Proposed Ozone Monitoring Revisions
Ozone Season and Methods

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MARAMA Air Monitoring Meeting
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Ozone Monitoring Seasons: Proposal

- Ozone monitoring is required during times of the year conducive to ozone formation
  - Current season length varies from 4 months to year-round
  - Last revisions were made in 1997 in response to the 0.08 ppm 8-hour NAAQS
- The current proposal includes changes to the ozone monitoring seasons based on recent data, 2010 – 2013
  - 43 states had at least 1 exceedance day ≥0.060 ppm before or after their current season
  - Proposing changes in 33 states with the addition of 1 or 2 months to the monitoring season for most states
- Also proposing to require year-round monitoring at 80 NCore stations
  - NCore stations have a full suite of gaseous and particulate monitors and basic meteorology to support scientific studies
  - NCore is currently operating year-round
- Implementation proposed for January 1, 2017

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Ozone Monitoring Season: Data Analysis

- Ambient data retrieved for monitors operating year-round (2010 – 2013)
  - A monitor was identified as year-round if it had at least 20 daily observations in all 12 months, for at least 1 year of the 4 year period
  - Greater than 50% of ozone monitors are operated year-round, either by requirement or voluntarily
- Evaluated occurrences of daily maximum 8-hour averages ≥ 0.060 ppm either *before* or *after* each state's required ozone season
  - Ensures monitoring under conditions that represent a potential for violations of existing (0.075) or proposed NAAQS (0.065 to 0.070) levels
  - Ensures timely notification of potentially elevated levels through programs such as AIRNOW
- Consideration given to:
  - Frequency of days ≥ 0.060 ppm threshold either before or after the current season
  - Temporal pattern of exceedance days in out-of-season months
  - Regional consistency

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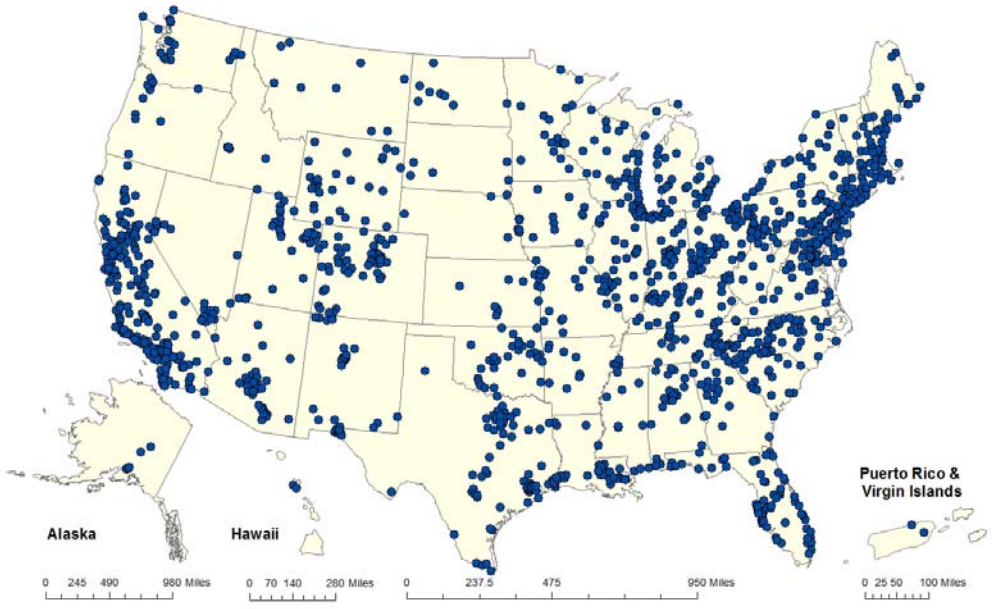
Ozone Monitoring Network ~1500 Monitors



