10 February 2009 Preliminary Review Comments from CASAC AAMMS on the Ozone Monitoring Issues related to the Revised NAAQS

Comments received:

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Dr. Rudolf Husar **7**

Mr. Bart Croes

Urban Network Design Requirements

1. *Considering the ozone minimum monitoring requirements that are already promulgated through 40 CFR Part 58, is the considered change to these requirements sufficient to ensure a minimally adequate network in urban areas?*

The requirement for one monitor to be placed in MSAs of population between 50,000 and less than 350,000 is clearly warranted in locations where there is the absence of a design value, primarily because of the large number of people potentially affected by any standard exceedances.

2. *We are considering a timeline that would require newly required ozone monitors to be operational no later than January 1, 2011, based on the expectation that final rulemaking will be completed in 2009. Is this schedule appropriate or should EPA consider providing an additional year for new monitors to be deployed (or relocated)? What would be the advantages or disadvantages of a staggered deployment schedule?*

Based on the experience in California, 18 months is adequate if funding is provided and implementation can be accomplished with existing staff. If funding and staff resources are not adequate, a staggered deployment schedule that extends over the following year should be considered. While attainment designations would be delayed by a year, this may not adversely affect control programs as any nonattainment areas with populations of this size are likely to be affected by ozone transport from larger, upwind cities, and will already be receiving the benefit of control programs in these areas.

Non-Urban Network Design Requirements

1. *We are considering a new requirement that each State operate a minimum of three non-urban ozone monitors to meet certain objectives (described above). Considering the stated objectives of the non-urban ozone monitoring requirements, is three required monitors per state sufficient?*

The choice of three non-urban monitors per state appears arbitrary with no acknowledgement of geographic size differences, potential for transport from upwind area or ozone severity. USEPA's impressive ozone modeling capabilities could be used to identify broad geographic areas where additional non-urban ozone monitoring is warranted.

2. *What factors should be considered in the siting of ozone monitors to assess impacts on ozone sensitive vegetation in national parks, wilderness areas, and other ecosystems?*

Factors that relate to the potential for higher ozone levels should be considered. These include proximity to upwind source regions, size of the source region, mixing ratios recorded at upwind monitors, smaller potential for deposition losses (shorter transport distances, transport over water bodies or areas with less vegetation), higher elevations (decoupled from night-time surface NO_X sources), and sunnier areas with higher photolysis rates.

3. *In addition to the objectives that have been described for non-urban ozone monitors, what other objectives should be considered in the final network design? How would the consideration of additional objectives, if any, affect the minimum number of non-urban required monitors?*

The resources available for equipment, shelters, operations and personnel should be considered. Non-urban ozone monitoring may be useful for ozone transport analyses and ozone model evaluation. Monitoring near ozone sensitive vegetation, especially areas where forest health or ecosystem monitoring is occurring, should be considered.

4. *Current ozone monitoring regulations (described in Appendix E of 40 CFR part 58) include requirements for station and probe siting (e.g., vertical distance of inlets, set-back distances from roadways). Are these requirements (that have been developed for urban monitors) appropriate for non-urban ozone monitors? What changes, if any, should be considered?*

Yes, they are still applicable to maintain uniform siting criteria throughout the entire network (urban and non-urban). Monitoring at higher elevations with snow during the winter needs to be seasonal to facilitate site access. More attention needs to be placed to setbacks from trees and other vegetation because of the potential for ozone deposition.

5. *We believe that States should have the option of designating that existing non-urban ozone monitors that are potentially operated by another agency (e.g., CASTNET monitors operated by the National Park Service) be utilized for meeting certain non-urban minimum monitoring requirements. What factors should States use to determine if such monitors are appropriate to include in their networks?*

Other agencies would need to become part of their local Primary Quality Assurance Organization (PQAO) and follow uniform procedures, have staff take similar training, maintain same standard traceability, and submit data to USEPA's Air Quality System (AQS).

<u>Ozone Monitoring Season</u>

1. *We are considering changes to the required ozone monitoring seasons based on analyses of the patterns of ozone exceedances and occurrences of the Moderate level of the Air Quality Index, during periods outside of the currently required seasons. What other factors should be considered, if any, in the determination of the length of the required monitoring season for each State?*

Provisions for high elevation sites with only seasonal access should be considered.

