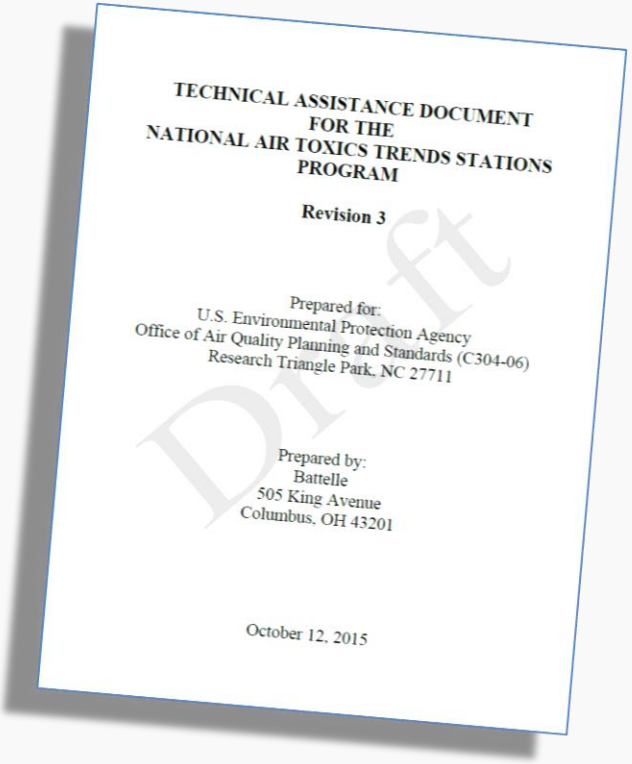
NATTS QA Updates and Overview



TECHNICAL ASSISTANCE DOCUMENT
FOR THE
NATIONAL AIR TOXICS TRENDS STATIONS
PROGRAM

Revision 3

Prepared for:
U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards (C304-06)
Research Triangle Park, NC 27711

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Draft

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No QA? Hope for the best!

