Ambient Monitoring Update

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NAAQS Reviews: Status Update

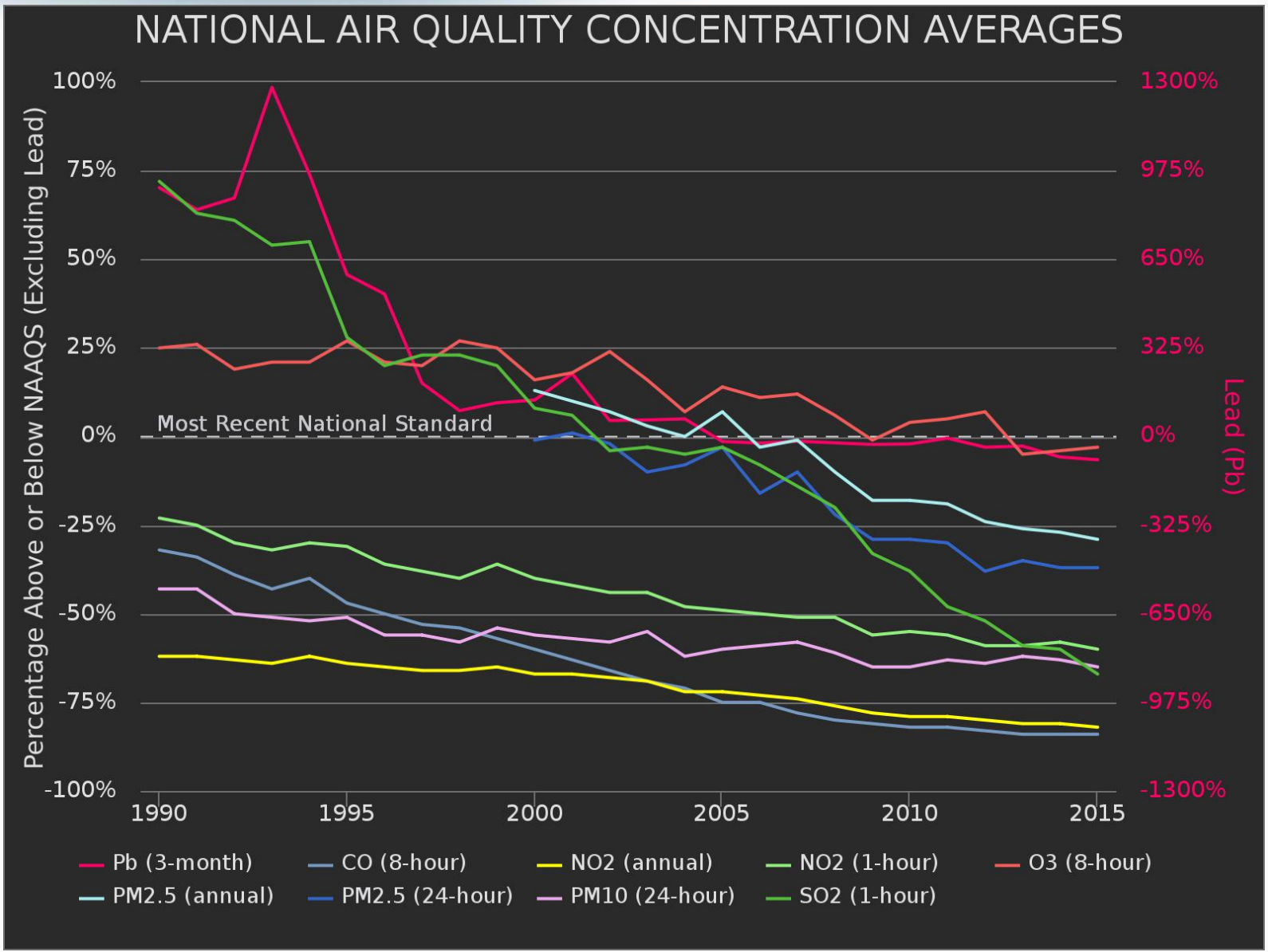
	Ozone	Lead	Primary NO_2	Primary SO_2	Secondary NO_2 and SO_2	PM	CO
Last Review Completed (final rule signed)	Oct. 2015	Oct 2008	Jan 2010	Jun 2010	Mar 2012	Dec 2012	Aug 2011
Recent or Upcoming Major Milestone(s)[1]	TBD[2]	Dec 2014 Proposed decision 2016 Final decision	Jan 2016 Final ISA Summer 2016 1st Draft PA/REA	Jan 2016 CASAC review of 1st Draft ISA Fall/Winter 2016 2nd Draft ISA REA Planning Document	Fall 2016 Final IRP Winter 2017 1st Draft ISA REA Planning Document	Summer 2017 1st draft ISA REA Planning Document	TBD[2]

Additional information regarding current and previous NAAQS reviews is available at: http://www.epa.gov/ttn/naaqs/

