EPA Report
Preliminary Results of Particulate Matter Screening in Chanute, KS
April 9, 2012

In response to community reports of episodic releases of particulate matter (PM), the Environmental Protection Agency (EPA) and the Kansas Department of Health and Environment (KDHE) designed a PM monitoring campaign to sample and identify potential PM concentration gradients in the community.

In order to comprehensively monitor for PM, both particles 10 microns in size (PM_{10}) and particles 2.5 microns in size ($PM_{2.5}$) were measured with screening level instruments.

PM monitoring commenced on December 1, 2011 at two locations (Attachment 4) and no 24-hour PM_{10} concentrations greater than 70 $\mu g/m^3$ have been measured to date. For comparative purposes, the 24-hour National Ambient Air Quality Standard (NAAQS) for PM_{10} is 150 $\mu g/m^3$. (Attachment 1) $PM_{2.5}$ monitoring also commenced on December 1, 2011 at one location. The maximum 24-hour $PM_{2.5}$ value measured with screening instruments to date is 35 $\mu g/m^3$. (See discussion below and Attachment 2) The 24-hour $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) is calculated based upon the three year average of 98th percentile values of monitoring data collected at a particular site in a year. This means that the eighth highest 24-hour value is used in a year for a monitoring site that collects daily 24-hour data to calculate a three year average for comparison to the 35 $\mu g/m^3$ NAAQS.

Evaluation of Data:

Attachment 1 shows a graph of daily PM_{10} data collected by EPA screening monitors combined with KDHE PM_{10} data collected by their approved federal reference method (FRM) monitor located at 1500 West Seventh Street in Chanute. The data collected to date are very comparable and well below the PM_{10} NAAQS.

Attachment 2 shows a graph of daily $PM_{2.5}$ data collected the EPA screening monitor located in Central Park. The data are typical of $PM_{2.5}$ data collected at other continuous monitoring sites with periodic peak concentrations that rise and fall over a number of days. This behavior in $PM_{2.5}$ data is seen because $PM_{2.5}$ is typically a very large scale pollutant which varies over time with passage of weather fronts. It is not uncommon to see multiple counties and even multiple states affected simultaneously by large scale plumes of $PM_{2.5}$. Example data are presented in Attachment 3 which shows the December Central Park $PM_{2.5}$ data compared to continuous FRM $PM_{2.5}$ data collected in Tulsa, the two sets of data track very closely. The Chanute screening level data will be continue to be evaluated against additional continuously operating $PM_{2.5}$ federal reference monitor data in surrounding communities when it becomes available. It is important to note that screening level data are used as a relative indicator of PM concentrations and that only FRM data should be directly compared to the NAAQS for compliance purposes.

[1] For a complete description of the proposed environmental screening in Chanute, KS, the reader is referred to the "Chanute Air Monitoring Proposal" published on the EPA Region 7's webpage http://www.epa.gov/region07/air/quality/chanute.htm.

