Monitoring Trends Analysis

--- 2016 ---

Four Corners Air Quality Group Meeting
Farmington, NM
December 1, 2016
Ozone Monitoring Sites in the Four Corners Area

- Cortez (CDPHE)
- Mesa Verde NP (NPS)
- Redmesa (So. Ute) 1992-1994
- Bondad (So. Ute)
- Ignacio (So. Ute)
- Shamrock (USFS)
- Dine College (Navajo)
- San Juan Sub. (NMED)
- Navajo Lake (NMED)
- Bloomfield (NMED)

★ Current site
★ Former site
### Three Year Average 4th Maximum Ozone Values

*** 2016 data through 31 October ***

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>COLORADO</strong></td>
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<tr>
<td>CO - Cortez</td>
<td>08-083-0006</td>
<td>0.062</td>
<td>0.061</td>
<td>0.066</td>
<td>0.063</td>
<td>0.085</td>
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<td>USFS - Shamrock</td>
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<td>0.068</td>
<td>0.065</td>
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<td>0.068</td>
<td>0.071</td>
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<td>SUIT - Bondad/Hwy 550</td>
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<td>0.066</td>
<td>0.072</td>
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<td>0.074</td>
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<td>NPS - Mesa Verde NP</td>
<td>08-083-0101</td>
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<td>0.066</td>
<td>0.066</td>
<td>0.065</td>
<td>0.080</td>
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<td><strong>NEW MEXICO</strong></td>
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<tr>
<td>NM - Bloomfield</td>
<td>35-045-0009</td>
<td>0.062</td>
<td>0.061</td>
<td>0.065</td>
<td>0.062</td>
<td>0.086</td>
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<tr>
<td>NM - Navajo Lake</td>
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<td>0.068</td>
<td>0.067</td>
<td>0.066</td>
<td>0.077</td>
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<tr>
<td>NM - Substation</td>
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<td>0.061</td>
<td>0.062</td>
<td>0.062</td>
<td>0.089</td>
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<td>Navajo - Dine College</td>
<td>35-045-1233</td>
<td>---</td>
<td>0.066</td>
<td>0.064</td>
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<td>0.082</td>
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<td><strong>UTAH</strong></td>
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<tr>
<td>NPS - Canyonlands</td>
<td>49-037-0101</td>
<td>0.064</td>
<td>0.065</td>
<td>0.064</td>
<td>0.064</td>
<td>0.083</td>
</tr>
</tbody>
</table>

2016 data is preliminary.
All sites below the current NAAQS
Other Air Monitoring in the Four-Corners Area (Non-Ozone)

- Particulates – CDPHE, NMED, USFS, SUIT
- Oxides of Nitrogen – NMED, USFS/BLM, SUIT, Navajo
- Sulfur Dioxide – Navajo, NMED
- Carbon Monoxide – SUIT
- Ions (nitrate, sulfate, ammonium) – NPS, USFS
- Ammonia – NMED/EPA
- Visibility – USFS, NPS, SUIT
- Mercury – USFS, NPS, NMED(pending)
- Meteorology – NMED, USFS/BLM, NPS, SUIT, Navajo
- VOC/NMOC – SUIT
Visibility

- Nephelometer data at SUIT-Bondad site
- Webcam at Mesa Verde National Park
- IMPROVE data at three regional locations
  - Mesa Verde, Shamrock Mine, Weminuche
- Significant visibility improvements at Mesa Verde and in the Weminuche Wilderness

Courtesy: EPA
Mercury

Navajo Lake Site, NM
Monitor type: Reactive Gaseous Mercury
Study duration: 2 Years; Completed

Navajo Lake Site, NM
Monitor type: Wet Deposition Mercury
Study duration: recently discontinued
Ammonia

Links to peer reviewed research articles available at http://www.nmenv.state.nm.us/aqb/4C/
NMED Monitoring Data:
http://drdasnm1.alink.com/
Ammonium Trends at Mesa Verde National Park

Increasing trend over time

For more on annual criteria: http://nadp.sws.uiuc.edu/documentation/completeness.asp
Nitrate Trends at Mesa Verde National Park

No recent trend

For more on annual criteria: [http://nadp.sws.uiuc.edu/documentation/completeness.asp](http://nadp.sws.uiuc.edu/documentation/completeness.asp)
Sulfate Trends at Mesa Verde National Park

Decreasing trend over time
For more on annual criteria: http://nadp.sws.uiuc.edu/documentation/completeness.asp
Mercury Trends at Mesa Verde National Park

No short-term trend; long-term increasing trend
New Ozone NAAQS

- EPA released a final NAAQS on Oct. 1, 2015
- Primary standard = 70 ppb
  - No change in the form
  - Based on the 3-year average of the 4th maximum 8-hour values (truncated)
  - Non-overlapping provision (applies to 17 hours only)
- Secondary standard = 70 ppb
  - Same level and form as the primary standard
  - Approximately the same level of protection as a W126 standard of 17 ppm-hours
New Ozone NAAQS (continued)

- AQI break-points changed to match NAAQS level
- Monitoring season changed for 32 states
- PAMS monitoring required at NCore sites in existing non-attainment areas with populations > 1 million
  - To include hourly speciated VOCs, 8-hour carbonyls, O3, NO/NO2/NOy, and meteorology
- Enhanced Monitoring Plan required to be developed for all moderate or higher ozone NAAs to look at what additional monitoring is appropriate or needed
- Added a new Federal Reference Method analyzer based on chemiluminescence
- Grandfathered PSD sources with complete applications as of final publication
Timeline

- October 1, 2015 EPA revised the 8-hour national ambient air quality standard for ozone
  - From 0.075 ppm to 0.070 ppm
- States required to submit initial recommendations for area designations by October 1, 2016
  - Based on 2013-2015 data
- EPA will make final designations by October 1, 2017
  - Based on 2014-2016 data
Designation Steps

- Identify areas violating standard
- Perform 5 factor analysis for violating areas:
  1. Air Quality Data
  2. Emissions and Emissions-Related Data
  3. Meteorology
  4. Geography/Topography
  5. Jurisdictional Boundaries
- Colorado Recommendations: Denver Metro/North Front Range Area – retain existing NAA boundary. Remainder of state – attainment/unclassifiable
Colorado Recommendations
NM Recommendations

- Part of Southern Dona Ana County – nonattainment, remainder of state – attainment/unclassifiable. (For 2013-2015, the nonattainment area in southern Doña Ana County would include Sunland Park and Santa Teresa. Using 2014-2016 data, the nonattainment area only includes Sunland Park.)

Figure 7-2: Alternative nonattainment boundary recommendation for the Sunland Park Area.
Questions?
Monitoring data for La Plata & Montezuma Counties indicates attainment of revised 8-hour Ozone NAAQS

Total population and precursor emissions well below El Paso County

Contributions to ozone from local sources is small, although the extent of transport into the area is unknown
Mercury Trends at Molas Pass

No short-term trend; long-term increasing trend
Mesa Verde National Park Visibility Range Trend

Courtesy: IMPROVE
Weminuche Wilderness Area Visibility Range Trend

Courtesy: IMPROVE