

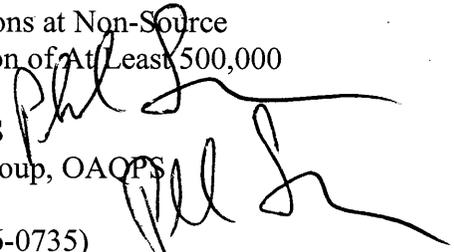


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

October 15, 2008

MEMORANDUM

SUBJECT: Analysis of Expected Range of Pb-TSP Concentrations at Non-Source Oriented Monitoring Sites in CBSAs with Population of At Least 500,000

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TO: Lead NAAQS Review Docket (EPA-HQ-OAR-2006-0735)

The final Pb NAAQS revision rule is expected to include a requirement for at least one non-source oriented lead (Pb) monitoring site in each Core Based Statistical Area (CBSA) with population of 500,000 or more. This memo documents an analysis to investigate recent Pb-TSP concentrations at existing monitoring sites that appear to meet this description, and provides an indication of the range of concentrations that may be expected at these required population (but not source)-oriented sites. This analysis also includes an updated subjective investigation of whether historical Pb-TSP monitoring sites are in fact source- or non-source oriented.

Public comments identified two Pb concentration levels of interest for this memo: 50 percent of the final NAAQS level and 0.10 $\mu\text{g}/\text{m}^3$. Some commenters recommended using 50 percent of the NAAQS level as a criterion for permitting the initial use of Pb-PM10 monitoring in lieu of Pb-TSP monitoring and/or as a trigger level for a subsequent nullification of such permitted alternate sampling. CASAC supported the use of Pb-PM10 as the indicator for the NAAQS, provided that the NAAQS level were no higher than 0.10 $\mu\text{g}/\text{m}^3$. Since many potential monitoring locations that states might consider for purposes of meeting the above-described CBSA monitoring requirement (i.e., population- but not source-oriented) will not have existing Pb monitors, we were interested in whether conclusions about Pb-TSP concentrations being above or below 50 percent of the NAAQS, and above and below 0.10 $\mu\text{g}/\text{m}^3$, at sites still to be selected and initiated to meet the above requirement could be drawn from those recently operating Pb-TSP sites that apparently have a similar classification.

Expected Final Rule Provisions

This memo references some expected provisions in the final rule. The expected NAAQS level is 0.15 $\mu\text{g}/\text{m}^3$ which is not to be exceeded during a three-year evaluation period,

and the averaging time is expected to be three months. Therefore, the concentration levels of interest in this memo are 0.075 $\mu\text{g}/\text{m}^3$ and 0.10 $\mu\text{g}/\text{m}^3$. Data interpretation provisions are expected to be similar to those proposed but with differences to coordinate the provisions with the final averaging time and form of the NAAQS.

The expected final rule text regarding the required monitors in CBSA is the following:

State and, where appropriate, local agencies are required to conduct Pb monitoring in each CBSA with a population equal to or greater than 500,000 people as determined by the latest available census figures. At a minimum, there must be one nonsource-oriented SLAMS site located to estimate neighborhood scale Pb concentrations in urban areas impacted by re-entrained dust from roadways, closed industrial sources which previously were significant sources of Pb, hazardous waste sites, construction and demolition projects, and other fugitive dust sources of Pb.

It should be noted that the expected final rule text does not formally define “non-source oriented.” However, in context it is clear that this characterization is intended to avoid monitoring sites that are significantly affected by industrial sources and airports that appear (or should appear) in the NEI as Pb point sources, even if their emissions are below the threshold for required monitoring of the particular source. However, the text clearly envisioned that the presence of nearby roadways, construction and demolition projects, or other nonpoint area sources of Pb would not disqualify a site from being considered “non-source oriented” as that term is used in the monitoring requirement.

Identification of Monitors

There were 225 Pb-TSP monitors that reported some data in 2005-2007. We first removed the 50 of these monitors that were identified in the Pb NAAQS Staff Paper as “source-oriented.” (See page 2-25 of the Staff Paper for the criteria used to identify “source-oriented” sites.) Table 1 summarizes the highest 3-month mean concentration of Pb-TSP observed in 2005-2007 at each of the remaining 175 sites, without any regard to the number of data points represented by the means. We did not eliminate monitors located outside of CBSAs with population of 500,000 or more at this first step, since such sites could have evidentiary value in predicting concentrations at non-source oriented sites that will be located in the large CBSAs.