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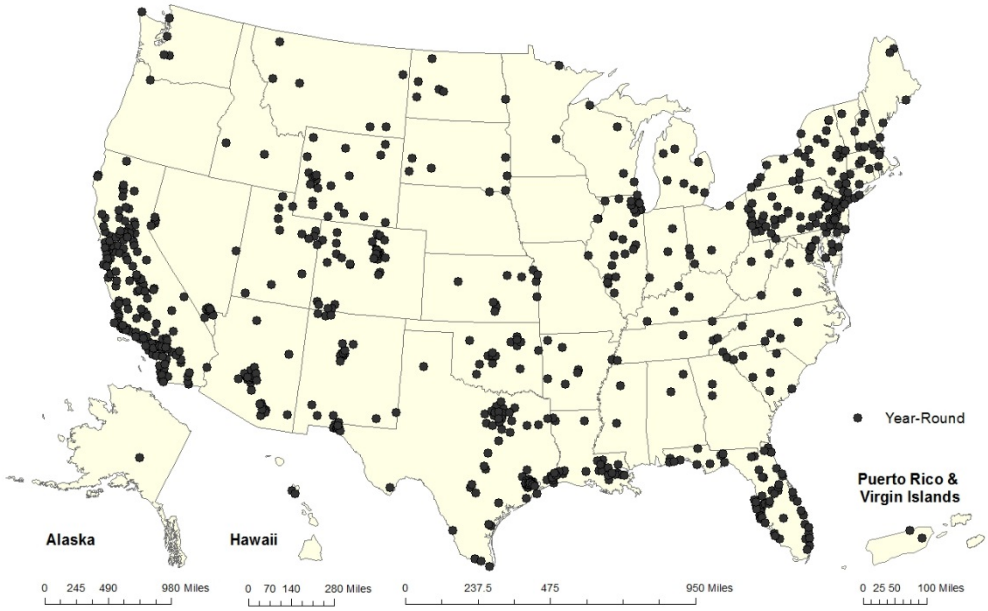
Year-round Ozone Monitors (~800) Used in Analysis



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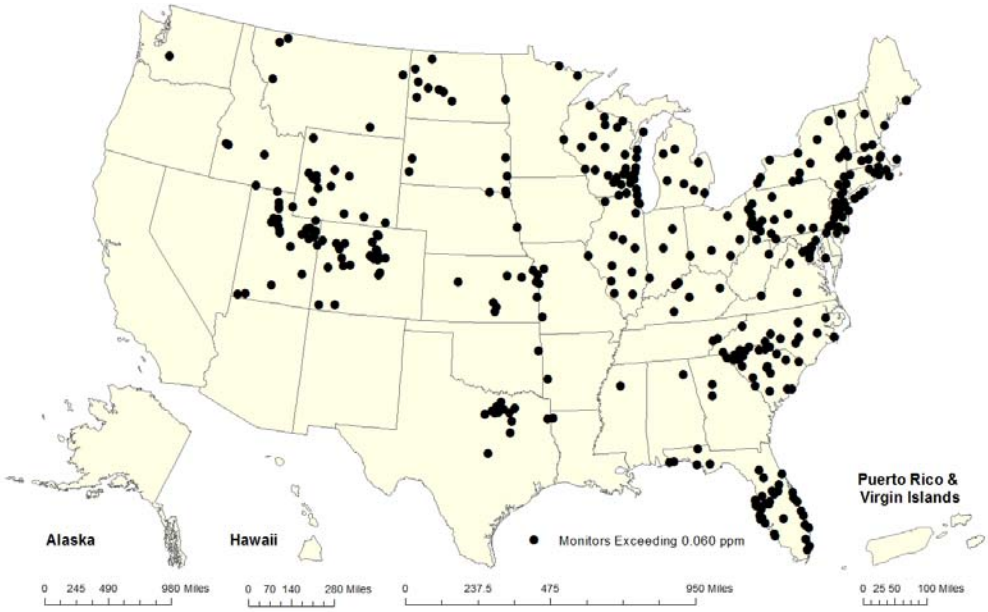
362 Monitors ≥ 0.060 ppm Outside State's Current Season

(One or more "exceedances")



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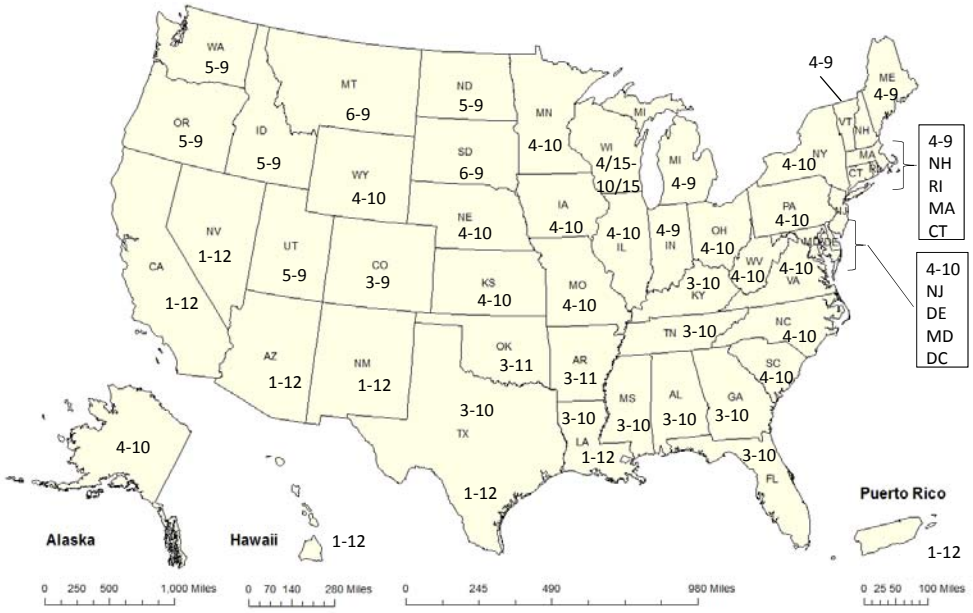
Ozone Seasons: Current Requirements



