Comments on the Peer Review for Pb NAAQS
Donna Kenski

1. What are your comments on the use of the low-volume PMl0c FRM sampler as the Pb-PM10 FRM sampler?

The PM10c FRM sampler is the obvious and best choice for a Pb-PM10 FRM sampler.

2. What are your comments on the use of XRF as the Pb-PM10 FRM analysis method?

I don't see the logic in selecting XRF over ICP/MS as the analysis method. ICP/MS is more sensitive and not subject to the interferences that are documented in Joann Rice's memo. NIST-traceable standards can be used for calibration and many states have in-house labs that can perform the analysis. And, it does not require uniform filter loading. XRF is perfectly suitable for an FEM, but I recommend that ICP/MS be selected as the FRM analytical method.

3. What are your comments on the specific analysis details of the XRF analysis method contained in the proposed Pb-PM10 FRM analysis method description?

The description as written was adequate.

4. Do you think the precision, bias and MDL of the XRF method for the proposed Pb range will be adequate?

The MDL as specified is fine if determination of compliance with the NAAQS is the only issue. But since health professionals, EPA, and others have a valid interest in determining concentrations at levels far below the NAAQS, it seems shortsighted not to measure Pb with higher accuracy at the (more common) low concentrations as well. With the (presumed) lowering of the Pb NAAQS, and with generally lower ambient concentrations across the country, the MDL should be lower than the 0.001 ug Pb/m3 that is proposed. As this is easily achievable and already being accomplished by other national networks, it ought to be part of the FRM method.

5. Are there any method interferences that we have not considered? Not that I know.

Comments on Options for Development of a Low Volume TSP Sampler

1. Would a low-volume Pb-TSP sampler be an improvement over the existing high-volume TSP sampler? What advantages and disadvantages do you see associated with a low-volume Pb-TSP sampler?

Clearly a low-volume sampler would be preferred for many reasons; if modeled on the current low-volume samplers, it would be operated at the same flow as PM2.5 and PM10 samplers in the national networks, it could be operated sequentially, its flow characteristics could be more precisely controlled, and it would be a better simulation of actual human exposure through breathing. The biggest disadvantage is that we don't currently have a low-volume TSP sampler

that has been fully characterized and vetted in any large scale monitoring efforts.

2. **What inlet designs would be best suited for a low volume Pb-TSP sampler? What designs are not appropriate for a low-volume Pb-TSP sampler**?

I don't think the data yet exist to enable us to make a decision on this.

3. **What is your preferred approach for the development of a low-volume Pb-TSP sampler, and why?**
4. **If the EPA were to develop a low-volume Pb-TSP FRM, how important is it that the sampling efficiency be characterized for varying particle sizes?**
5. **If the EPA were to develop a low volume Pb-TSP FRM, should the new FRM replace the existing high-volume Pb-TSP FRM, or should the EPA maintain the existing FRM?**
6. **Is it appropriate to accept alternative sampler and inlet designs as FEM?**

The most critical aspect is accurately characterizing the performance of any new low-volume TSP inlet in terms of the particles captured at various wind speeds. Efficiency curves should be developed for each candidate inlet for particles of varying sizes, densities, and shapes. While it is not possible to capture 100% of ultracoarse particles with any inlet, we must understand the performance of whatever FRM we choose. The current TSP FRM is inadequate (primarily because of its highly variable particle capture at differing wind directions) and I see no compelling reason to continue its use as an FRM given its identified flaws. Given the very short timeline that EPA has to publish the Pb NAAQS, I think it is acceptable to designate a low-volume TSP sampler (using one or all of the existing inlets) as the FRM before this comprehensive testing is completed, with the understanding that full characterization of the inlets take place expeditiously and that the FRM might be revised as a result. I also continue to believe that a PM10 indicator would be preferable, if the level of the NAAQS is set at the lower end of CASAC's recommendations, and that that option would eliminate the rush to designate an untested inlet as an FRM. And finally, I think that requiring a new FRM or FEM to be consistent with the existing high-vol TSP is a probably a self-defeating goal, since its varying response in different wind conditions will make it a moving target and hence very difficult to duplicate with a more consistent inlet. However, it will be necessary to have some means to compare data from any new FRM with older data, so EPA should develop this comparison data at the same time as any new inlets are tested (despite the inherent flaws).