Table 1 contains some sites with 3-month mean concentrations that are high enough to suggest that they were significantly influenced by nearby source(s) of Pb, even though they were not identified in the Staff Paper as “source-oriented”. Some of these sites were not analyzed for the Staff Paper because they did not have sufficient 2003-2005 data for analysis. Some of these sites were analyzed and did not qualify as “source-oriented” using the Staff Paper criteria. The sites in Table 1 with a highest 3-month mean concentration over 0.075 $\mu\text{g}/\text{m}^3$ were examined using aerial views from Google Earth,

along with source emission estimates from the latest available version of the 2002 NEI (which has revised Pb emission estimates for boilers and airports)¹, the Toxics Release Inventory for 2006, and other information as described below. The following monitors were examined, with the outcomes described.

- Site 080310002 in Denver County, Colorado. This is a monitoring site near downtown Denver, which measured and reported Pb-TSP concentrations in 2005 and 2006, but not in 2007. The site appears to meet the intended meaning of non-source oriented. The site usually reported Pb concentrations much less than 0.05 $\mu\text{g}/\text{m}^3$, with single-day values as high as 0.09 $\mu\text{g}/\text{m}^3$. However, in January and February 2005, this site (and other Pb-TSP SLAMS sites in the Front Range that also usually had low concentrations) reported much higher concentrations on several days, although not high enough to cause a violation of the current Pb NAAQS of 1.5 $\mu\text{g}/\text{m}^3$. Reported monitor values returned to historically normal ranges for all sites in March 2005 and thereafter. Site 080310002 in particular reported several daily values in January and February 2005 in the range of 0.20 to 0.30 $\mu\text{g}/\text{m}^3$, enough to make its indicator value in Table 2 greater than 0.075 $\mu\text{g}/\text{m}^3$. Without the high reported values in January and February 2005, the indicator value would not have been above 0.075 $\mu\text{g}/\text{m}^3$. It is notable that IMPROVE and CSN PM_{2.5} speciation sites in the same general Front Range area did not report higher than normal concentrations, even though one would expect Pb-PM_{2.5} to be more uniform over a broad area than Pb-TSP because of the greater tendency of the latter to deposit. Although there is no known explanation for the pattern of the reported data from the Pb-TSP sites, it seems likely that whatever the cause was, it was a unique cause specific to this particular monitoring agency and the limited time period described, rather than to a cause that can be expected to occur at other non-source oriented locations. Thus, we believe it is appropriate not to give these data much if any weight as a predictor of concentrations that normally will be measured and reported at non-source oriented sites in CBSAs over 1 million population.
- Site 080410011 in El Paso Co., Colorado. This site is in a commercial area, about five miles from the nearest Pb source. It appears to meet the intended meaning of non-source oriented. This site has the same as-yet unexplained short period of higher concentrations as does site 080310002 in Denver County, Colorado. It seems appropriate not to give these data much if any weight as a predictor of concentrations that normally will be measured and reported at non-source oriented sites in CBSAs over 1 million population.
- Site 080010006 in Adams, Co., Colorado. This site is located at a school surrounded by residential area, with the nearest inventoried Pb source an airport about 10 miles away. The site appears to meet the intended meaning of non-source oriented. The pattern of Pb concentrations reported by the monitor is the same as for the previous two sites, with an unusual and unexplained period of high reported concentrations in January and February 2005. It seems appropriate not to give these data much if any weight as a predictor of concentrations that

¹ Emissions estimates based on EPA's 2002 National Emissions Inventory (NEI) with modifications documented in Tom Pace's 05/01/08 memorandum and Marion Hoyer's 04/21/08 and 05/01/08 memoranda to the docket.

normally will be measured and reported at non-source oriented sites in CBSAs over 1 million population.