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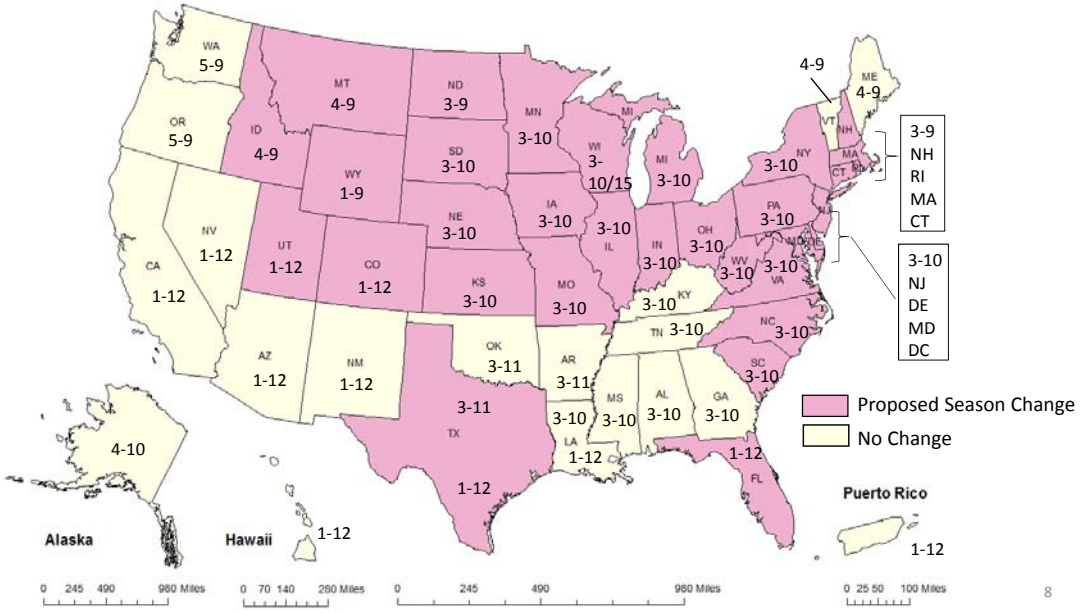
Ozone Seasons: Proposed Changes



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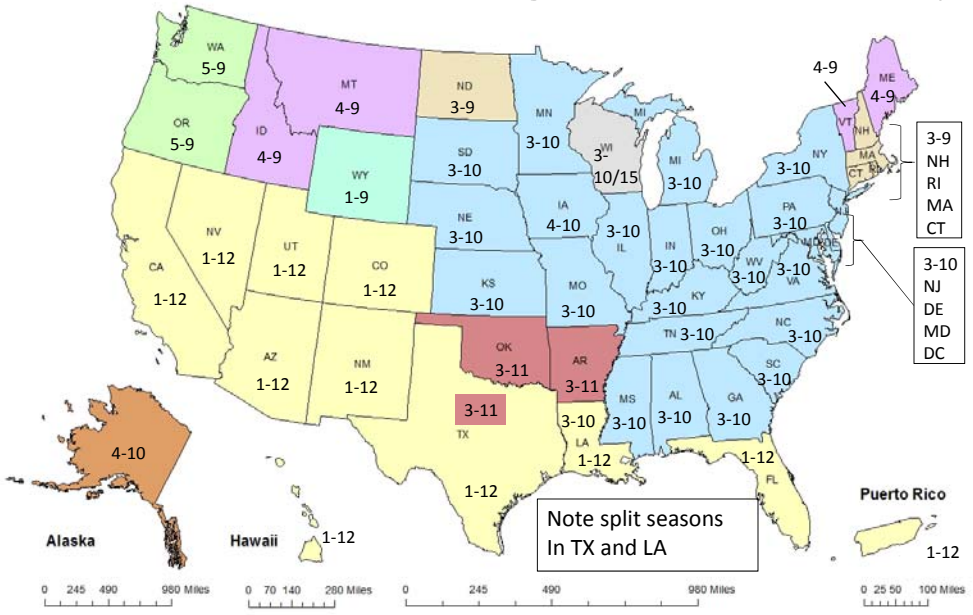
Ozone Seasons: Regional Consistency



