QA Workgroup (EPA Internal)
 - Established in 2015
 - Small internal group made up of EPA Regions and OAQPS
 - Discussed current PAMS programs and needs for new program
 - Put initial outline and draft together of QAIP as our “initial” best ideas

- QAIP Workgroup (Internal and External)
 - Established in May 2016
 - Representatives from all required sites invited to participate
 - Having monthly calls- not just QA issues
 - Review of Draft QAIP under way
 - Workgroup provided 14 pages of comments
 - Goal to finalize by Sept 2016

What's in the QAIP? A Taste



- Roles & Responsibilities- Workgroup, OAQPS, Regions Monitoring Orgs and QA Support Contractor
- Communications – During, planning, implementation, assessment and reporting stages
- Program Support (next slide)
- Timelines and Milestones- Lays out a gannt chart on when things need to be accomplished and by what group
- Resources – In this case what we think it will cost for the external support work

Program Support- EPA will Develop:



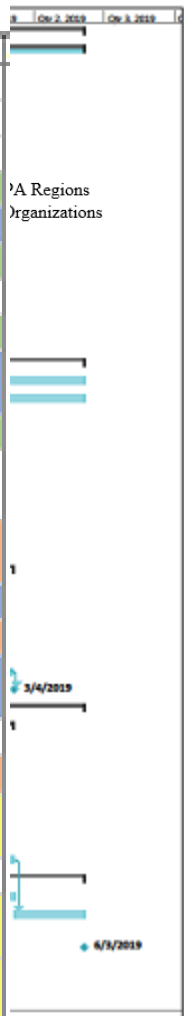
- Data Quality Indicators and Measurement Quality Objectives (10/2016)
- PAMS TAD – QA Section with more details than QAIP (7/2017)
- National QAPP (7/2017)
 - Similar to CSN, EPA will cover most sections; monitoring orgs will need to address some specifics (identified in QAIP) as addendum.
 - Monitoring org option to develop their own QAPP (3/2019)
- National PAMS SOPs (7/2017)
 - for each auto-GC in national contract, carbonyls sampling and cartridge analysis, ceilometer, true NO₂
- Training Program (10-2018 to 3/2019)
 - Developing 3 training sessions once equipment is selected
 - Workgroup consultation on how and where they will be implemented
- TSAs and Proficiency Test Programs (7/2017)
 - Concept of operations and audit forms in National QAPP
 - Shakedown audit prior to implementation (early 2019 on whenever a site may be ready)

- Green - EPA OAQPS and/or the EPA Regions
- Yellow - PAMS Core Monitoring Organizations
- Blue - PAMS Core Workgroup
- Orange - Support Contractor



ID	Task Name
1	Implementation of Updated
2	Documents
3	PAMS Quality Assurance
4	Draft final PAMS QA IP
5	PAMS Core Workgroup reviews draft final PAMS QA IP
6	QA/QPS distributes final PAMS QA IP
7	PAMS TAD and Generic QAPP and SOPs
8	Draft PAMS TAD, QAPP and SOPs
9	PAMS Core Workgroup review and provide input to these documents
10	QA/QPS distributes final PAMS TAD, QAPP and SOPs
11	PAMS Technical Systems Audits and Proficiency Testing Program
12	Contractor develops nationwide PAMS TSA and Proficiency Testing Program
13	PAMS Core Workgroup reviews PAMS TSA and PT Programs
14	Contractor revises and finalizes PAMS TSA and PT Programs
15	PAMS Core Workgroup approves PAMS TSA and PT programs
16	Proficiency Testing and TSAs
17	Contractor executes PT program and TSAs
18	Monitoring Organizations and Regions develop and execute corrective actions to address nonconformances
19	PAMS Waivers and Core Implementation Plan ¹
20	Monitoring Organizations prepare waivers and develop draft PAMS Core Implementation Plans
21	Monitoring Organizations submit waivers and Core IPs to QA/QPS and Regions