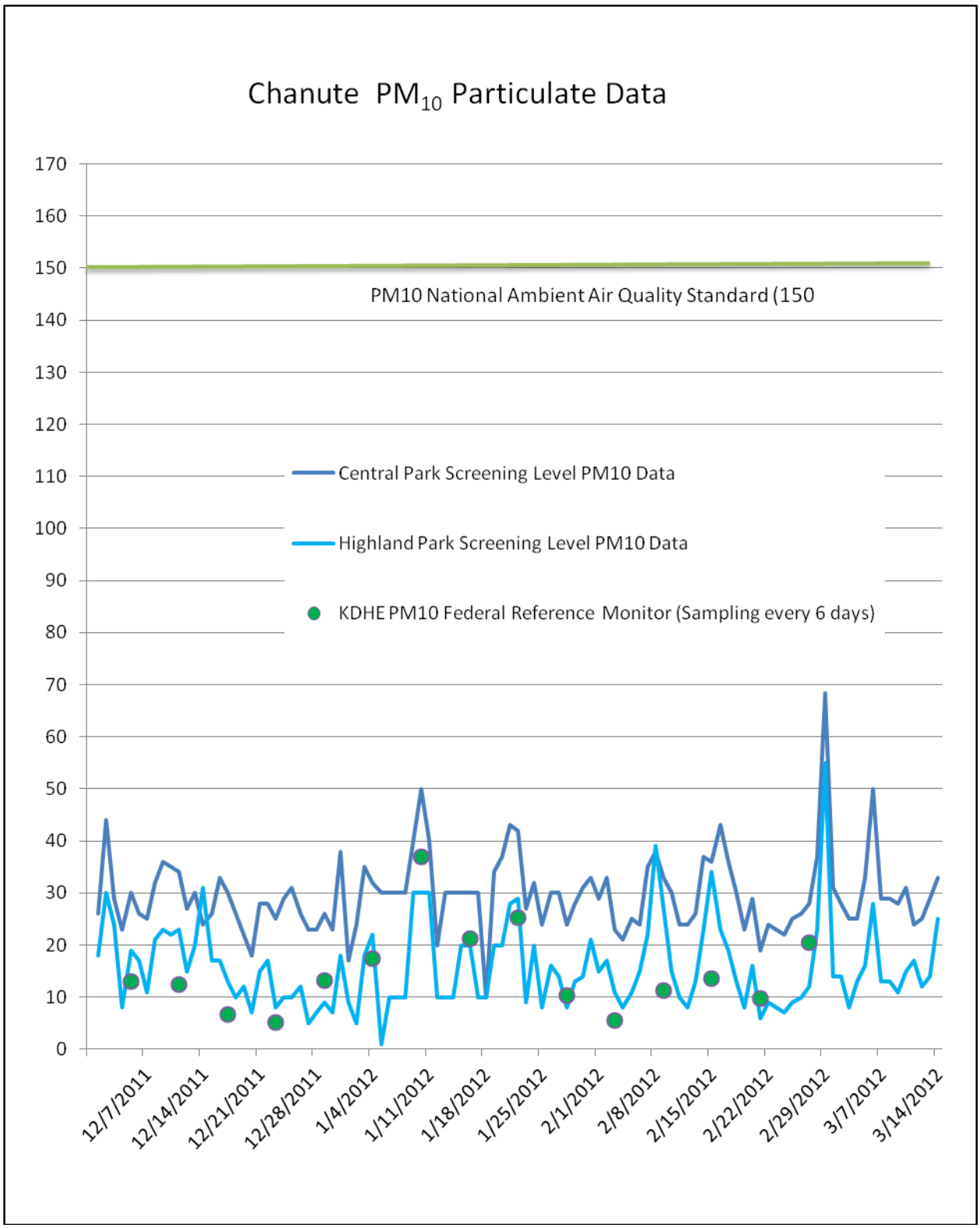
Conclusion:

The PM_{10} data collected Central Park does appear to be somewhat higher than the Highland Park observations. Regardless, both the screening level and FRM PM_{10} data collected to date has all been less than fifty percent of the NAAQS.