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Ozone Monitoring Season Analysis: Memo to the Docket (Rice, 2014)

- Docket ID No. EPA-HQ-OAR-2008-0699
  - www.regulations.gov
- Memo provides and overview of the analysis performed to support the proposed season changes and presents the findings
- Attachment A provides maps, number of monitors operated year-round, and number of days ≥0.060 ppm by state
- Attachment B provides distribution charts of days ≥0.060 ppm by state and month
- Attachment C provides the detailed information regarding the monitor AQS site IDs, exceedance day dates, and daily 8-hour maximum values ≥0.060 ppm by state

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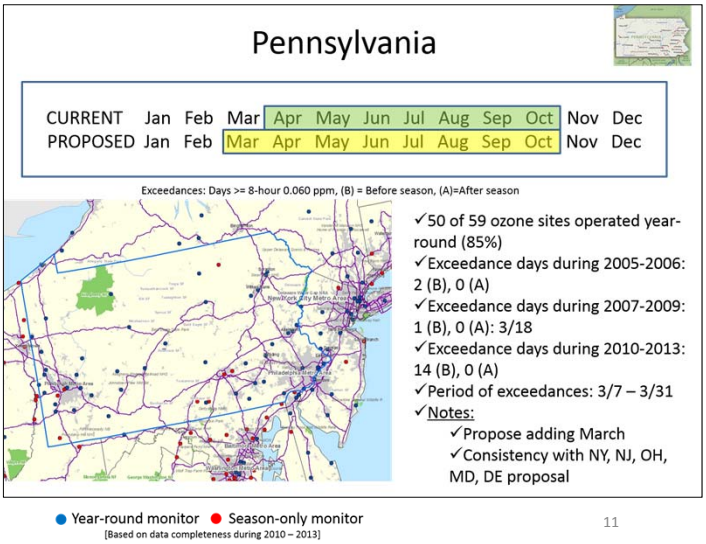
Ozone Monitoring Season Analysis (Example)

Attachment A

State-by-State Maps and Number of Days ≥0.060 ppm

Docket ID No. EPA-HQ-OAR-2008-0699



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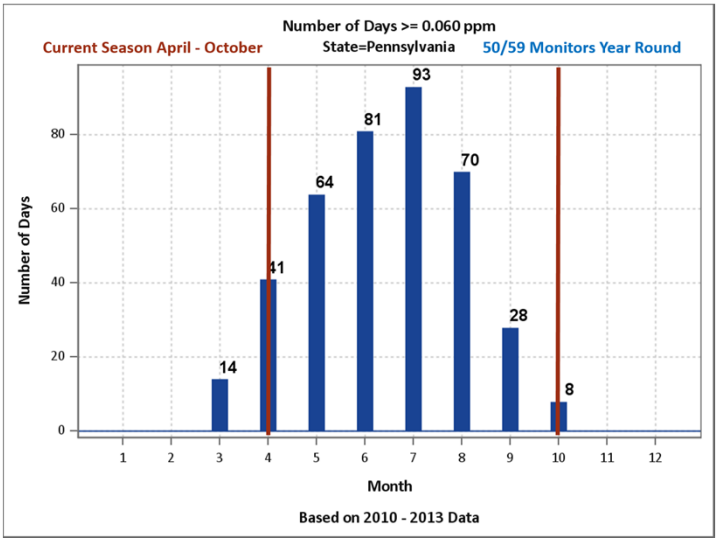
Ozone Monitoring Season Analysis (Example)

Attachment B

Distribution Charts of Days ≥0.060 ppm by Month and State

*Note: only those states not currently required to operate year- round are included

Docket ID No. EPA-HQ-OAR-2008-0699



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Ozone Monitoring Season Analysis (Example)

Attachment C

Detailed Information Regarding AQS Site IDs, exceedance dates, and Daily 8-hour Maximum Values by State