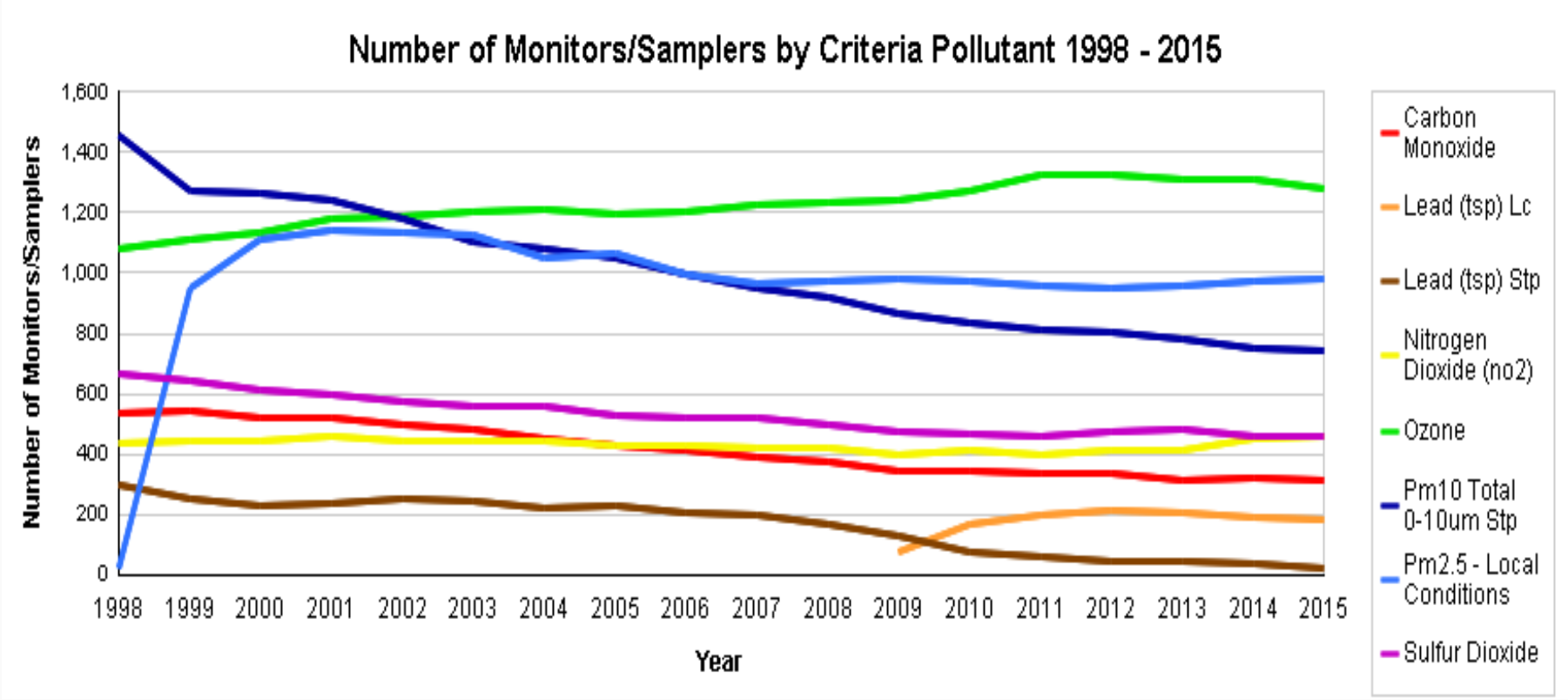
[1] IRP – Integrated Review Plan; ISA – Integrated Science Assessment; REA – Risk and Exposure Assessment; PA – Policy Assessment

[2] TBD = to be determined

eTrends Report
https://gispub.epa.gov/air/trendsreport/2016/



The Robust Monitoring Network Remains Important



Our Priorities

- Finding efficiencies
- Keeping the networks relevant
- Improving QA programs
- Supporting responses to localized air quality problems

Source: http://dental-intelligence.com/whats-dentistrys-plan/challenges-ahead-900-x-500-900x407/

Ambient Monitoring Rule (1 of 3)

- Published March 28, 2016
  - https://www.gpo.gov/fdsys/pkg/FR-2016-03-28/pdf/2016-06226.pdf
- Better aligned definitions with AQS
- Additional flexibility for manual PM2.5/CSN sampling frequency
- Reduced data certification requirements
- Reduced data reporting requirements
- Eliminated Lead (Pb) at urban NCore stations
- Restructured QA appendices for clarity
- Eliminated national QA requirements for $PM_{10-2.5}$
- Additional flexibility for QA on PSD projects; moved requirements back into Appendix B

Ambient Monitoring Rule (2 of 3)

- Required Annual Monitoring Network Plan comments to be collected at the state level and sent with ANP to EPA
- Clarified period of increased PM2.5 sampling when triggered by DV's
- Required reporting of flow rate verifications to AQS
- Expanded Annual Performance (PE) audit levels and required some points to occur at lower concentrations
- Reporting of QMPs and QAPPs approval dates to AQS
- Completing the Ambient Air Protocol Gas Survey and participating in the program at the request of EPA every 5 years

Ambient Monitoring Rule (3 of 3)

This is a typical time-line for notice and comment rulemaking

Chemical Speciation Network (CSN) Update

- 2014 CSN Assessment Results:
  - CSN $PM_{2.5}$ mass measurement eliminated
  - 38 CSN Sites defunded
  - Sample frequency reduced at 3 CSN Sites
  - Carbon blank collection frequency reduced
  - Icepacks in shipment reduced during cooler months
- 2015 IMPROVE Protocol Assessment Results:
  - 8 IMPROVE Protocol Sites defunded