- Site 080310015 in Denver Co., Colorado. The site is in an industrial area, but not far from residential areas. No inventoried Pb source is nearby. The site appears to meet the intended meaning of non-source oriented. This site reported Pb concentrations for only three days in all of 2005-2007, which happened to be during the period in January and February 2005 when all the Pb-TSP SLAMS sites in the Denver area were reporting unusually high concentrations. Moreover, on those three days there were two samplers operating, and on one of the days the two samplers reported concentrations that differed by a factor of 10. (Table 2 shows the mean concentration from the lower reading sampler; the mean for the three days from the other sampler was 0.282 $\mu\text{g}/\text{m}^3$.) It seems appropriate not to give these data much if any weight as a predictor of concentrations that normally will be measured and reported at non-source oriented sites in CBSAs over 1 million population.
- Site 130890003 in DeKalb Co, GA. This site is about 0.03 mile from the edge of Interstate-285. The nearest known Pb source is the Atlanta airport (ATL), about 10 miles away. The state has submitted every value for this site as exactly 0.10 $\mu\text{g}/\text{m}^3$ since 2003. For all data prior to 2003, the values ranged anywhere from 0.01 - 0.06 $\mu\text{g}/\text{m}^3$. Although we are still waiting a requested explanation from the monitoring agency, the only logical explanation is that for some reason the monitoring agency's data handling system has been automatically substituting a default value for the actual measured concentration. This situation apparently has not been noticed by the monitoring agency, or at least not considered a problem in need of correction, possibly because the repeatedly reported value of 0.10 $\mu\text{g}/\text{m}^3$ is well below the current NAAQS. It seems appropriate not to give these data any weight as a predictor of concentrations that normally will be measured and reported at non-source oriented sites in CBSAs over 1 million population.
- Site 171630010 in St. Clair Co., Illinois. This site in the East St. Louis area is in a residential area adjacent to an approach to Interstate 70. It is about 1.7 miles from the Trade Waste Incineration facility that has Pb emissions of 0.84 tons/year. It is about 3 miles from an airport with Pb emissions of 0.47 tons/year. It was retained in this analysis, with further discussion below.
- Site 180892011 in Lake Co., IN. This site is about 0.1 mile from a facility identified as Hammond Group, Inc. which has reported Pb emissions of 0.04 tons/year. The site is at the nearest edge of a residential area that is adjacent to this facility. The site is also about 4 miles from an intensely industrial area along the shore of Lake Michigan. It was retained in this analysis, with further discussion below.
- Site 2616300015 in Wayne Co., Michigan. It is about 1.5 miles from a National Steel Corporation facility with Pb emissions of 1.1 tons/year. Given that there are only three Pb sources in Wayne County with Pb emissions of 0.5 tons/year or greater, it seems to be inappropriate for a site this close to such a large source to be considered non-source oriented. It was removed from this analysis as being not representative of sites likely to be used to meet the requirement for non-source oriented monitoring.

- Site 270370020 in Dakota Co., Minnesota. This is one of four 2005-2007 Pb monitoring sites within one or two miles of the Pine Bend Refinery owned by Flint Hill Resources, which produces fuels, petrochemicals and other petroleum products such as base oils for lubricants and asphalt. This particular site is just across a highway from the refinery. The 2006 Toxics Release Inventory lists this source as having 110 pounds of on-site lead compound releases, or 0.055 tons/year. This site and the other more distant sites (270370421, 270370423, and 270370442) near this source were removed from this analysis as being not representative of sites likely to be used to meet the requirement for non-source oriented monitoring.
- Site 270370465 in Dakota Co., MN is identified by the monitoring agency as a special purpose source-oriented site. It was removed from this analysis.
- Sites 290990021 and 290990016 in Jefferson Co. MO. These sites are 0.1 and 0.5 miles from the fence line of the Doe Run Herculaneum Smelter. They were removed for this analysis.
- Sites 390910007, 390910008, and 390910003 in Logan Co., OH. These sites are among a number of Pb sites ringing the Dana Glacier Daido America L.L.C. plant, which has Pb emissions of 0.1 ton/year. The sites are only about 0.1 mile from the plant. Another site in this monitoring ring (390910005) was identified in the Staff Paper as source oriented. These three sites were removed from this analysis as being not representative of sites likely to be used to meet the requirement for non-source oriented monitoring.
- Site 401159007 on the lands of the Quapaw Tribe of Indians in Ottawa Co., Oklahoma. This is one of four Pb-TSP monitors near the Tar Creek Superfund Site, an old lead and zinc mine. The other three sites have lower Pb concentrations. All four sites were removed from this analysis as being not representative of sites likely to be used to meet the requirement for non-source oriented monitoring.
- Site 420070505 in Beaver Co., PA. This site is just over one mile from the Horsehead Corp/Monaca smelter that has Pb emissions of 4.2 tons/year. It was removed from this analysis as being source-oriented.
- Site 420250105 in Carbon Co., PA. This site is about one mile from the Horsehead Resource Dev/Palmerton facility that has Pb emissions of 0.45 tons/year. It was removed from this analysis as being not representative of sites likely to be used to meet the requirement for non-source oriented monitoring.
- Site 490351001 in Salt Lake Co., Utah. This site is about 5 miles from the Magna/Kennecott smelter site, in the residential area closest to the smelter. The smelter had 2002 emissions of 3.6 tons/year, with a long history of operation since 1974. Until 1994, the smelter used a 1,215 ft tall stack to release its emissions, which increased the dispersion of its emissions. The site was removed from this analysis as being not representative of sites likely to be used to meet the requirement for non-source oriented monitoring.