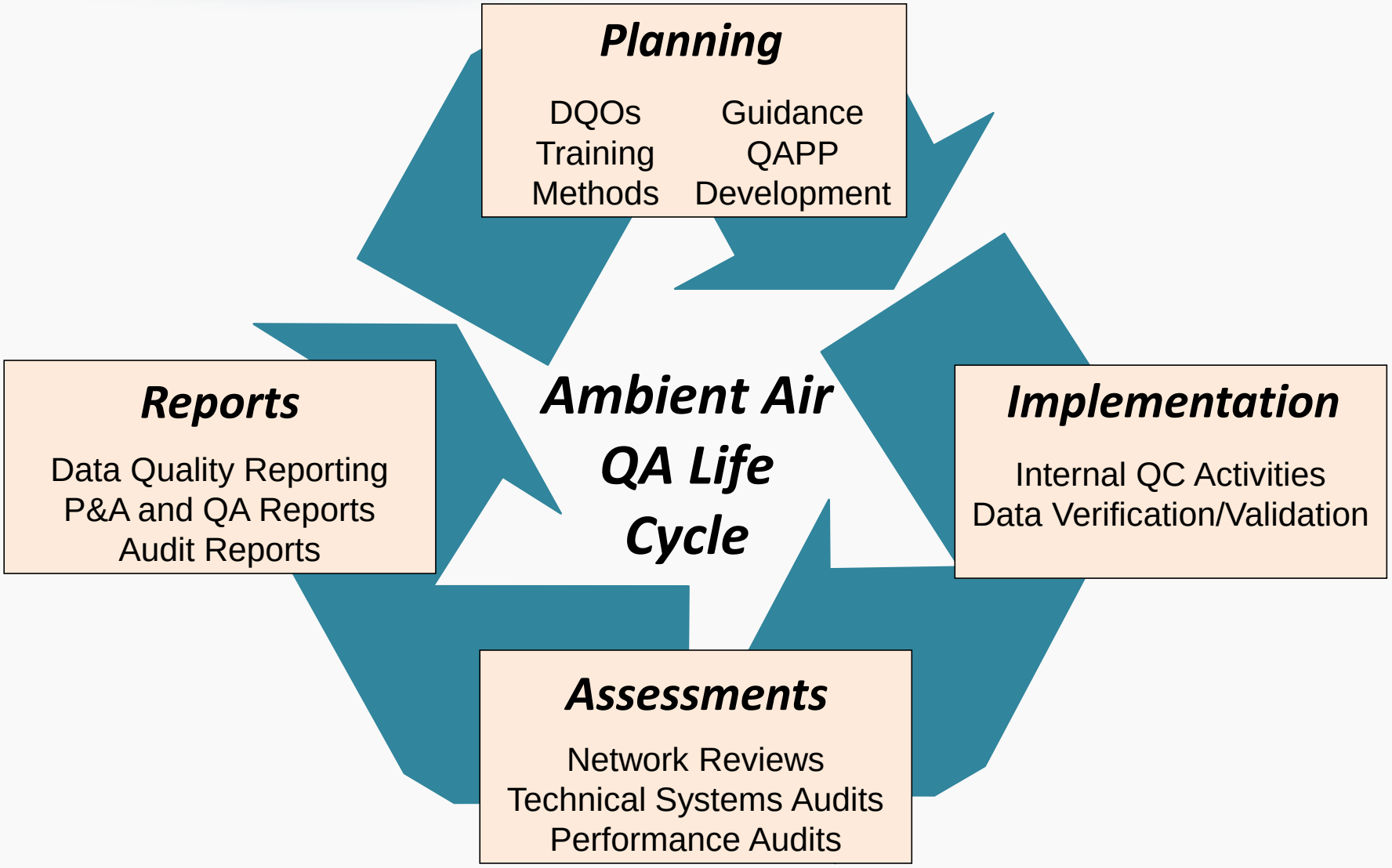
No QA? In reality…

Overview

Busy times for NATTS QA, let's focus on a few things…

- Quick Review of the Quality System
- Technical Systems Audits – Procedure and Progress
- Top Issues Found in NATTS TSAs
- NATTS TAD Section 3 – Quality Assurance
- NATTS Data Validation Tables

Quality Assurance



Technical Systems Audits

What's the scoop…

- Conducted at each NATTS laboratory and monitoring site every three years
- Our contractor conducts the audit
- Quality system is assessed
- Each analysis method is audited
- Performance audits of field equipment is performed
- Final report
- Corrective action

The Goal?

Improvement in the NATTS Network as a whole!

Technical Systems Audits

Progress up to now…

16 Laboratories and 18 NATTS TSAs Completed

Calendar Year	Audit Scheduled or Conducted	Lab	Site	status
2013	August 19-21	SCDHEC	Chesterfield, SC	completed
	December 9-10, 2013	BAAQMD	San Jose, CA	completed
	December 11-13, 2013	ODEQ	Portland, OR	completed
2014	July 29-August 1, 2014	SCAQMD	Rubidoux, CA	completed
			Los Angeles, CA	
	July 7-10, 2014	CDPHE	Grand Junction, CO	completed
			Bountiful, UT	
	June 16-18, 2014	RIDOH	Providence, RI	completed
	November 5-6, 2014	ERG		completed
2015	February 3, 2015	WVDEP		completed
	October 13-15, 2015	VA DCLS	Richmond, VA	completed
	March 3-6, 2015	TCEQ	Deer Park, TX	completed
			Harrison County, TX	
	April 20-21, 2015	VTDEC	Underhill, VT	completed
	September 21-22, 2015	MADEP	Boston - Roxbury	completed
	July 20-22	NYSDEC	Bronx, NY	completed
			Rochester, NY	
	August 19-20, 2015	MIDEQ	Dearborn, MI	completed
	August 11-13, 2015	MDE	Washington, DC	completed
		PAMSL		
	September 28, 2015		Northbrook, IL	completed

Technical Systems Audits

Progress up to now…

Upcoming NATTS TSAs

2016	January 2016	PCDEM	Hillsborough County, FL	tentative
		EPCHC	Pinellas County, FL	
	February 2016	BAAQMD	San Jose, CA	tentative
			Phoenix, AZ	
	March 2016	SCDHEC	Chesterfield, SC	tentative
	April 2016	GADNR	Decatur, GA	tentative
	May 2016		St. Louis, MO	tentative
	June 2016	ODEQ	Portland, OR	tentative
			LaGrande, OR	
			Seattle-Beacon Hill, WA *	
	June 2016	WSLH	Horicon, WI	tentative
	June 2016		Grayson Lake, KY	tentative
	June 2016	RTI **		tentative

Technical Systems Audits

Progress up to now…

Where are we now?