CSN & IMPROVE Protocol Assessment Website

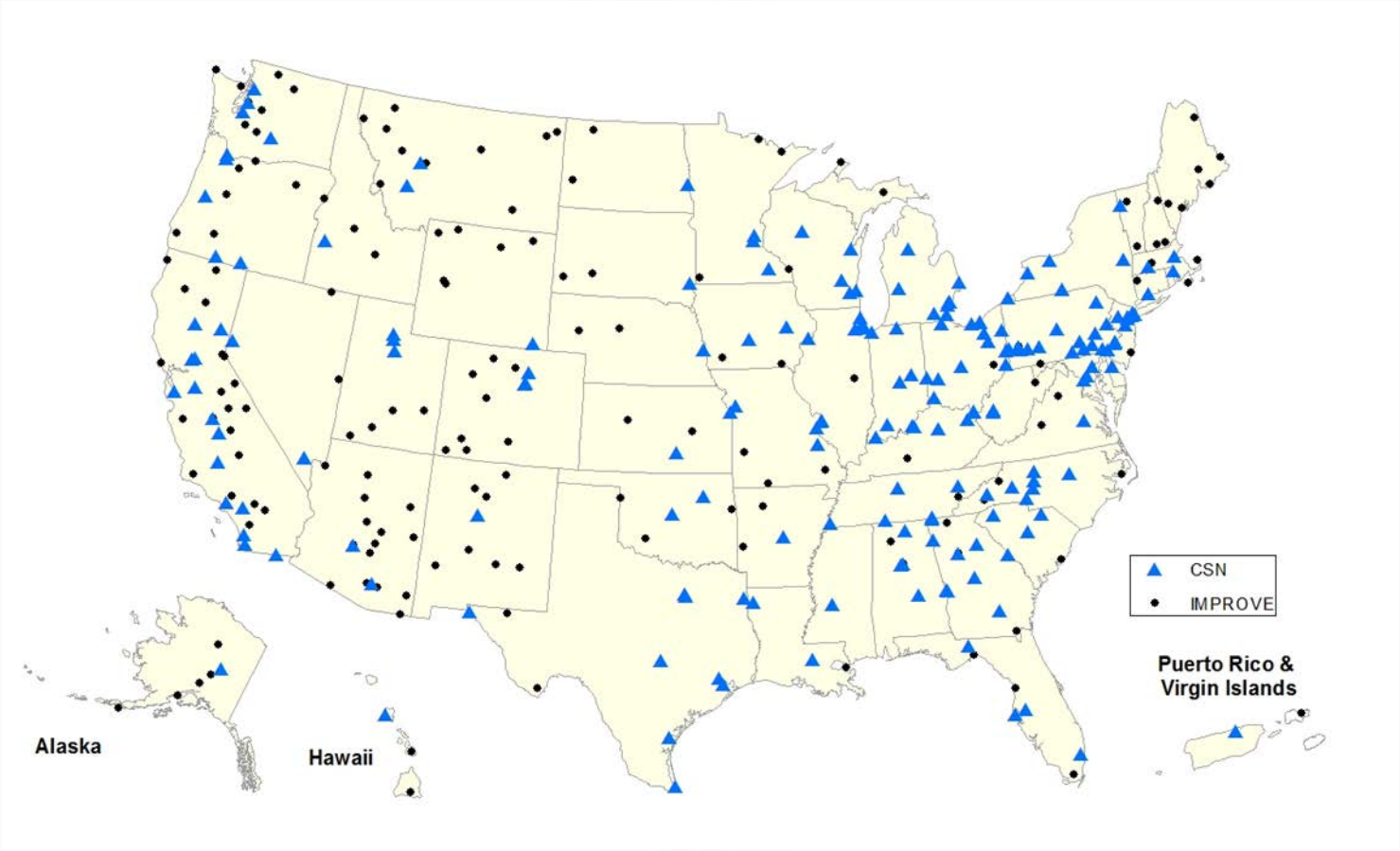
https://www.airqa.org/csna

CSN Contract Transition

- RTI served as the national contract laboratory from 1999 – 2015
- In September 2015, the contract was split into 2 pieces and awarded to:
  - Amec Foster Wheeler – shipping, handling and gravimetric mass contract
  - UC Davis – laboratory analysis contract
- RTI's QA Review Website and Speciation Data Validation Analysis Tool (SDVAT) are no longer available
- STI has updated the Data Analysis and Reporting Tool (DART) to accommodate CSN data for validation purposes

Source: http://suzannewoodsfisher.com/blog/2008/06/the-worlds-most-confusing-traffic-sign/

Current Speciation Networks



CSN Reinvestment

- Resources available from the assessment are being used to fund:
  - FT-IR research for carbon aerosol analysis
  - Purchase of MetOne SuperSASS for all 1-in-3 CSN sites with SASS (to allow for sequential sampling)
  - Development/improvement of DART for CSN
  - Tracking of CSN data changes due to contract transition
  - Investigation of Transmissometer measurements on Teflon filters and best options for reporting of data