We next considered exactly how to determine whether Pb-TSP concentrations are greater than 0.075 $\mu\text{g}/\text{m}^3$ and/or greater than 0.10 $\mu\text{g}/\text{m}^3$. It is possible that some 3-month means that appear to be greater than 0.075 or 0.10 $\mu\text{g}/\text{m}^3$ (using no completeness

criterion) are, in fact, based on three months of monitoring in which fewer than 75 percent of the scheduled samples are valid data; such a 3-month mean is significant uncertain, and arguably should not be taken as an indication that values greater than 0.075 $\mu\text{g}/\text{m}^3$ and or greater than 0.10 will occur at other non-source oriented sites with more complete data. It is also possible that a site with no 3-month mean above 0.075 $\mu\text{g}/\text{m}^3$ and/or above 0.10 $\mu\text{g}/\text{m}^3$ missed a number of months of sampling, or had some months with less than 75 percent of the scheduled samples; in such a case, the absence of any 3-month mean above 0.075 $\mu\text{g}/\text{m}^3$ and/or above 0.10 $\mu\text{g}/\text{m}^3$ is suggestive but less definitive regarding whether three complete years of data would also have resulted in no 3-month means above 0.075 $\mu\text{g}/\text{m}^3$ and/or above 0.10 $\mu\text{g}/\text{m}^3$. We decided to apply an approach identical to the planned final version of 40 CFR 50 Appendix R, but substituting 0.075 $\mu\text{g}/\text{m}^3$ for the level of the NAAQS and using three decimal digits for comparison during the diagnostic data substitution test instead of two digits.² For the purpose of this memo, we call the result of this approach the “indicator value.” The “indicator value” is like a design value, except for the application of 0.075 $\mu\text{g}/\text{m}^3$ instead of the level of the standard when applying completeness criteria. If we had used Appendix R literally, 3-month means deficient of a 75% or greater data capture average would be considered valid only if data substitution resulted in a mean above the level of the NAAQS. This would arguably undercount instances of historical sites having had actual 3-month means above 0.075 $\mu\text{g}/\text{m}^3$.

Table 2 lists the Table 1 sites that were not removed due to being “source-oriented” and includes the 2005-2007 “indicator value” for sites where the method described above resulted in a valid indicator value. Table 2 also shows again for comparison the highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean as in Table 1, for each site. In Table 2, a site with an indicator value of 0.075 $\mu\text{g}/\text{m}^3$ or less always means that the site had at least 75 percent complete data for all 34 possible 3-year periods in 2005-2007, in which case the actual maximum 3-month mean is the indicator value. A site with an indicator value above 0.075 $\mu\text{g}/\text{m}^3$ means that the site had at least one 3-month mean above 0.075 $\mu\text{g}/\text{m}^3$, and that mean was either based on data with at least 75 percent completeness or the “test mean” after data substitution with historically low values was still above 0.075 $\mu\text{g}/\text{m}^3$. In either case, the actual 3-month mean is listed. The sites that do not have an indicator value shown had at least one 3-month period with less than 75 percent data completeness, and the diagnostic data substitution test did not result in a valid 3-month mean greater than 0.075 $\mu\text{g}/\text{m}^3$.

For simplicity, a separate “indicator value” was not calculated by substituting 0.10 $\mu\text{g}/\text{m}^3$ for the level of the NAAQS in the data completeness test. This means that an “indicator value” above 0.075 $\mu\text{g}/\text{m}^3$ in Table 2 might represent a situation in which data substitution resulted in a 3-month mean above 0.075 $\mu\text{g}/\text{m}^3$ but not above 0.10 $\mu\text{g}/\text{m}^3$. Had a separate indicator value been calculated by substituting 0.10 $\mu\text{g}/\text{m}^3$ for the level of the NAAQS in the data completeness test, such a situation would not have yielded a valid

² Details of this completeness/substitution analysis were the same as described in the memo “Lead NAAQS Review: Comparison of Numbers/Percents of Sites/Counties/Populations that Do Not Meet Various Potential NAAQS Levels With Various Averaging Times and Forms”, Mark Schmidt, October 6, 2008.

indicator value. Consequently, Table 2 may indicate more of a tendency for non-source oriented sites to have valid 3-month mean concentrations greater than 0.10 $\mu\text{g}/\text{m}^3$ that actually exists.

Table 2 includes a column showing whether each site is in a CBSA with population of 500,000 or more. The sites are grouped by this distinguishing feature and then sorted within each group by their indicator values.

Observations and Conclusions

There are seven sites in Table 2 with either a highest 3-month mean or indicator value greater than 0.075 $\mu\text{g}/\text{m}^3$. The data for these sites is bolded in the table. Five of these sites have indicator values of 0.10 $\mu\text{g}/\text{m}^3$ or greater.

Four of these sites are the sites in the Colorado Front Range area which reported unusually high concentrations in January and February 2005, as discussed above. It seems appropriate not to give these data any weight as a predictor of concentrations that normally will be measured and reported at non-source oriented sites in CBSAs with populations of 500,000 or more.

