Regional Haze SIP Development Update

Presented by Cooper Garbe, DEQ, Air Quality Rules and Planning
Air Quality Advisory Council Meeting
June 17, 2020
Visibility Impairment Projections
Haziest Quintile Days at Wichita Mountains

Deciview Haze Index

Year

Observation
Five-year trailing average
Uniform rate of progress
Reasonable progress goal
Natural condition (west)
Review and background

• At January AQAC we presented:
  • Positive progress toward improving visibility at the WMWA
  • SO$_2$ reductions means NOx contributes a greater percentage to impairment
  • Source specific analysis and evaluations were to begin

• DEQ must develop a long-term strategy for meeting a “reasonable” progress goal for this planning period (Round 2)
  • Emission control for period ending 2028 must be considered using four factors.
4-factor analysis

• Regulatory requirement to consider:
  • The cost of compliance
  • The time necessary for compliance
  • The energy and non-air quality environmental impacts of compliance
  • The remaining useful life of any potentially affected source

• What sources will DEQ consider:
  • Methodology developed using Ramboll study commissioned by CenSARA
## NOx Analysis

<table>
<thead>
<tr>
<th>Facility</th>
<th>Q/D - NOx</th>
<th>% EWRT*Q/d</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSKOGEE GNRTNG STA</td>
<td>19.56164</td>
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<td>BART</td>
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<tr>
<td>SOONER GNRTNG STA</td>
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<td>PSO SOUTHWESTERN PWR STA</td>
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<td>CHITWOOD GAS PLT</td>
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<td>BINGER PLT</td>
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<td>LINDSAY BOOSTER STA</td>
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<td>ALTUS AFB</td>
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<td>Airport</td>
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<td>Frederick Muni</td>
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<td>Airport</td>
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<td>CASHION STA</td>
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<td>MUSKOGEE MILL</td>
<td>5.032026</td>
<td>0.17%</td>
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## SOx Analysis

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<th>Q/D - SO2</th>
<th>% EWRT*Q/d</th>
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<td>MUSKOGEE GNRTNG STA</td>
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<td>COGENERATION PLT</td>
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</table>
Oklahoma sources for 4-factor analysis

**SOx**
- Kremlin
- GRDA
- Hugo PP
- Ada Cement Plant
- Carbon Black - Ponca

**NOx**
- Binger Gas Plant
- Chitwood Gas Plant
- Maysville Gas Plant
- Mustang PP
- Horseshoe Lake PP
- Lindsay Booster Station
- Cashion Station
Modeled 2028 Oil and Gas Visibility Contribution (20% Most Impaired Days) in Mm-1
IMPROVE Data

Annual Extinction Composition, Most Impaired Days, 2014 - 2018

Wichita Mountains (WIMO1)

Light Extinction, 1/Mm

Decimic

2014 2015 2016 2017 2018

IMPROVE Monitor: WIMO1; Class I Areas: Wichita Mountains National Wildlife Refuge Wilderness

- Red: Ammonium Nitrate
- Yellow: Ammonium Sulfate
- Grey: Coarse Mass
- Black: Elemental Carbon
- Green: Organic Mass
- Blue: Sea Salt
- Orange: Soil
- DV (Impairment)
Daily Extinction Composition, Most Impaired Days, 2018

Wichita Mountains (WIMO1)

- Red: Ammonium Nitrate
- Yellow: Ammonium Sulfate
- Gray: Coarse Mass
- Black: Elemental Carbon
- Green: Organic Mass
- Blue: Sea Salt
- Orange: Soil

IMPROVE Monitor: WIMO1; Class I Areas: Wichita Mountains National Wildlife Refuge Wilderness
Area of Influence (AOI) Study

WIMO1 - 20% Most Impaired Days
All Amm_NO3 Extinction Weighted Residence Times (%)

WIMO1 - 20% Most Impaired Days All - EWRT
AREA NOx Emission Weighted Distance (%)

65
Timeline

- **Ramboll Study Performed**: 2019
- **Spring 2020**: Source selection methodology developed
- **Summer 2020**: 4-factor analyses requested
- **August 2020**: Receive 4-factor analyses
- **November 2020**: FLM review
- **April 2021**: Public review
- **July 2021**: Final submission to EPA

We are here
Conclusion

• OK DEQ source selection methodology results in 12 facilities requiring a 4-factor analysis (5 for SOx and 7 for NOx)

• Further analysis of NOx contributions to visibility impairment will be necessary.

• NPCA, Sierra Club, et al., filed a petition for reconsideration of EPA’s guidance.