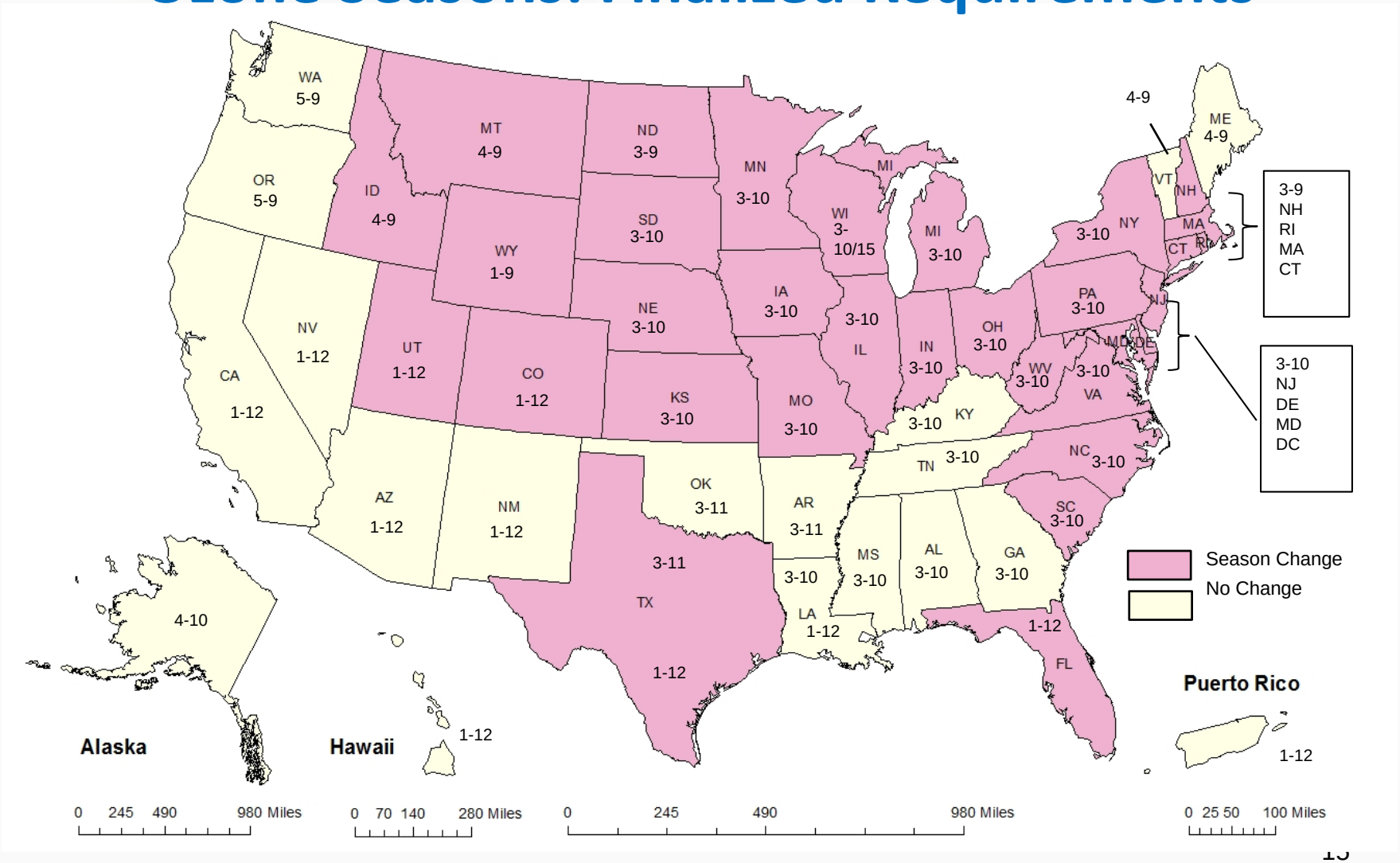
Ozone NAAQS Final Rule and Monitoring Changes

- Final rule signed October 1, 2015
- NAAQS final rule addresses monitoring and data handling including:
  - Updates to the Photochemical Assessment Monitoring Stations (PAMS)
  - Extension of the ozone monitoring season in 32 states and D.C.
  - New Federal Reference Method (FRM) for ambient measurements of ozone while retaining existing FRM and Federal Equivalent Methods (FEMS)
    - Existing FEMs can continue to be used for monitoring
  - Revisions to the Part 53 FEM performance testing requirements to be more in line with technological advancements and current ozone monitor performance
  - New data handling requirements in Appendix U

Ozone Monitoring Seasons

- Final rule extends the ozone monitoring season for 32 states and the District of Columbia
  - Year-round ozone seasons for all NCore multi-pollutant sites
- All waivers were revoked when the rule became effective December 28, 2015
  - States with existing waivers should pursue new waivers through the Regional Administrator (RA) as appropriate
  - RAs can still approve changes to states' ozone monitoring seasons without rulemaking
- New season requirements and year-round monitoring at NCore will become effective January 1, 2017