The sites in St. Clair County, IL (indicator value of 0.081 $\mu\text{g}/\text{m}^3$) and Lake County, IN (indicator value of 0.131 $\mu\text{g}/\text{m}^3$) have in common that they are in residential areas and are not near any significant active Pb source, but they are within several miles of historically heavily industrialized areas, including steel making and other metal industry operations. There appear to be no sources for which these sites would be suitable as source-oriented monitoring sites.

The last site is the one in DeKalb County, GA, for which we strongly suspect the reported concentrations do not reflect actual concentrations at all.

It is interesting to compare the range of concentrations seen at the sites in the CBSAs with populations of at least 500,000 with the range for the sites not in such CBSAs, after excluding these seven sites. Except for site 420210808 in Cambria Co., PA which is not in a CBSA of at least 500,000 population, it appears from this limited data that upper end of the distribution of concentrations in the large CBSAs (0.060 $\mu\text{g}/\text{m}^3$ in Cook Co., IL) is higher than the upper end of the distribution in the other areas (0.038 $\mu\text{g}/\text{m}^3$ in Columbiana Co., OH).

Conclusion

It appears highly likely that the large majority of monitoring sites chosen by most states to meet the planned new requirement for non-source oriented sites in CBSAs of 500,000 or more population would measure valid maximum 3-month mean Pb-TSP concentrations that are below 0.075 $\mu\text{g}/\text{m}^3$. If Pb-PM10 monitoring is used at these sites, Pb-PM10 concentrations of course can also be expected to be below this level.

However, of the sites in St. Clair County, IL and Lake County, IL are exceptions. The experience in these two counties demonstrates that such sites in complex areas may experience Pb-TSP concentrations above $0.075 \mu\text{g}/\text{m}^3$, and even above $0.10 \mu\text{g}/\text{m}^3$, but below the final level of the NAAQS, even though no seemingly significant current Pb sources are in their vicinity.

Table 1 – Pb-TSP monitoring sites operating in 2005-2007, excluding those identified as source-oriented in the Pb NAAQS Staff Paper

AQS Site ID	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	State	County
010730023	0.030	AL	Jefferson
010730028	0.022	AL	Jefferson
010731009	0.005	AL	Jefferson
010736004	0.037	AL	Jefferson
060012004	0.007	CA	Alameda
060193002	0.008	CA	Fresno
060250005	0.033	CA	Imperial
060371103	0.028	CA	Los Angeles
060371301	0.029	CA	Los Angeles
060371601	0.025	CA	Los Angeles
060371602	0.027	CA	Los Angeles
060374002	0.015	CA	Los Angeles
060374004	0.015	CA	Los Angeles
060375005	0.009	CA	Los Angeles
060651003	0.013	CA	Riverside
060658001	0.017	CA	Riverside
060711004	0.016	CA	San Bernardino
060719004	0.024	CA	San Bernardino
060750006	0.004	CA	San Francisco
060950006	0.005	CA	Solano
080010006	0.208	CO	Adams
080310002	0.295	CO	Denver
080310015	0.083	CO	Denver
080310024	0.008	CO	Denver
080310025	0.014	CO	Denver
080410011	0.139	CO	El Paso
080650001	0.021	CO	Lake
121033005	0.000	FL	Pinellas
130090001	0.007	GA	Baldwin
130210012	0.004	GA	Bibb
130510021	0.004	GA	Chatham
130690002	0.007	GA	Coffee
130850001	0.003	GA	Dawson
130890003	0.100	GA	DeKalb
131150004	0.007	GA	Floyd
131210020	0.014	GA	Fulton
131273001	0.004	GA	Glynn
131390003	0.004	GA	Hall
131530001	0.005	GA	Houston
131850003	0.003	GA	Lowndes

Table 1 – Pb-TSP monitoring sites operating in 2005-2007, excluding those identified as source-oriented in the Pb NAAQS Staff Paper

AQS Site ID	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	State	County
132155000	0.008	GA	Muscogee
132230003	0.004	GA	Paulding
132450092	0.013	GA	Richmond
150032004	0.005	HI	Honolulu
170310001	0.017	IL	Cook
170310022	0.050	IL	Cook
170310026	0.060	IL	Cook
170310052	0.027	IL	Cook
170313103	0.044	IL	Cook
170313301	0.025	IL	Cook
170314201	0.013	IL	Cook
170316003	0.040	IL	Cook
171170002	0.011	IL	Macoupin
171193007	0.024	IL	Madison
171430037	0.029	IL	Peoria
171630010	0.081	IL	Saint Clair
180892008	0.032	IN	Lake
180892011	0.131	IN	Lake
180930004	0.027	IN	Lawrence
180970078	0.025	IN	Marion
181010001	0.027	IN	Martin
181630006	0.009	IN	Vanderburgh
220511001	0.004	LA	Jefferson
220512001	0.000	LA	Jefferson
220518105	0.000	LA	Jefferson
220518106	0.000	LA	Jefferson
220518107	0.000	LA	Jefferson
220710012	0.005	LA	Orleans
220718104	0.010	LA	Orleans
220718105	0.005	LA	Orleans
220718106	0.000	LA	Orleans
220718107	0.007	LA	Orleans
220718109	0.000	LA	Orleans
220718110	0.000	LA	Orleans
220758108	0.000	LA	Plaquemines
220870002	0.000	LA	St. Bernard
220870004	0.000	LA	St. Bernard
220890004	0.000	LA	St. Charles
221038101	0.000	LA	St. Tammany
221038400	0.000	LA	St. Tammany

