NATTS QA Updates and Overview

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No QA? Hope for the best!

QUALITY CONTROL
Sometimes having no quality system results in... awesomeness.
No QA? In reality...
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

Ambient Air QA Life Cycle

Planning
- DQOs
- Training
- Methods
- Guidance
- QAPP
- Development

Reports
- Data Quality Reporting
- P&A and QA Reports
- Audit Reports

Implementation
- Internal QC Activities
- Data Verification/Validation

Assessments
- Network Reviews
- Technical Systems Audits
- Performance Audits
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

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Audit Scheduled or Conducted</th>
<th>Lab</th>
<th>Site</th>
<th>status</th>
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<tbody>
<tr>
<td>2013</td>
<td>August 19-21</td>
<td>SCDHEC</td>
<td>Chesterfield, SC</td>
<td>completed</td>
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<td></td>
<td>December 9-10, 2013</td>
<td>BAAQMD</td>
<td>San Jose, CA</td>
<td>completed</td>
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<td></td>
<td>December 11-13, 2013</td>
<td>ODEQ</td>
<td>Portland, OR</td>
<td>completed</td>
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<td>2014</td>
<td>July 29-August 1, 2014</td>
<td>SCAQMD</td>
<td>Rubidoux, CA</td>
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<td></td>
<td></td>
<td></td>
<td>Los Angeles, CA</td>
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<td></td>
<td>July 7-10, 2014</td>
<td>CDPHE</td>
<td>Grand Junction, CO</td>
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<td>Bountiful, UT</td>
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<tr>
<td></td>
<td>June 16-18, 2014</td>
<td>RIDOH</td>
<td>Providence, RI</td>
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<tr>
<td></td>
<td>November 5-6, 2014</td>
<td>ERG</td>
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<tr>
<td></td>
<td>February 3, 2015</td>
<td>WVDEP</td>
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<td></td>
<td>October 13-15, 2015</td>
<td>VA DCLS</td>
<td>Richmond, VA</td>
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<td>March 3-6, 2015</td>
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<td>Deer Park, TX</td>
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<td>Harrison County, TX</td>
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<td>April 20-21, 2015</td>
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<td>September 21-22, 2015</td>
<td>MADEP</td>
<td>Boston - Roxbury</td>
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<td>2015</td>
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<td>MIDEQ</td>
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<td>August 11-13, 2015</td>
<td>PAMSL</td>
<td>Washington, DC</td>
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<td>September 28, 2015</td>
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<td>Northbrook, IL</td>
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# Upcoming NATTS TSAs

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Agency</th>
<th>Location</th>
<th>Status</th>
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<tbody>
<tr>
<td>2016</td>
<td>January</td>
<td>PCDEM</td>
<td>Hillsborough County, FL</td>
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<td></td>
<td></td>
<td>EPCHC</td>
<td>Pinellas County, FL</td>
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<td>2016</td>
<td>February</td>
<td>BAAQMD</td>
<td>San Jose, CA</td>
<td>tentative</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Phoenix, AZ</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>March</td>
<td>SCDHEC</td>
<td>Chesterfield, SC</td>
<td>tentative</td>
</tr>
<tr>
<td>2016</td>
<td>April</td>
<td>GADNR</td>
<td>Decatur, GA</td>
<td>tentative</td>
</tr>
<tr>
<td>2016</td>
<td>May</td>
<td></td>
<td>St. Louis, MO</td>
<td>tentative</td>
</tr>
<tr>
<td>2016</td>
<td>June</td>
<td>ODEQ</td>
<td>Portland, OR</td>
<td>tentative</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LaGrande, OR</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Seattle-Beacon Hill, WA *</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>June</td>
<td>WSLH</td>
<td>Horicon, WI</td>
<td>tentative</td>
</tr>
<tr>
<td>2016</td>
<td>June</td>
<td>RTI **</td>
<td>Grayson Lake, KY</td>
<td>tentative</td>
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</tbody>
</table>

* * *
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
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
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
“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
### 7.3 Metals via EPA Compendium Method IO 3.1 and IO 3.5

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