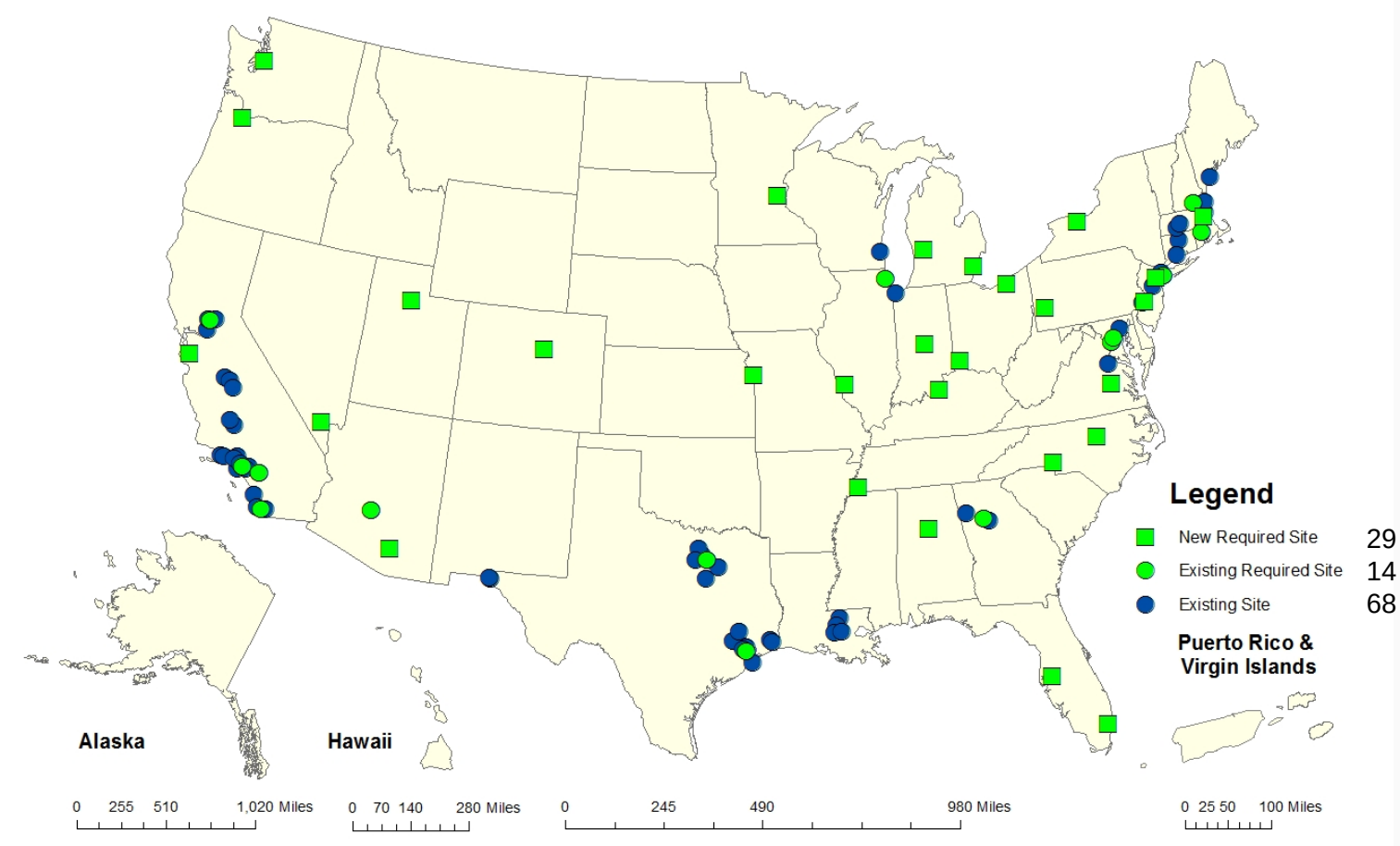
Ozone Seasons: Finalized Requirements



PAMS Network Update

- PAMS Requirements revised in October 2015
- PAMS measurements to be taken @ NCore sites in CBSAs with 1,000,000 or more people
  - Revised PAMS measurements include:
    - Hourly VOC measurements
    - Carbonyl measurements
    - True NO2 measurement
    - Ozone and NOy
    - Hourly mixing height measurement and other meteorology parameters
- States with moderate or above 8-hour ozone non-attainment areas required to develop a Enhanced Monitoring Plan (EMP) for ozone and its precursors

Updated PAMS Map



PAMS Timeline and Milestones

- PAMS plan due July 1, 2018 as part of Annual Network Plan
  - Consider moving this up to July 1, 2017 if waivers are needed
  - Also consider status of legacy PAMS and discuss priorities with RO's; there are options for divestment here
- PAMS monitoring at NCore sites will need to start by June 1, 2019
  - ***Looking for some states to be early implementors and start getting equipment installed in 2017 and 2018***
- EMPs submitted within two years of designations or by October 1, 2019, whichever is later

EPA Commitments on PAMS

- PAMS Funding reallocation
  - Start in 2017, and spread over multiple years
- National Procurements for autoGCs, true NO2, and ceilometers
- Guidance documents
  - Technical Assistance Document
  - Generic QAPP
  - SOPs for autoGCs, true NO2, and ceilometer
  - EMP Guidance
- National QA Program
- Training, Training, and more Training!
  - Data Validation/Reporting
  - AutoGC operation
  - Mixing height/Ceilometer

QA Challenges

- Staffing transitions – loss of organizational history and FTE's
- Ambient signal is diminishing – challenging procedures and metrics
- Guidance documents must evolve
- Stakeholder involvement is increasing
- Gap filling – improving QA on NATTS and addressing PAMS
- Becoming efficient, e.g., using the LEAN process

"Lean Team"

Using the LEAN process to re-invent the PM2.5 PEP, NPAP, Pb-PEP QA Programs

The new programs will be:

- **More Efficient** – automation, real-time data review, conditional checks
- **Cheaper** – less contract support at OAQPS
- **Timely** – automated data upload to AQS
- **More Consistent** – increased standardization
- **Sustainable** – Software developed and maintained in-house
- **Modern** – programs are Tablet computer optimized

NPAP has been completed and is being used now.
$PM_{2.5}$ and Pb will be implemented in 2017