Table 1 – Pb-TSP monitoring sites operating in 2005-2007, excluding those identified as source-oriented in the Pb NAAQS Staff Paper

AQS Site ID	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	State	County
250250002	0.024	MA	Suffolk
260490021	0.013	MI	Genesee
260810020	0.010	MI	Kent
261130001	0.005	MI	Missaukee
261610008	0.012	MI	Washtenaw
261630001	0.010	MI	Wayne
261630005	0.020	MI	Wayne
261630015	0.108	MI	Wayne
261630019	0.015	MI	Wayne
261630033	0.032	MI	Wayne
270370020	0.097	MN	Dakota
270370421	0.007	MN	Dakota
270370423	0.004	MN	Dakota
270370442	0.008	MN	Dakota
270370465	0.698	MN	Dakota
270530050	0.011	MN	Hennepin
270530963	0.007	MN	Hennepin
270530965	0.018	MN	Hennepin
270530966	0.007	MN	Hennepin
270530968	0.006	MN	Hennepin
270531007	0.010	MN	Hennepin
271231003	0.014	MN	Ramsey
271377001	0.010	MN	Saint Louis
271377555	0.005	MN	Saint Louis
271630009	0.012	MN	Washington
271630446	0.001	MN	Washington
290990016	0.408	MO	Jefferson
290990021	1.320	MO	Jefferson
291892003	0.050	MO	Saint Louis
360470122	0.033	NY	Kings
360713004	0.040	NY	Orange
390170015	0.036	OH	Butler
390290019	0.026	OH	Columbiana
390290020	0.038	OH	Columbiana
390290022	0.034	OH	Columbiana
390350038	0.030	OH	Cuyahoga
390350042	0.028	OH	Cuyahoga
390350068	0.039	OH	Cuyahoga
390350069	0.021	OH	Cuyahoga
390910003	0.116	OH	Logan

Table 1 – Pb-TSP monitoring sites operating in 2005-2007, excluding those identified as source-oriented in the Pb NAAQS Staff Paper

AQS Site ID	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	State	County
390910007	0.237	OH	Logan
390910008	0.215	OH	Logan
391670006	0.011	OH	Washington
391670008	0.007	OH	Washington
391670009	0.011	OH	Washington
401159005	0.056	OK	Ottawa
401159006	0.044	OK	Ottawa
401159007	0.103	OK	Ottawa
401159008	0.046	OK	Ottawa
401430172	0.008	OK	Tulsa
401430191	0.007	OK	Tulsa
401430235	0.010	OK	Tulsa
420030002	0.037	PA	Allegheny
420032001	0.069	PA	Allegheny
420070505	0.201	PA	Beaver
420210808	0.073	PA	Cambria
420250105	0.327	PA	Carbon
420450002	0.047	PA	Delaware
421290007	0.045	PA	Westmoreland
450130007	0.003	SC	Beaufort
450190003	0.002	SC	Charleston
450190046	0.001	SC	Charleston
450410002	0.003	SC	Florence
450430007	0.001	SC	Georgetown
450430009	0.011	SC	Georgetown
450430010	0.012	SC	Georgetown
450438001	0.013	SC	Georgetown
450450008	0.006	SC	Greenville
450452002	0.001	SC	Greenville
450470001	0.012	SC	Greenwood
450470002	0.014	SC	Greenwood
450510002	0.002	SC	Horry
450631002	0.007	SC	Lexington
450790007	0.004	SC	Richland
450790019	0.010	SC	Richland
450790021	0.000	SC	Richland
450830001	0.003	SC	Spartanburg
450850001	0.005	SC	Sumter
450910005	0.002	SC	York
480610006	0.006	TX	Cameron

Table 1 – Pb-TSP monitoring sites operating in 2005-2007, excluding those identified as source-oriented in the Pb NAAQS Staff Paper

