

A large, faint watermark of the EPA logo is centered in the background. It features a stylized flower with three leaves and a sun-like top, surrounded by the text "UNITED STATES ENVIRONMENTAL PROTECTION AGENCY".

PAMS Update

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National Air Toxics Monitoring
And Data Analysis Workshop

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Agenda

- Recent Changes to PAMS Regulations
 - Network design changes
 - PAMS measurement changes
 - Timeline and other implementation challenges
- AutoGC Evaluation
 - Summary of laboratory evaluation
 - Field evaluation update
- Data Analysis and Reporting Tool (DART)



Recent Regulatory Changes

- The EPA formed the “PAMS Re-engineering Team” comprised of EPA and state members in 2011 to reassess the PAMS network
- EPA proposed changes to the PAMS network requirements in December 2014 as part of the Ozone NAAQS Review
- Final changes were signed on October 1, 2015, and published in Federal Register on October 27, 2015
- Links
 - Full O3 NAAQS package
 - <http://www.gpo.gov/fdsys/pkg/FR-2015-10-26/pdf/2015-26594.pdf>
 - PAMS Specific links
 - Preamble discussion - <https://www.federalregister.gov/articles/2015/10/26/2015-26594/national-ambient-air-quality-standards-for-ozone#h-141>
 - Reg text - <https://www.federalregister.gov/articles/2015/10/26/2015-26594/national-ambient-air-quality-standards-for-ozone#h-225>