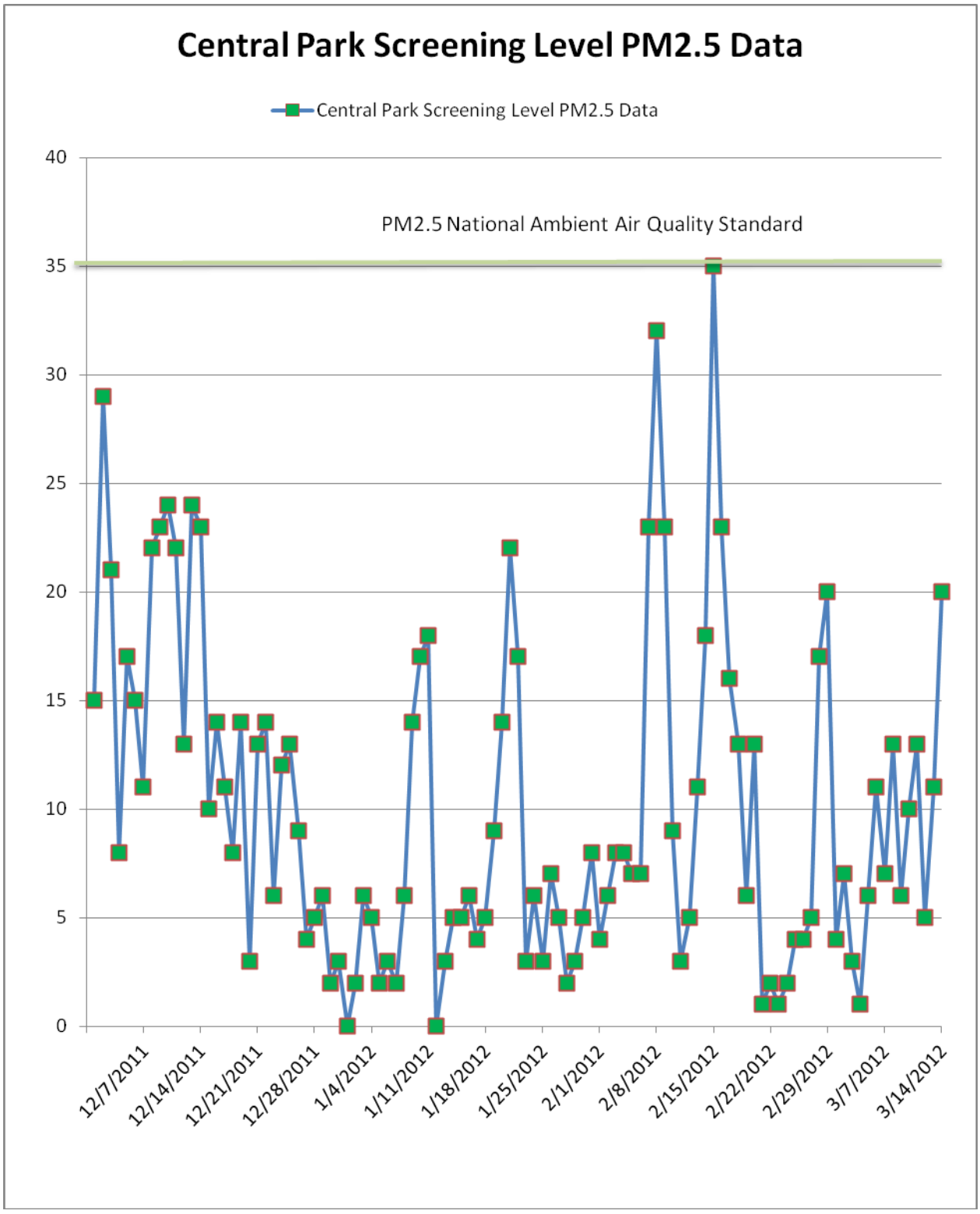
The $PM_{2.5}$ data collected to date do show some higher daily concentrations, yet the Chanute screening data tracks very closely with continuous FRM data collected in Tulsa, OK during the month of December. Comparison of the Chanute screening level data set will be performed with additional quality assured continuous $PM_{2.5}$ FRM data from surrounding metropolitan areas when it becomes available.

The sampling design objectives of the Chanute Air Monitoring Proposal included a goal that PM concentrations be assessed under wind direction conditions that represent typical yearly wind patterns. In order to fulfill the PM monitoring objectives of the Chanute Air Monitoring Proposal, EPA recommends that data collection continue to be sustained for three months to assess PM concentrations under additional seasonal meteorological conditions.