AQS Site ID	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	State	County
481130018	0.059	TX	Dallas
481130057	0.057	TX	Dallas
481410002	0.049	TX	El Paso
481410033	0.033	TX	El Paso
481410058	0.015	TX	El Paso
482011034	0.008	TX	Harris
484790016	0.016	TX	Webb
490351001	0.107	UT	Salt Lake
540390010	0.006	WV	Kanawha
540690010	0.021	WV	Ohio
550250041	0.008	WI	Dane
550270007	0.024	WI	Dodge
550410007	0.005	WI	Forest
550790010	0.026	WI	Milwaukee
721270003	0.017	PR	San Juan

Table 2 - Pb-TSP monitoring sites not eliminated as source-oriented sites (see text for explanation)

AQS Site ID	In a CBSA >= 500,000?	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	Indicator Value (ug/m3)	State	County
080310002	Yes	0.295	0.295	CO	Denver
080410011	Yes	0.139	0.135	CO	El Paso
180892011	Yes	0.131	0.131	IN	Lake
080010006	Yes	0.208	0.130	CO	Adams
130890003	Yes	0.100	0.100	GA	DeKalb
171630010	Yes	0.081	0.081	IL	Saint Clair
170310026	Yes	0.060	0.060	IL	Cook
170310022	Yes	0.050	0.050	IL	Cook
421290007	Yes	0.045	0.045	PA	Westmoreland
170316003	Yes	0.040	0.040	IL	Cook
420030002	Yes	0.037	0.037	PA	Allegheny
261630033	Yes	0.032	0.032	MI	Wayne
060371103	Yes	0.028	0.028	CA	Los Angeles
390350042	Yes	0.028	0.028	OH	Cuyahoga
170310052	Yes	0.027	0.027	IL	Cook
170313301	Yes	0.025	0.025	IL	Cook
170310001	Yes	0.017	0.017	IL	Cook
060658001	Yes	0.017	0.017	CA	Riverside
721270003	Yes	0.017	0.017	PR	San Juan
060374002	Yes	0.015	0.015	CA	Los Angeles
060374004	Yes	0.015	0.015	CA	Los Angeles
271231003	Yes	0.014	0.014	MN	Ramsey
450790019	Yes	0.010	0.010	SC	Richland
270530963	Yes	0.007	0.007	MN	Hennepin
270530966	Yes	0.007	0.007	MN	Hennepin
450450008	Yes	0.006	0.006	SC	Greenville
150032004	Yes	0.005	0.005	HI	Honolulu
450790007	Yes	0.004	0.001	SC	Richland
450452002	Yes	0.001	0.001	SC	Greenville
121033005	Yes	0.000	0.000	FL	Pinellas
450790021	Yes	0.000	0.000	SC	Richland
080310015	Yes	0.083		CO	Denver
420032001	Yes	0.069		PA	Allegheny
481130018	Yes	0.059		TX	Dallas
481130057	Yes	0.057		TX	Dallas
291892003	Yes	0.050		MO	Saint Louis
481410002	Yes	0.049		TX	El Paso
420450002	Yes	0.047		PA	Delaware
170313103	Yes	0.044		IL	Cook
360713004	Yes	0.040		NY	Orange

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AQS Site ID	In a CBSA >= 500,000?	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	Indicator Value (ug/m3)	State	County
390350068	Yes	0.039		OH	Cuyahoga
010736004	Yes	0.037		AL	Jefferson
390170015	Yes	0.036		OH	Butler
360470122	Yes	0.033		NY	Kings
481410033	Yes	0.033		TX	El Paso
180892008	Yes	0.032		IN	Lake
390350038	Yes	0.030		OH	Cuyahoga
010730023	Yes	0.030		AL	Jefferson
060371301	Yes	0.029		CA	Los Angeles
060371602	Yes	0.027		CA	Los Angeles
550790010	Yes	0.026		WI	Milwaukee
060371601	Yes	0.025		CA	Los Angeles
180970078	Yes	0.025		IN	Marion
250250002	Yes	0.024		MA	Suffolk
060719004	Yes	0.024		CA	San Bernardino
171193007	Yes	0.024		IL	Madison
010730028	Yes	0.022		AL	Jefferson
390350069	Yes	0.021		OH	Cuyahoga
261630005	Yes	0.020		MI	Wayne
270530965	Yes	0.018		MN	Hennepin
060711004	Yes	0.016		CA	San Bernardino
261630019	Yes	0.015		MI	Wayne
481410058	Yes	0.015		TX	El Paso
131210020	Yes	0.014		GA	Fulton
080310025	Yes	0.014		CO	Denver
170314201	Yes	0.013		IL	Cook
060651003	Yes	0.013		CA	Riverside
271630009	Yes	0.012		MN	Washington
270530050	Yes	0.011		MN	Hennepin
171170002	Yes	0.011		IL	Macoupin
261630001	Yes	0.010		MI	Wayne
270531007	Yes	0.010		MN	Hennepin
220718104	Yes	0.010		LA	Orleans
401430235	Yes	0.010		OK	Tulsa
260810020	Yes	0.010		MI	Kent
060375005	Yes	0.009		CA	Los Angeles
482011034	Yes	0.008		TX	Harris
080310024	Yes	0.008		CO	Denver
401430172	Yes	0.008		OK	Tulsa
060193002	Yes	0.008		CA	Fresno
550250041	Yes	0.008		WI	Dane
060012004	Yes	0.007		CA	Alameda