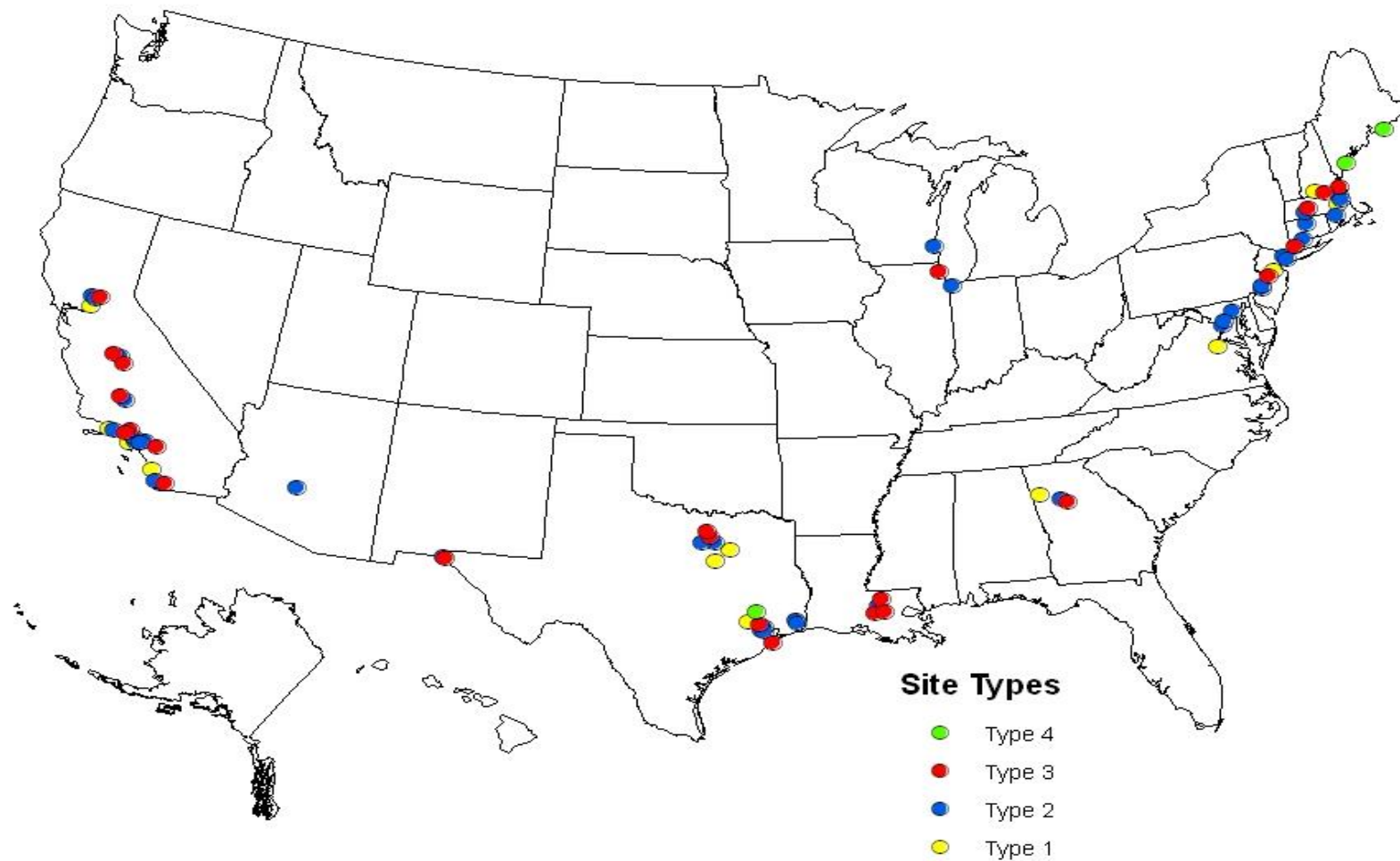


PAMS Network Design

- We are replacing the existing 20 year-old multi-site, enhanced ozone network design with an updated 2-part network design
- Requiring PAMS measurements to be collocated with existing NCore sites in areas with population of 1 million or more irrespective of Ozone NAAQS attainment status
 - Results in a stable network of approximately 40 required sites
 - Improves spatial distribution while reducing potential redundancy
 - Includes a waiver for historically low ozone areas (<85% of the NAAQS)
 - Includes an option to make PAMS measurements at an alternative location (e.g., an existing PAMS site) which may cross CBSA or even state boundaries