2. *We believe that ozone monitors that are located at NCore stations should be operated on a year-round monitoring schedule. Under what circumstances might it be appropriate to require year-round monitoring at other stations beside NCore?*

The Health Effects Institute or other representations of the air pollution epidemiology community should be consulted as to where year-round ozone measurements would be useful for cohort studies.

3. *We are considering that changes to the required ozone monitoring season be applicable to existing monitors beginning in 2010, one year ahead of the deployment schedule for newly required ozone monitors. Is this schedule reasonable for existing monitors?*

Yes, it is a reasonable schedule as the logistics are relatively straightforward.

Mr. (Dirk) Felton

Urban Network Design Requirements

1. *Considering the ozone minimum monitoring requirements that are already promulgated through 40 CFR Part 58, is the considered change to these requirements sufficient to ensure a minimally adequate network in urban areas?*

The requirement to add monitors in MSAs as small as 50,000 may be burdensome to some monitoring agencies. One element that should be added to the regulation is the ability to waive the monitoring requirement if the State designates the MSA as non-attainment. With the new lower NAAQS, the non-attainment areas in some states cover large areas and several MSAs. It is quite possible that upwind, rural or transport oriented monitors and monitors in adjacent MSAs can adequately justify the determination of non-attainment for small MSAs without a monitor. The RA should also have the discretion of waiving additional monitors that either can't meet siting requirements in certain urban areas or where the cost to install a monitor is excessive and out of the reach of the monitoring agency.

2. *We are considering a timeline that would require newly required ozone monitors to be operational no later than January 1, 2011, based on the expectation that final rulemaking will be completed in 2009. Is this schedule appropriate or should EPA consider providing an additional year for new monitors to be deployed (or relocated)? What would be the advantages or disadvantages of a staggered deployment schedule?*

The schedule is appropriate only if monitoring agencies already have a suitable facility to install additional monitors. For these existing locations, the monitoring agencies will need calendar year 2010 to modify their network plan, to modify budgets and to purchase and install new equipment. The timeline should establish a start date of 2012 for completely new installations. This extra year will be needed because monitoring locations are very difficult to site in urban areas. In these areas, conventional monitoring shelters are usually either banned by building codes or can't be sited properly due to the cost of property and the density of tall structures. In some of these situations, monitoring agencies have to go to the expense of modifying existing buildings whether public or private to accommodate monitoring equipment.

Non-Urban Network Design Requirements

1. *We are considering a new requirement that each State operate a minimum of three non-urban ozone monitors to meet certain objectives (described above). Considering the stated objectives of the non-urban ozone monitoring requirements, is three required monitors per state sufficient?*

The plan to require three monitors per state is a bit too cookie cutter to adequately meet the monitoring needs in each state. Many states have multiple rural areas, some separated by mountains, that are distant from each other and are affected by separate upwind sources. It is likely that the plan for three non-urban monitors will only be adequate for a few states. The EPA must be flexible and should encourage periodic discussions between OAQPS, the EPA Regional Offices, monitoring agencies and perhaps other stake holders such as health researchers to determine the minimum number and location of additional monitors.

2. *What factors should be considered in the siting of ozone monitors to assess impacts on ozone sensitive vegetation in national parks, wilderness areas, and other ecosystems?*

The importance of altitude and local terrain is often overlooked in monitor siting. Rural monitors could be situated on a mountain top, on an elevated plateau or in a deep valley. These terrain features will affect local Ozone concentrations and could detrimentally reduce the scale of the monitor. Monitoring is expensive and rural monitors should be sited to represent large scales.

3. *In addition to the objectives that have been described for non-urban ozone monitors, what other objectives should be considered in the final network design? How would the consideration of additional objectives, if any, effect the minimum number of non-urban required monitors?*

Transport is another objective that could be served by a suitably placed rural monitor. The installation of a transport monitor can be very important if it is used to help with attainment planning for downwind areas. The states that have non-attainment areas or whose emissions contribute to non-attainment areas should be provided with the resources to establish monitoring networks that exceed the minimum requirements.