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AQS Site ID	In a CBSA >= 500,000?	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	Indicator Value (ug/m3)	State	County
220718107	Yes	0.007		LA	Orleans
401430191	Yes	0.007		OK	Tulsa
450631002	Yes	0.007		SC	Lexington
270530968	Yes	0.006		MN	Hennepin
220710012	Yes	0.005		LA	Orleans
220718105	Yes	0.005		LA	Orleans
010731009	Yes	0.005		AL	Jefferson
132230003	Yes	0.004		GA	Paulding
060750006	Yes	0.004		CA	San Francisco
220511001	Yes	0.004		LA	Jefferson
130850001	Yes	0.003		GA	Dawson
450910005	Yes	0.002		SC	York
450190003	Yes	0.002		SC	Charleston
271630446	Yes	0.001		MN	Washington
450190046	Yes	0.001		SC	Charleston
220512001	Yes	0.000		LA	Jefferson
220518105	Yes	0.000		LA	Jefferson
220518106	Yes	0.000		LA	Jefferson
220518107	Yes	0.000		LA	Jefferson
220718106	Yes	0.000		LA	Orleans
220718109	Yes	0.000		LA	Orleans
220718110	Yes	0.000		LA	Orleans
220758108	Yes	0.000		LA	Plaquemines
220870002	Yes	0.000		LA	St. Bernard
220870004	Yes	0.000		LA	St. Bernard
220890004	Yes	0.000		LA	St. Charles
221038101	Yes	0.000		LA	St. Tammany
221038400	Yes	0.000		LA	St. Tammany
420210808	No	0.073	0.073	PA	Cambria
390290020	No	0.038	0.038	OH	Columbiana
060250005	No	0.033	0.033	CA	Imperial
390290019	No	0.026	0.026	OH	Columbiana
484790016	No	0.016	0.016	TX	Webb
450470002	No	0.014	0.014	SC	Greenwood
450430010	No	0.012	0.012	SC	Georgetown
480610006	No	0.006	0.006	TX	Cameron
450830001	No	0.003	0.003	SC	Spartanburg
450510002	No	0.002	0.002	SC	Horry
450430007	No	0.001	0.001	SC	Georgetown
390290022	No	0.034		OH	Columbiana
171430037	No	0.029		IL	Peoria
180930004	No	0.027		IN	Lawrence

Table 2 - Pb-TSP monitoring sites not eliminated as source-oriented sites (see text for explanation)

AQS Site ID	In a CBSA >= 500,000?	Highest 3-month mean concentration of Pb-TSP 2005-2007, without regard to the number of data points represented by the mean (ug/m3)	Indicator Value (ug/m3)	State	County
181010001	No	0.027		IN	Martin
550270007	No	0.024		WI	Dodge
540690010	No	0.021		WV	Ohio
080650001	No	0.021		CO	Lake
132450092	No	0.013		GA	Richmond
260490021	No	0.013		MI	Genesee
450438001	No	0.013		SC	Georgetown
261610008	No	0.012		MI	Washtenaw
450470001	No	0.012		SC	Greenwood
391670006	No	0.011		OH	Washington
391670009	No	0.011		OH	Washington
450430009	No	0.011		SC	Georgetown
271377001	No	0.010		MN	Saint Louis
181630006	No	0.009		IN	Vanderburgh
132155000	No	0.008		GA	Muscogee
391670008	No	0.007		OH	Washington
131150004	No	0.007		GA	Floyd
130090001	No	0.007		GA	Baldwin
130690002	No	0.007		GA	Coffee
540390010	No	0.006		WV	Kanawha
060950006	No	0.005		CA	Solano
271377555	No	0.005		MN	Saint Louis
131530001	No	0.005		GA	Houston
450850001	No	0.005		SC	Sumter
261130001	No	0.005		MI	Missaukee
550410007	No	0.005		WI	Forest
130510021	No	0.004		GA	Chatham
130210012	No	0.004		GA	Bibb
131390003	No	0.004		GA	Hall
131273001	No	0.004		GA	Glynn
450410002	No	0.003		SC	Florence
450130007	No	0.003		SC	Beaufort
131850003	No	0.003		GA	Lowndes