Reports in Progress

- Washington, DC site
- Maryland DEP laboratory
- PAMSL laboratory
- Dearborn, MI site
- MDEQ laboratory
- Boston-Roxbury, MA site
- MA DEP laboratory
- Northbrook, IL site
- Richmond, VA site
- VA DCLS laboratory

Reports out for "fact check"

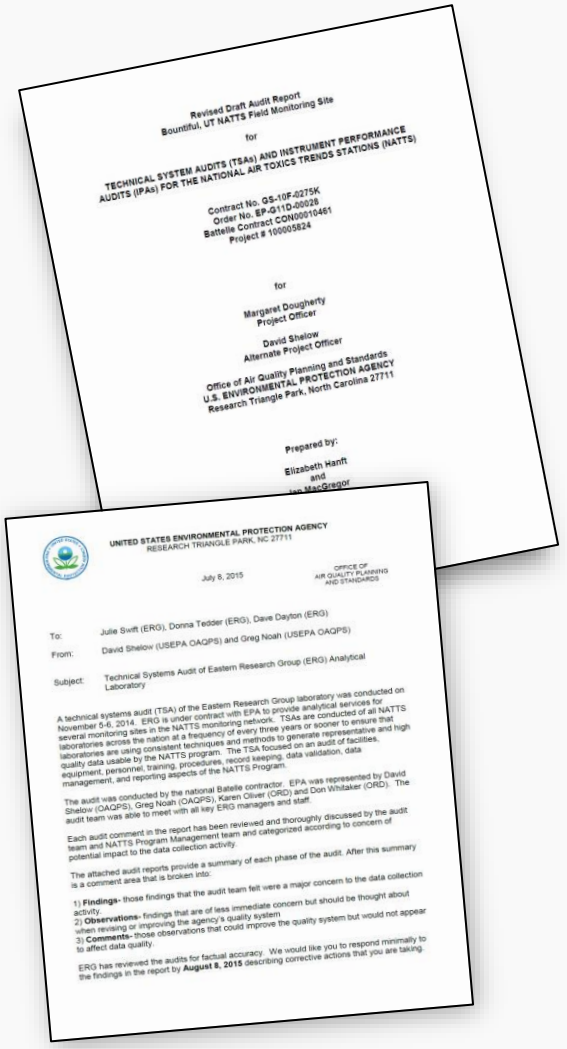
- Vermont DEC laboratory
- Underhill, VT
- Texas CEQ laboratory
- Deer Park, TX site
- Karnack, TX site
- New York State DEC laboratory
- Bronx, NY site
- Rochester, NY site

Technical Systems Audits

TSA Reporting and Follow-up

Process:

- Exit interview
- Contractor completes a draft report and compiles non-conformances distributing to OAQPS and Regional EPA NATTS lead to “rank” the audit notes (Findings, Observations, Comments). **We have compiled a “master list” of rankings that we use for all audits for consistency across audits.**
- Rankings are incorporated into a draft report.
- Draft reports are distributed by OAQPS for a “fact check”. This is not a chance to negotiate the non-conformances or change the audit notes.
- Final report is issued with a cover letter requesting a Corrective Action Report
- Corrective Action is facilitated through the Regional NATTS lead and OAQPS



Audit Findings

Top TSA Findings

Quality System

- Ineffective or non-existent Quality System
- QC acceptance criteria wider than NATTS requirement
- No internal audits
- Out of date QAPPs and SOPs
- Inadequate on non-existent document control
- Sample custody issues
- Lack of training and/or documentation
- Lack of corrective action
- Inadequate data review