Source: http://www.thebookpatch.com/BookStore/lean-transformation/58d2c280-68d3-4b84-b8db-c5ae39260de3

The TSA Workgroup

Has worked together to develop guidance to conduct consistent TSAs

- Input from all regions in developing a TSA Guidance Document for conducting TSAs
- Consistent approach
- Definition and emphasis on audit independence
- Modified and portable TSA Questionnaire
- Use of AQS to help prepare for audits

Plans to develop tools to help digest data more efficiently using R and other software

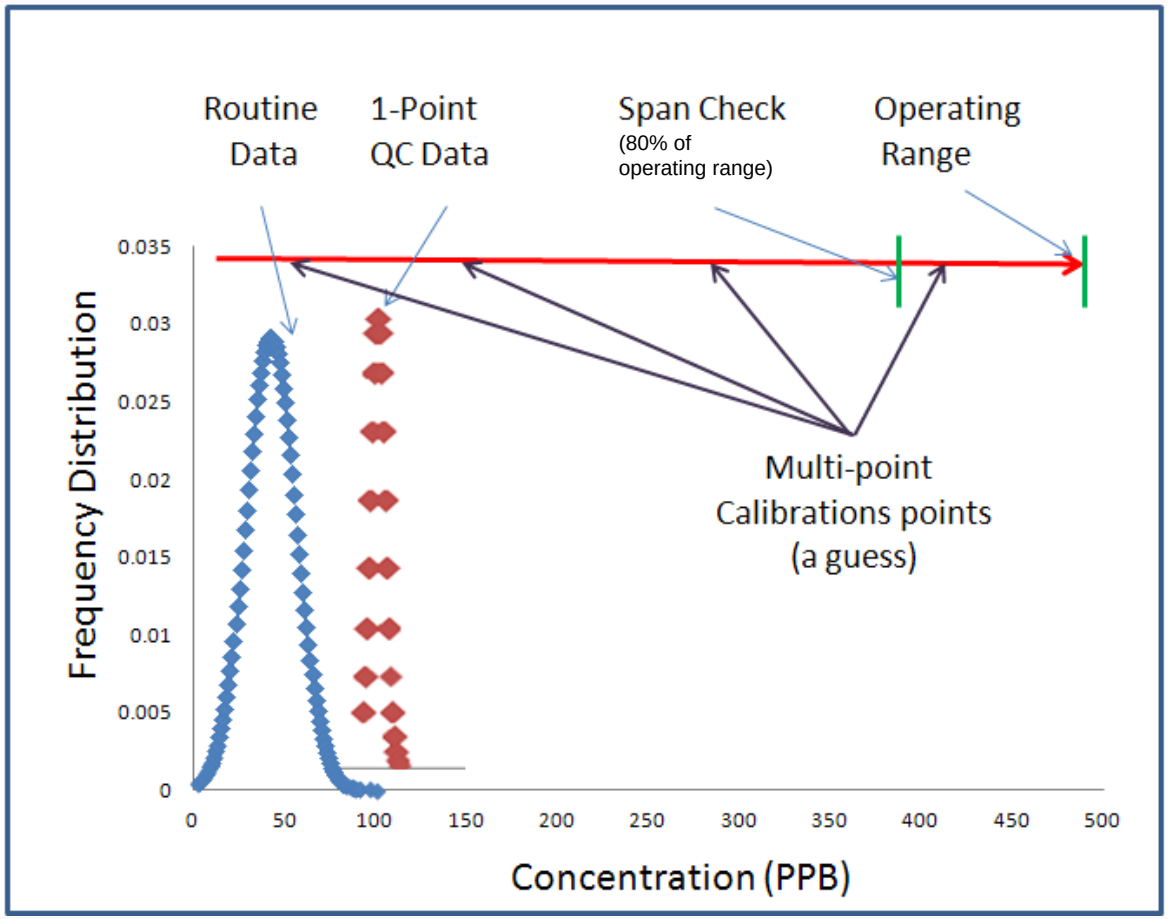
In the future, will provide technical training for auditors on monitoring equipment to build expertise

New Guidance Documents On AMTIC

- Quality Assurance Guidance Document 2.12
- Guidance on Statistics for Use of 1-Point QC Checks at Lower Concentrations
- Technical Note Related to PSD Monitoring Quality Assurance Activities
- Technical Guidance on the Use of Electronic Logbooks for Ambient Air Monitoring
- Technical Guidance on Annual PE Audit Levels Using Method Detection Limits
- Clarification on Use of PM2.5 Field and Laboratory Requirements for Low Volume PM10 Monitoring to Support PM10 NAAQS
- Determining the Primary Quality Assurance Organizations for Industrial Monitors in Support of the SO2 Data Requirements Rule