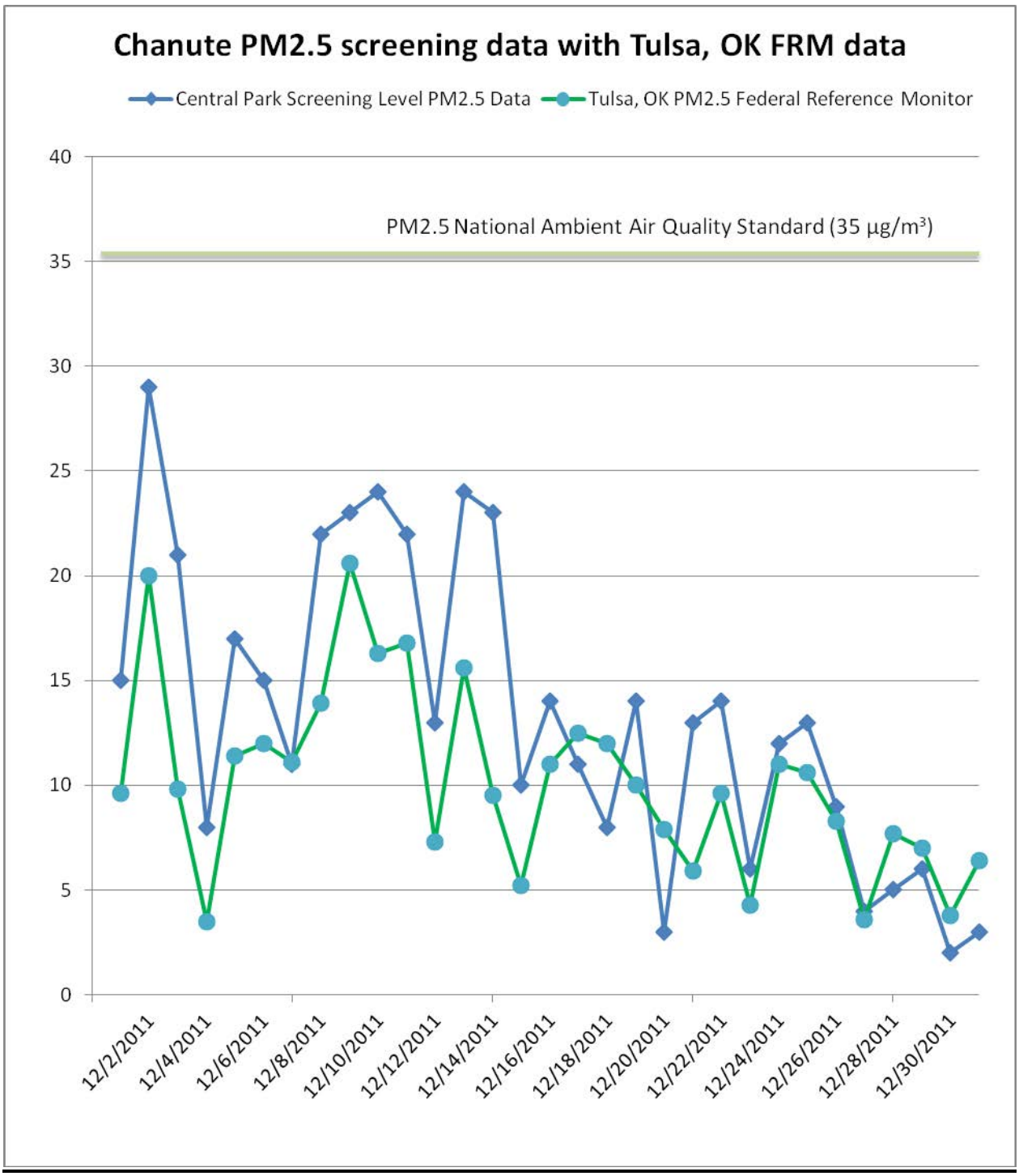
ATTACHMENT 1



ATTACHMENT 2



ATTACHMENT 3



ATTACHMENT 4

Particulate Matter Monitoring Sites