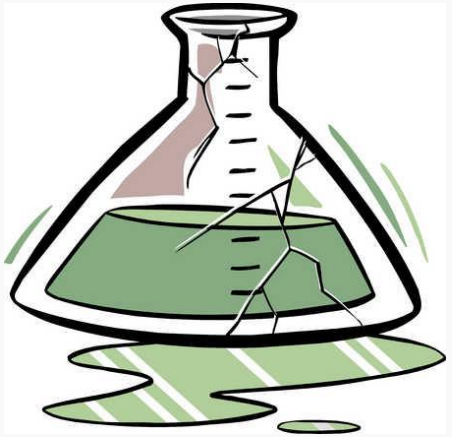
~~Dog~~ NATTS Shaming

Audit Findings

Top TSA Findings

Laboratory

- MDLs are not determined correctly
- Holding times exceeded without qualifying data
- VOC standards and QC samples are not humidified
- Volumetric measurement equipment are not certified (pipettes/glassware)
- QA data not in AQS

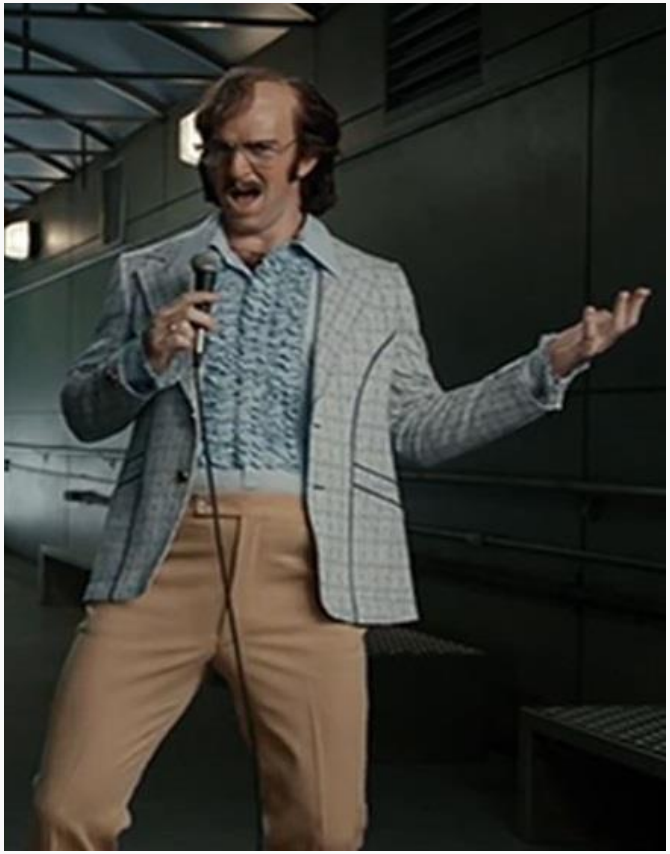


Field

- Bias checks for carbonyl and VOC samplers are not performed or evaluated
- Field blanks are not collected
- Sampling inlets are not cleaned or replaced
- Siting criteria are not being met
- QA data not uploaded to AQS

New TAD – QA/QC Section

Section 3



Introducing a QA/QC section for NATTS!

Defines the NATTS quality system including:

- Data Quality Indicators and Measurement Quality Objectives
- Discussion regarding Performance Based Method Criteria
- Quality System Elements for the NATTS program
- Corrective action
- Internal audits
- Document Control
- Training
- Sample custody
- Data verification
- AQS reporting

New TAD – Validation Tables

Section 7

"What guidance is there on validating NATTS data? Do you have validation tables?" – A random NATTS QA lead

"Why yes we do!" – Greg Noah

Validation Tables for NATTS based on the NAAQS Validation Templates from the QA Handbook and Region 4's regional NATTS QA validation template

- Is a guide for NATTS data reviewers to assess NATTS data
- Organizes QC elements in one place for the reviewer
- Provides detailed descriptions of the checks, frequencies, acceptance criteria, references, and categories
- Rates the importance of the QC elements by their effect on the data
- Defines the ratings (critical, MQO, operational, practical)
- Groups by NATTS method and follows the method process from start to finish
- Will be available in Excel format to sort according to user needs