ID	Task Name	Duration	Start	Finish
1	Implementation of Updated PAMS Core Program	833 days	Fri 1/1/16	Tue 6/4/19
2	Documents	850 days	Wed 3/2/16	Tue 6/4/19
3	PAMS Quality Assurance Implementation Plan	66 days	Wed 3/2/16	Wed 6/1/16
4	Draft final PAMS QA IP ¹			Fri 4/1/16
5	PAMS Core Workgroup reviews draft final PAMS QA IP	44 days	Wed 3/2/16	Sun 5/1/16
6	QA/QPS distributes final PAMS QA IP			Wed 6/1/16
7	PAMS TAD and Generic QAPP and SOPs	334 days	Tue 4/5/16	Fri 7/14/17
8	Draft PAMS TAD, QAPP and SOPs	218 days	Tue 4/5/16	Thu 2/2/17
9	PAMS Core Workgroup review and provide input to these documents	65 days	Sat 2/4/17	Thu 5/4/17
10	QA/QPS distributes final PAMS TAD, QAPP and SOPs			Thu 7/13/17
11	PAMS Technical Systems Audits and Proficiency Testing Program	325 days	Tue 4/5/16	Mon 7/3/17
12	Contractor develops nationwide PAMS TSA and Proficiency Testing Program	218 days	Tue 4/5/16	Thu 2/2/17
13	PAMS Core Workgroup reviews PAMS TSA and PT Programs	65 days	Fri 2/3/17	Thu 5/4/17
14	Contractor revises and finalizes PAMS TSA and PT Programs	42 days	Fri 5/5/17	Mon 7/3/17
15	PAMS Core Workgroup approves PAMS TSA and PT programs	0 days	Tue 7/4/17	Tue 7/4/17
16	Proficiency Testing and TSAs	500 days	Tue 7/4/17	Mon 6/3/19
17	Contractor executes PT program and TSAs	500 days	Tue 7/4/17	Mon 6/3/19
18	Monitoring Organizations and Regions develop and execute corrective actions to address nonconformances	500 days	Tue 7/4/17	Mon 6/3/19
19	PAMS Waivers and Core Implementation Plan ¹	384 days	Fri 4/1/16	Wed 10/4/17
20	Monitoring Organizations prepare waivers and develop draft PAMS Core Implementation Plans	283 days	Fri 4/1/16	Tue 5/2/17
21	Monitoring Organizations submit waivers and Core IPs to QA/QPS and Regions			Tue 5/2/17



Project: GnatChart_Draft_10772
Date: Fri 3/11/16

Legend for Gantt chart symbols:

- Task: Solid bar
- Split: Dashed bar
- Milestone: Diamond symbol
- Summary: Dotted bar
- Project Summary: Dotted bar with vertical line
- Inactive Task: Dashed bar with vertical line
- Inactive Milestone: Diamond with vertical line
- Inactive Summary: Dotted bar with vertical line
- Manual Task: Solid bar with vertical line
- Duration-only: Solid bar with vertical line
- Manual Summary Rollup: Solid bar with vertical line
- Manual Summary: Solid bar with vertical line
- Start-only: Solid bar with vertical line
- Finish-only: Solid bar with vertical line
- External Tasks: Solid bar with vertical line
- External Milestone: Diamond with vertical line
- Deadline: Solid bar with vertical line
- Progress: Solid bar with vertical line
- Manual Progress: Solid bar with vertical line

Data Quality Indicators and Measurement Quality Objectives

First cut



Table 1-3 Data Quality Indicators and Measurement Quality Objectives for the PAMS Required Parameters