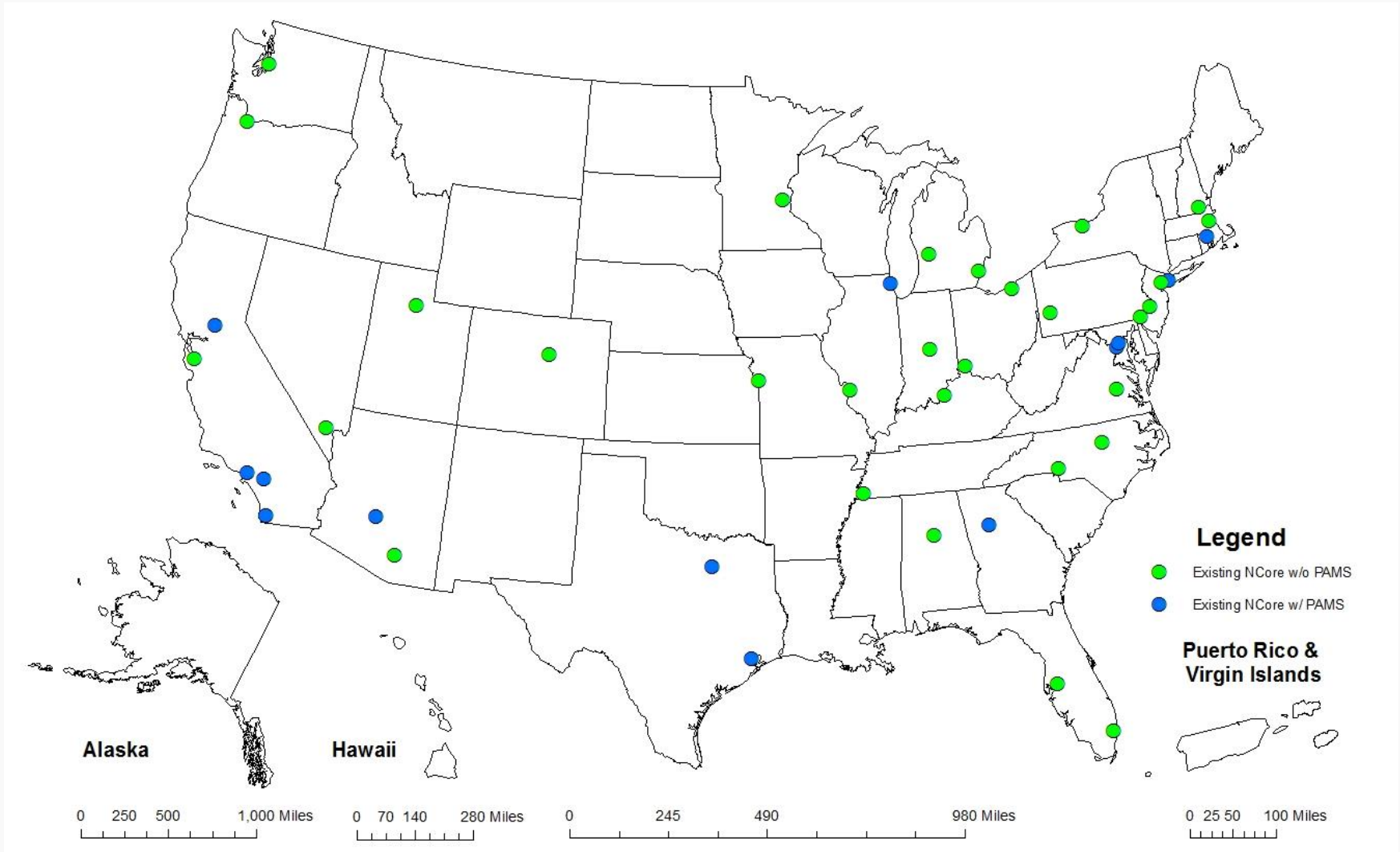


Current PAMS Site Locations





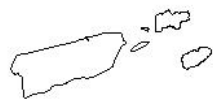
Revised PAMS Site Location Requirements



Legend

- Existing NCore w/o PAMS
- Existing NCore w/ PAMS

Puerto Rico & Virgin Islands



0 25 50 100 Miles



PAMS Network Design - Continued

- Requiring states with moderate or above ozone non-attainment areas and states in the Ozone Transport Region (OTR) to develop and implement an Enhanced Monitoring Plan (EMP)
 - Provides support for flexible approaches for collecting data to understand ozone issues in new and existing high ozone areas
 - EMPs should reflect “regional” ozone data needs and could/should include states that do not have formal requirements



Changes to Required PAMS Measurements

- Requiring hourly VOC measurements
 - Included a waiver to allow 3 8-hr canister samples in locations with low VOC concentrations and for “logistical and programmatic constraints”
- Requiring 3 8-hr carbonyls samples on a 1 in 3 day schedule
 - Included an alternative to allow for continuous formaldehyde measurements
- Requiring “true NO₂” in addition to existing NO and NO_y
- Requiring hourly mixing height measurement (replaces “upper air measurements”)
 - Added a waiver option to allow measurements to be made at an alternative location (e.g., NOAA ASOS sites)
- Additional PAMS meteorology measurements that are not part of the NCore requirements include atmospheric pressure, precipitation, solar radiation, and UV radiation



Timing and Other Implementation Challenges

- PAMS monitoring at NCore sites will need to start by June 1, 2019
- EMPs submitted within two years of designations or by October 1, 2019, whichever is later
- Funding strategy being developed
 - Existing national PAMS funding is adequate, however, a regional reallocation of PAMS funds will be needed to cover new states who will start making PAMS measurements and those states who will have reduced PAMS requirements
 - States will need to make significant capital purchases (mainly for autoGCs, true NO₂, and ceilometers). Per grant guidance, EPA plans to hold back a portion of PAMS funds in FY 2016-2018 to provide targeted funds for equipment
- A number of guidance documents need to be developed or revised
 - TAD, EMP guidance, QA
- Training on autoGCs, ceilometers, data validation/reporting will be developed



AutoGC Evaluation



Summary of Laboratory Evaluation

- EPA conducted a laboratory evaluation of eight autoGC systems in Spring 2014
- AutoGCs were tested with controlled gasses to evaluate performance (precision, bias, impact of temperature and humidity) and operation of the autoGC
- The study went very well with a few minor “hiccups”
- For well operating systems
 - Precision ranged from 3-15%
 - Bias ranged from 15-30%
 - MDL ranged from 0.1 to 0.5 ppb
 - These results are likely conservative estimates due to the way the tests were conducted (concurrent interference testing at low concentrations)



Field Evaluation

- Original plan to evaluate in multiple locations had to be scaled back due to several non-autoGC related issues
- Six autoGCs are currently being evaluated in the field phase
 - Agilent/Markes
 - Baseline/CDS
 - Chromatotech
 - PerkinElmer
 - Synspec
 - Thermo Fisher/Markes
- No data to share at this time ☹️



Data Analysis and Reporting Tool (DART)

- EPA and Sonoma are developing a web based app to help states validate, analyze and report PAMS and other data
- DART is accessible through AirNowTech
- Current functions include:
 - Pull data from AQS or upload data files
 - Explore the data with time series, scatter plots, and fingerprint graphs
 - Screen data using various user defined conditions
 - Export validated data into AQS format or crosstab format
 - New: “One click” auto-validation for PAMS
- Stay tuned for future developments!



Questions?