New TAD – Validation Tables

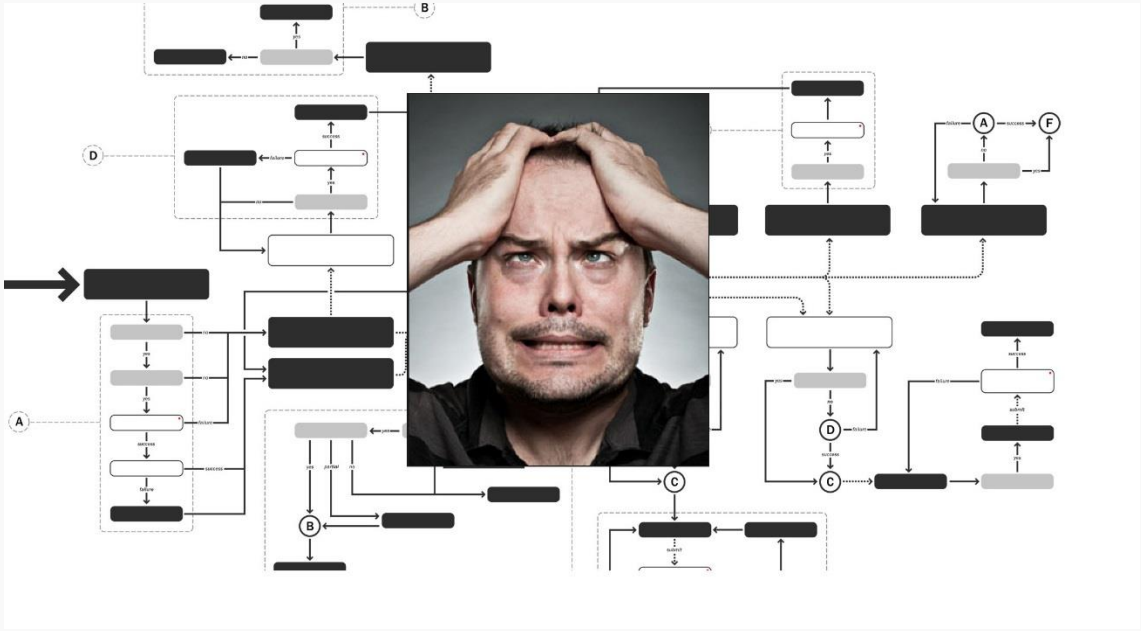
7.3 Metals via EPA Compendium Method IO 3.1 and IO 3.5

Parameter	Description and Required Frequency	Acceptance Criteria	Reference	Category
Field Readiness Checks and Collection Activities				
Collection Media	All field-collected samples and matrix quality control samples	Low volume collection: 47-mm Teflon filters with polypropylene support ring and 2-µm pore size	Section 4.4.9.3	Critical
		High volume collection: 8”x10” quartz fiber filter (QFF) filters with 2-µm pore size	Section 4.4.10.3	Critical
Media Inspection	All filters	Filters inspected for pinholes, tears, or other imperfections unsuitable for sample collection	Section 4.4.3.3	Critical
Media Handling	All field-collected samples and quality control samples	Low volume: Plastic or Teflon coated forceps or powder-free gloves	Section 4.4.3.2	Practical
		High volume: Plastic or Teflon coated forceps or powder-free gloves		Practical
Lot Background Determination	For each new lot of media: • As part of the MDL process when determining MDLs via Section 4.1.3.1 or • Five filter separate filters analyzed and digested	Low volume: No acceptance criterion Lot blank subtraction is not permitted	Section 4.4.9.3.1	Practical
		High volume: No acceptance criterion Lot blank subtraction is not permitted	Section 4.4.10.3.1	Practical
Sampling Unit Clock/Timer Check	Verified with each sample collection event	Clock/timer accurate to ± 1 minute of reference, set to local standard time Sample collection period verified to be midnight to midnight	Table 3.3-1	Operational
Sampling Unit Leak Check	Low volume sampling units only: Every five sample collection events	Leak rate of ≤ 10 mm Hg over 10 minutes	Section 4.4.9.4	Practical

Wrap-up

A Robust Quality System is a "must" for NATTS

- Ensures consistent data quality
- Ensures we meet the requirements needed to make decisions
- Ensures adequate documentation for defending the data
- Ensures consistency across the network
- Establishes responsibility for the components of the program
- Ensures continuity in operation



QUALITY

A job well done is just begging to be undone.

Questions?