**SUPPLEMENTAL MATERIALS**

**Figure Captions:**

Figure 1. 24-hour Wallkill ambient air Pb concentration data (Pb-TSP 24-hr samples are collected every 6 days whereas the Pb-PM10 are taken every day).

Figure 2. 24-hour 1-in-6 day Pb-TSP and daily Pb-PM10 Wallkill ambient air Pb concentration data starting immediately after the very high concentrations measured on 3/23/13 and 3/24/13.

Figure 3. Date-matched-paired 24-hour 1-in-6 day Pb-TSP and daily Pb-PM10 Wallkill ambient air Pb concentration data starting immediately after the very high concentrations measured on 3/23/13 and 3/24/13. **Note:** The vertical line represents the time before and after which RSR’s WESP control went into operation.

Figure 4. Scatter plot of the date-matched-paired 1-in-6 day Pb-TSP versus the daily Pb-PM10 24-hour Wallkill ambient air Pb concentration data.

Figure 5. Scatter plot of the date-matched-paired 1-in-6 day Pb-TSP versus the daily Pb-PM10 24-hour Wallkill ambient air Pb concentration data after the one substantially higher concentration date was removed.

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**Abstract:** The United States Environmental Protection Agency (USEPA) reduced their National Ambient Air Quality Standard (NAAQS) for lead (Pb) an order of magnitude to a concentration level of 0.15 micrograms per cubic meter (µg/m3) when the new rule was promulgated in 2008. At that time, the possibility of revising the Pb sampling method from total suspended particulate (TSP) to particulate matter less than or equal to 10 µm in diameter (PM10) was considered due to potential measurement bias of the Pb-TSP monitoring technique. The New York State Department of Environmental Conservation (NYSDEC) has been operating source-orientated co-located TSP and PM10 monitors documenting ambient air lead (Pb) concentrations since 2011 at a site adjacent to a secondary Pb smelter in Wallkill, NY. The co-located Wallkill data show a very strong correlation between the readings recorded by these two sampling techniques. After the range of the variability in the individual Pb-PM10/Pb-TSP ratios was reduced by using a 0.005 µg/m3 concentration cut point because of the concerns with the measurements at low concentrations, an adjustment factor (AF) of 1.49 was calculated using the remaining dataset. This AF can be used to estimate Pb-TSP concentrations from Pb-PM10 readings at this Wallkill source-orientated location. It was stated by the USEPA that there is only a limited dataset in situations where Pb-TSP and Pb-PM10 are co-located, especially for those sites considered to be source-oriented, so the analyses performed and summarized herein for the Wallkill co-located airborne Pb concentration data adds to that limited dataset.

**Implication Statement:** These data analyses add to the limited dataset in situations where Pb-TSP and Pb-PM10 are co-located to help refine the derivation of a site-specific adjustment factor for estimating TSP Pb concentrations from measured PM10 Pb. This could assist the USEPA in transitioning away from the use of the Pb-TSP monitoring technique with its indicated measurement bias for the Pb NAAQS to the use of Pb-PM10 instead. An adjustment factor of 1.49 was calculated which could be used to estimate Pb-TSP concentrations from Pb-PM10 values collected around this source-orientated location.