4. *Current ozone monitoring regulations (described in Appendix E of 40 CFR part 58) include requirements for station and probe siting (e.g., vertical distance of inlets, set-back distances from roadways). Are these requirements (that have been developed for urban monitors) appropriate for non-urban ozone monitors? What changes, if any, should be considered?*

The set-back distances from roads and other local sources for non-urban, rural monitors should be increased to the extent possible. Rural monitors should represent large spatial scales and influences such as NOx scavenging from nearby sources will alter the apparent Ozone concentration for the entire area represented by the monitor. Ideally, the monitor should be situated in a "typical" spot in the area to be represented by the new monitor. If the area is a nearly roadless Class 1 wilderness area, the monitor should be quite far from a road. If the non-urban monitor is actually representing a suburban commuter area outside of a larger MSA then it is acceptable to be closer to a roadway or other typical local sources.

5. *We believe that States should have the option of designating that existing non-urban ozone monitors that are potentially operated by another agency (e.g., CASTNET monitors operated by the National Park Service) be utilized for meeting certain non-urban minimum monitoring requirements. What factors should States use to determine if such monitors are appropriate to include in their networks?*

It has yet to be demonstrated that CASTNET can reliably meet the QA requirements that would make their data comparable to state and local monitoring networks. The CASTNET network is operated by a contractor who is selected through a competitive bidding process. It is possible that as the contract is awarded in future years to the same or another vendor, the data quality could vary.

State and local monitoring agencies should carefully evaluate the data quality of all of the monitors in their area. States should be permitted to audit the operation of either CASTNET or NPS monitors that potentially could be included as a component of a comprehensive state monitoring network.

Ozone Monitoring Season

1. *We are considering changes to the required ozone monitoring seasons based on analyses of the patterns of ozone exceedances and occurrences of the Moderate level of the Air Quality Index, during periods outside of the currently required seasons. What other factors should be considered, if any, in the determination of the length of the required monitoring season for each State?*

In states with cold winters, seasonal roads or high altitude monitoring locations, it may not be possible to initiate monitoring on the proposed earlier start dates at every location. The EPA should permit reasonably delayed start dates if access to a monitoring location is prohibited or delayed due to snow or mud conditions.

Population exposure monitors should be given the highest priority for initial startup at the beginning of the monitoring season. The EPA should consider not changing the monitoring season for the non-urban and ecosystem oriented monitors. The data from these sites is likely to be less valuable when air temperatures are still relatively cold and sensitive vegetation is dormant or snow covered. Monitoring agencies utilize the period in between monitoring seasons to perform instrument maintenance, re-certify calibrators and train staff. Permitting delayed start dates for the non-urban monitors will also ease the difficulty of starting many monitors on the same date.

2. *We believe that ozone monitors that are located at NCore stations should be operated on a year-round monitoring schedule. Under what circumstances might it be appropriate to require year-round monitoring at other stations beside NCore?*

Due to the nature of NCore siting, most NCore sites will not be located where the Ozone concentrations are the highest. It would be appropriate to also monitor year round at one of the highest Ozone concentration sites for each non-attainment area. This will provide context for the NCore data.

3. *We are considering that changes to the required ozone monitoring season be applicable to existing monitors beginning in 2010, one year ahead of the deployment schedule for newly required ozone monitors. Is this schedule reasonable for existing monitors?*

A 2010 start date for a longer monitoring season for existing monitors would be acceptable if the regulation was finalized before the end of the first Quarter of 2009.

Dr. Rudolf Husar

Ozone Monitoring Season

1. *We are considering changes to the required ozone monitoring seasons based on analyses of the patterns of ozone exceedances and occurrences of the Moderate level of the Air Quality Index, during periods outside of the currently required seasons. What other factors should be considered, if any, in the determination of the length of the required monitoring season for each State?*

I think that mandating a month-by-month fine tuned monitoring season to each state is unnecessary. If such adjustments for the shoulder seasons are in fact made, the states that have a short ozone season should be monitored less.

2. *We believe that ozone monitors that are located at NCore stations should be operated on a year-round monitoring schedule. Under what circumstances might it be appropriate to require year-round monitoring at other stations beside NCore?*

Regional/continental background sites and/or high elevation sites. These would document the spring stratospheric ozone, trans-continental (Asian) ozone transport and other larges-scale processes.

3. *We are considering that changes to the required ozone monitoring season be applicable to existing monitors beginning in 2010, one year ahead of the deployment schedule for newly required ozone monitors. Is this schedule reasonable for existing monitors?*

No comment. It is a feasibility issue.