Method or Parameter	DQI				Source
	Bias (%)	Precision (%)	Detection	Completeness (%)	
Auto-GC target compounds	25	15-25 ¹	0.5 ppbC	95	Technical Assistant Document for the National Air Toxics Trends Stations Programs. October 12, 2015. Concentration > 5x MDL
True NO ₂ and NO/NO _y	10	10	0.010 ppm	75	Quality Assurance Handbook for Air Pollution Measurement Systems. Volume II. Ambient Air Quality Monitoring Program. May, 2013. http://www3.epa.gov/ttn/amtic/files/ambient/pm25/qa/QA-Handbook-Vol-II.pdf
Ozone	7	7	0.002 ppm	> 90% (avg) daily max available in ozone season with min of 75% in any one year.	Quality Assurance Handbook for Air Pollution Measurement Systems. Volume II. Ambient Air Quality Monitoring Program. May, 2013. http://www3.epa.gov/ttn/amtic/files/ambient/pm25/qa/QA-Handbook-Vol-II.pdf
TO-11A (carbonyls)	25	15	0.1 µg/m ³	85	Technical Assistant Document for the National Air Toxics Trends Stations Programs. October 12, 2015.
Meteorology	Accuracy		Resolution	Completeness (%)	Source
Ambient Temperature	±0.5 °C		0.1 °C	75	Quality Assurance Handbook for Air Pollution Measurement Systems. Volume IV: Meteorological Measurements Version 2.0 (Final). March 2008. http://www3.epa.gov/ttn/amtic/files/ambient/met/Volume_IV_Meteorological_Measurements.pdf
Relative Humidity	±5 %RH		0.5% RH		
Barometric Pressure	±1 hPa		0.1 hPa		
Wind Speed	±0.2 m/s + 5%		0.1 m/s		
Wind Direction	±5 degrees		1 degrees		
Solar Radiation	±5%		1 Watts/m ²		
UV Radiation	±5%		0.01 Watts/m ²		
Precipitation	±10%		0.25 mm/hr		
Mixing Height	±1%		5 m	CL31 Ceilometer for Cloud Height Detection. Vaisala. http://www.vaisala.com/Vaisala%20Documents/Brochures%20and%20Datasheets/CL31-Datasheet-B210415EN.pdf	

¹Type of check and acceptance criteria still under evaluation

How are we doing?



- Developed a SharePoint Site for review and communication
 - QAIP on site for review – Have addressed most comments
 - Finalization of QAIP –September 2016 (will post to AMTIC)
- Developed Questionnaire for Site Info and Equipment Inventory
 - Posted on SharePoint
 - PAMS Point of Contacts filling it out (suggested completion by Oct.)
- Work Plan accepted for contractor support work on TAD, QAPP, SOPs, Training, TSAs and PTs
- Workgroup will meet monthly to discuss and develop the program
- Thinking about development of an example PAMS Site Implantation Plan (based on site questionnaire)

Region	4
State	Tennessee
AQS ID	47-157-0075
CBSA	Memphis, TN-MS-AR



PAMS Required Site Inventory Form

Parameter	Category	
Site	Is the AQS site ID listed above the expected PAMS Core site location?	
	What is the status of the decision for the expected PAMS Core site location (not started, draft, or final)?	
	Is there an alternate PAMS Core site location selected?	
	Identify type of alternative site (existing PAMS, NATTS, etc)	
	Alternate site AQS ID (if known)	
Mixing Height	Is there an existing functional ceilometer or other similar instrument available for use?	
	current location (at future PAMS Core site, at other site, not applicable)	
	instrument type (ceilometer, radar profiler, etc)	
	manufacturer	
	model	
Auto GC	Is there an existing Auto GC available for use?	
	current location (at future PAMS Core site, at other site, not applicable)	
	manufacturer	
	model	
	date purchased	
True NO2	Is there an existing true NO2 instrument available for use?	
	current location (at future PAMS Core site, at other site, not applicable)	
	instrument type (photolytic conversion, cavity ringdown, CAPS, etc)	
	manufacturer	
	model	
Carbonyls Sampling	Is there an existing sequential carbonyls sampling unit or similar instrument available for use?	
	current location (at future PAMS Core site, at other site, not applicable)	
	manufacturer	
	model	
	date purchased	
Carbonyls Analysis	Does the site currently have a support laboratory for carbonyls or plans to use a support laboratory?	
	laboratory name	
	comments	
	Barometric Pressure	instrument type (aneroid barometer, etc)
		manufacturer
model		
date purchased		
comments		
UV Radiation	instrument type (UV radiometer, etc)	
	manufacturer	
	model	
	date purchased	
	comments	
Solar Radiation	instrument type (pyranometer, etc)	
	manufacturer	
	model	
	date purchased	
	comments	
Precipitation	instrument type (tipping bucket, weighing, etc)	
	manufacturer	
	model	
	date purchased	
	comments	

Using SharePoint allows for all to examine what others are thinking