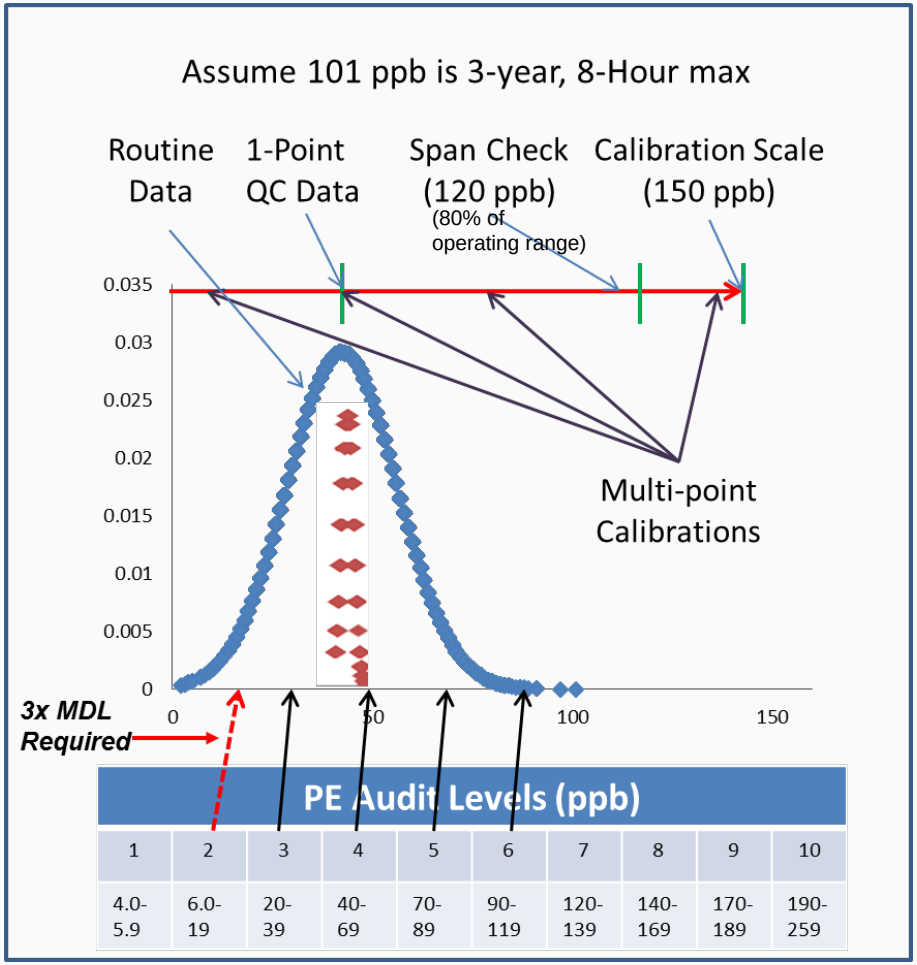
Changing the Paradigm – Adjusting to Improved Air Quality

Historical Model



Changing the Paradigm – Adjusting to Improved Air Quality

Current Model



Improving Quality Assurance Programs

MegaPE CSN Program oversight transitioned from ORIA/NAREL to OAQPS

- First set of PE's anticipated early 2017

Gravimetric Inter-Laboratory Comparison Study (PM2.5 Round Robin)