Docket ID No. EPA-HQ-OAR-2008-0699

Number of Days >= 0.060 ppm

StateID=Pennsylvania

AQSID	date	dmax8
420019991	20MAR2010	67
420019991	21MAR2010	65
420030067	23MAR2012	67
420031005	11MAR2010	61
420030067	22MAR2012	61
420031005	21MAR2010	67
420031005	20MAR2010	64
420030010	23MAR2012	63
420030008	21MAR2010	62
420030008	20MAR2010	61
420070002	10MAR2013	62
420070002	23MAR2012	66
420070002	14MAR2012	60
420070002	17MAR2012	60
420070014	23MAR2012	63
420070005	23MAR2012	67
420070005	22MAR2012	62
420279991	08MAR2010	61
420279991	20MAR2010	65
420279991	21MAR2010	70
420450002	31MAR2013	61
420479991	21MAR2010	63
420479991	08MAR2010	61
420479991	11MAR2010	63
420590002	30MAR2013	66
420590002	10MAR2013	61
420630004	22MAR2012	61
420730015	23MAR2012	60
420850100	23MAR2012	65
420859991	23MAR2012	61
420859991	11MAR2010	68
420859991	10MAR2010	61
420859991	09MAR2010	62
420859991	07MAR2010	61
421010024	20MAR2010	68

Based on 2010 - 2013 Data

Number of Days >= 0.060 ppm

StateID=Pennsylvania

AQSID	date	dmax8
421010024	21MAR2010	70
421119991	21MAR2010	66
421119991	20MAR2010	66
421119991	11MAR2010	60
421119991	10MAR2010	64
421250005	23MAR2012	62
421255001	23MAR2012	67
421255001	22MAR2012	60
421250005	22MAR2012	61
421330011	30MAR2013	65

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Ozone Federal Reference Method

- Federal Reference Methods (FRMs) provide a definitive method for measuring concentrations of criteria pollutants for comparison to the NAAQS and a standard of comparison for approving federal equivalent methods (FEMs)
- The ozone FRM was initially promulgated in 1971 and is no longer available commercially nor being technically supported by instrument manufacturers
  - A new FRM based on Nitric Oxide Chemiluminescence (NO-CL) is being proposed
  - The new FRM will be added to existing Ethylene Chemiluminescence (ET-CL) FRM with same calibration procedure applied
- Impact on state monitoring networks is minimal as existing approved methods are adequate for continued operation

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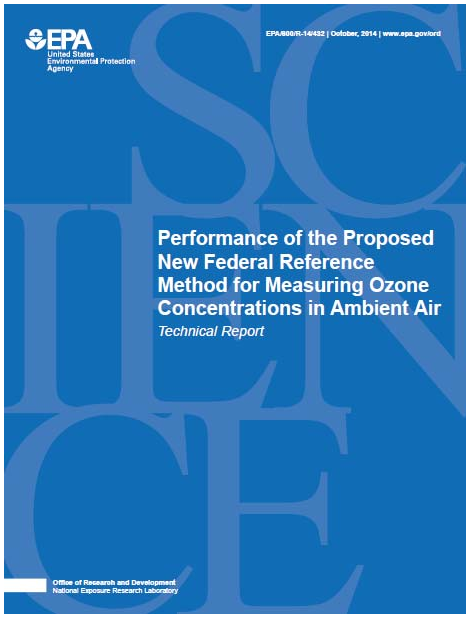
Ozone FRM: Research

- Comprehensive laboratory/field evaluations of candidate FRM completed (EPA/600-R14-432) and docketed
- CASAC's Ambient Air Monitoring and Methods Subcommittee (AAMMS) peer review of proposed FRM occurred April 3, 2014
- Draft CASAC letter supportive, but recommended additional data analysis be performed
  - ORD completed additional data analysis and submitted the results to CASAC on May 5, 2014
- CASAC teleconference on consensus letter June 12, 2014
- CASAC final report September 28, 2011 (EPA-CASAC-010)



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Revisions to the Part 53 Requirements

- Only substantial changes proposed for Tables B-1 and B-3 of Subpart B
- Several changes to performance requirements to be consistent with current O_3 analyzer performance
  - Changes to noise limit, LDL, maximum interference limits, maximum zero drift, span drift, precision
  - Change in Figure B-5 to correct minor inconsistency in units (% URL to % Standard Deviation) for precision
- Change in performance requirements would not affect existing FRM/FEM designations
- Change in units for precision limits also proposed to be extended to methods for NO_2
  - No change in limits just specifying precision as percentage instead of absolute concentration
- Minor change to 40 CFR 53.14(c) to extend length of time for Administrator to take action on requests for modification of FRM/FEM from 30 to 90 days
- Propose to remove obsolete provision in 40 CFR 53.9(i) that manufacturers submit annual updates to Product Manufacturing Checklist for PM FRMs/FEMs

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