- First set anticipated early 2017
- Biannual evaluation

CSN field QAPP revisions

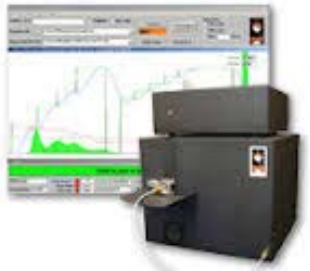
- Update of SOPs and QA activities

IMPROVE Field QA Training

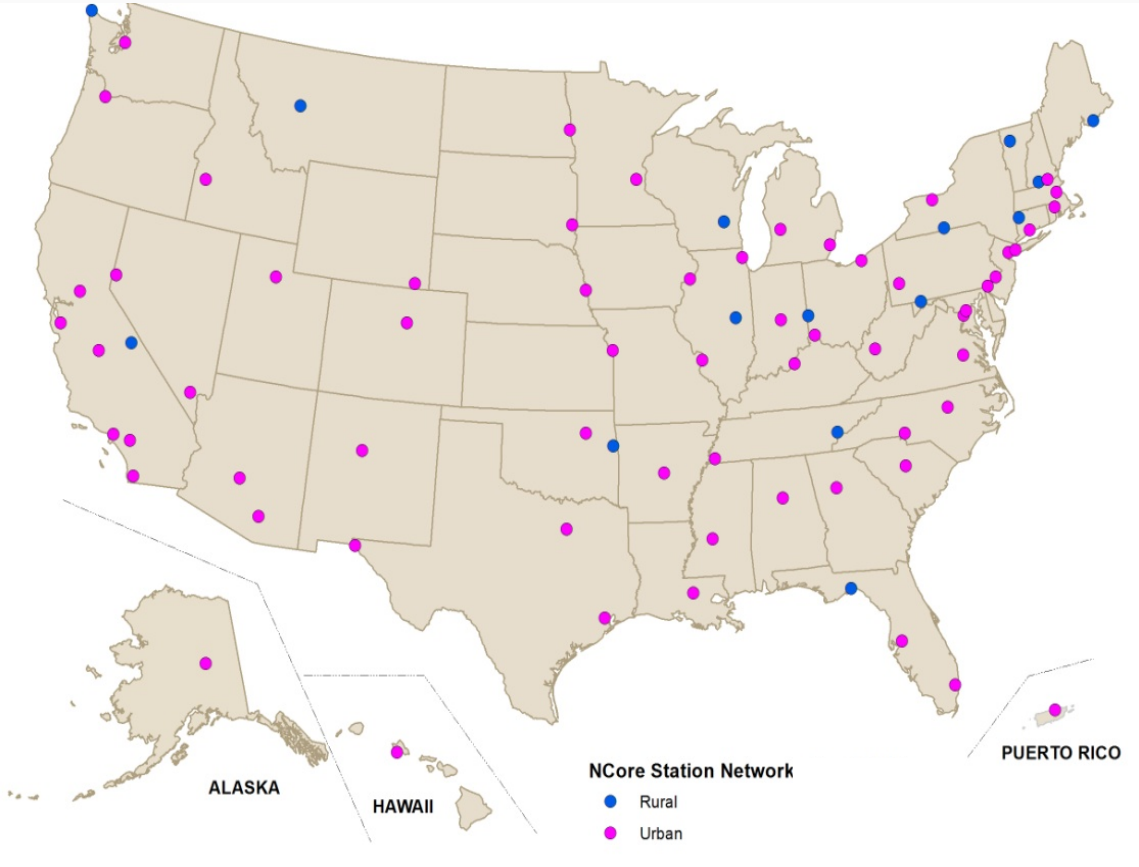
- Transitioned to National Park Service

Protocol Gas Verification Program

- Required survey and cylinder participation



The National Core (NCore) Monitoring Network



- NCore is a mature network
  - 78 stations
  - 63 urban and suburban
  - 15 rural
  - WV, PR, FL (2 sites) added in 2014
  - One site move planned in 2016 for ND.
- NOy measurements
  - Expect lots of collocation between NCore and PAMS
  - New information on calibration of NOy method in presentation this afternoon by Russell Long
  - Value of data when collocated with “true” NO2 in Wednesday afternoon PAMS session presentation by Tim Hanley
- Lead (Pb) measurements
  - Requirement for Lead at NCore revoked in recent final rule. Work with your Region, where applicable, if seeking a request to shut down lead sampling at NCore.
- Keep an eye on the age and condition of your original trace level instruments

Near-road NO_2 Network Status

- Currently, the EPA estimates that there are 68 operational near-road monitoring sites

- Phase 1 sites: 48 of 52 sites operational
  - Missing CBSAs: Chicago, Orlando, Salt Lake City, Virginia Beach

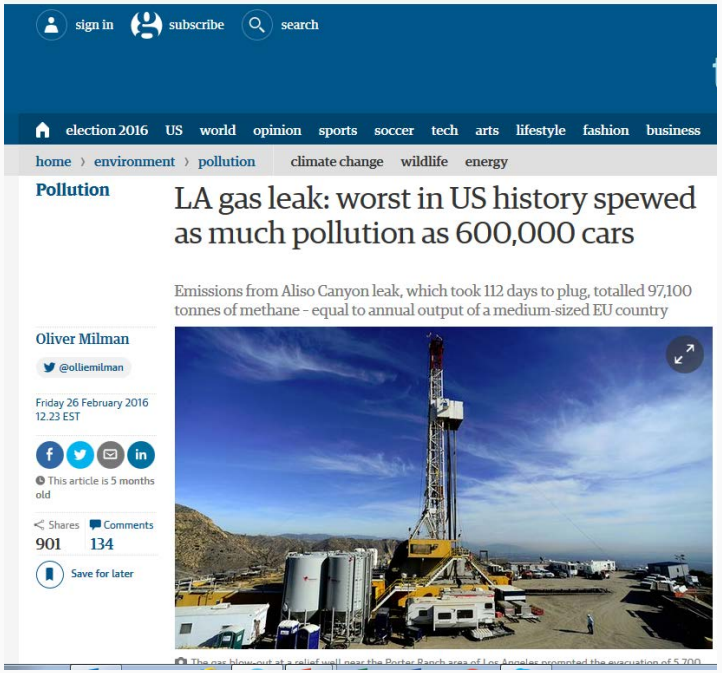
- Phase 2 sites: 17 of 23 sites operational
  - Missing CBSAs: Boston, Chicago, Miami, New York, San Diego, San Juan

- Phase 3 sites: Boise, Des Moines, and Fresno are operational
  - Bakersfield scheduled

Responding to localized air quality problems

OAQPS Role in Monitoring

- Funding support
- Assistance with method evaluations and monitoring plans
- Contractual support
- Data analysis and validation



We Need Your Input!

On what helps make your Monitoring Program more efficient

Please share with us any practice, procedure, automation, or anything else implemented in your monitoring program that makes your program more efficient in any capacity. See "Summary of 2014 Tips and Tricks Poster" for a recap of this topic from the last conference.

Our goal is to document these activities and share them at the technical session "State/Local Challenges (Tips and Tricks)" Wednesday morning at 10:30 am.

On an index card, please write down the following and submit at the registration table:

- Your Agency Name;
- A summary of the practice, procedure, automation, or whatever the it is that makes your agency more efficient;
- Your name (optional);
- Your E-mail (optional).

You do not need to be at the Wednesday Technical Session to submit a suggestion. Also, if you are not sure what you have is what we are looking for, no worries, write it down and we will review it before Wednesday.

National Ambient Air Monitoring Conference – St. Louis
August 2016

- Please stop at the Registration desk and fill out an Index card explaining any activity that helps make your program more efficient
- We will share at Technical Session at 10:30 am Wednesday.

Tips and Tricks

Post Over Station Thermostat

Our Bottom Line

- Be accountable to our stakeholders
- Provide technical credibility and consistency
- Strive for efficiency and clarity
- Maintain the foundation
- Look toward the future
- Never lose sight of the everyday challenges that you face on the job