



South Coast Air Quality Management District

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Assessment of Hexavalent Chromium Data at Paramount Schools

April 12, 2017

Objective and Background

As part of the ongoing investigation to identify and address sources of hexavalent chromium (Cr6) in the City of Paramount, the SCAQMD, with assistance from the California Air Resources Board (CARB), is conducting air sampling for Cr6 at schools in Paramount. The objective of this sampling effort is to assess whether elevated levels of Cr6 (found in some industrial areas) may also be found at the local schools.

This report is an updated assessment of the monitoring data from the school sites. The previous report (from February 22, 2017) can be found on the aqmd.gov website.

Approach

To determine the levels of Cr6 at the local schools, a sampling program was established to monitor Cr6 concentrations. Sampling began on 12/23/2016 at 6 Paramount area schools. Sampling will continue until at least seven valid sampling results have been collected at a school site before the monitor is removed from the school. Since sampling is conducted every third day (1-in-3 day sampling schedule), seven valid samples would cover a minimum of two and a half weeks. Sometimes, a sample is determined to be "invalid" due to loss of power in the sampler, equipment malfunction, or other reasons. To ensure high quality data, invalid samples are not part of this assessment.

The overall sampling results from each school will be compared to "background" or typical Cr6 levels found elsewhere in the South Coast Air Basin ("Basin"). If the levels at a school are relatively consistent with levels at MATES IV monitoring sites near Paramount, then no further investigation at that location is needed. SCAQMD staff are working toward conducting Cr6 sampling at as many Paramount schools as possible.

SCAQMD staff will continue to assess all sampling results with follow-up investigations of potential nearby sources if high levels are detected. Additionally, if the SCAQMD investigation in the Paramount area identifies a facility of concern, the SCAQMD will assess the need for

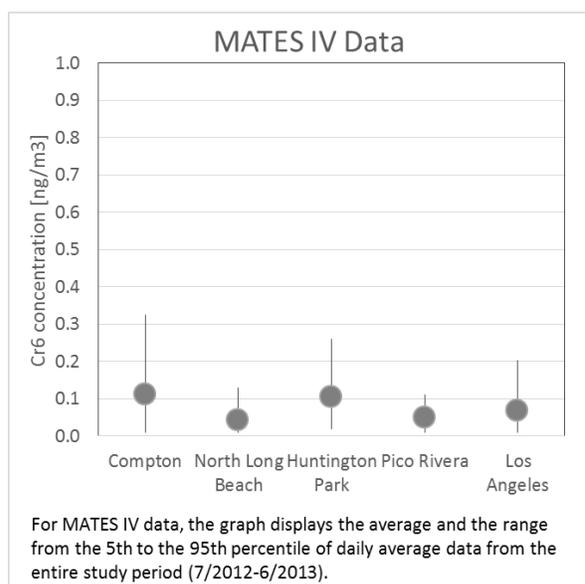
monitors at schools near the facility of concern. This could include schools that previously had monitors, as well as schools where sampling has not yet occurred.

The investigation into potential sources of Cr6, as well as the activities implemented to reduce Cr6 emissions from identified sources continues in parallel to the school-based monitoring. Therefore, levels of Cr6 at the schools may be further reduced as the investigation and compliance activities proceed.

Methodology

Sampling for Cr6 at the school sites is conducted over a 24-hour period every third day (one 24-hour sample every third day, or 1-in-3 day sampling schedule). At each Paramount school site, a minimum of seven valid results are used in the assessment. With this sampling schedule, seven data points represent a minimum of two and a half weeks of monitoring, and is a reasonably balanced assessment of the levels at that location during this time period.

The Cr6 levels detected at each school are compared to the Cr6 levels from SCAQMD's Multiple Air Toxics Exposure Study IV (MATES IV) <<http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv>>. The MATES IV study provides a regional estimate of the range of "background" or typical levels of air toxic pollution in 2012-2013 from ten locations throughout the region. The purpose of these comparisons is to indicate whether the levels measured at the Paramount schools are relatively consistent with air toxics monitoring data across the region. If the levels at a school are relatively consistent with levels at MATES IV monitoring sites near Paramount, then no further investigation at that location is needed. Because it is long-term exposure to Cr6 that is associated with increased cancer risk, the key comparison is for the average levels of Cr6, although the range of measured levels is also part of the assessment.



The following five monitoring sites from the MATES IV study were located generally in the central LA and south LA areas, and provide a good basis for comparison: Compton, North Long Beach, Huntington Park, Downtown Los Angeles and Pico Rivera.

Assessment

Since the previous report, additional results have become available for the schools that were assessed in the previous report, so the information below has been updated. In addition, three

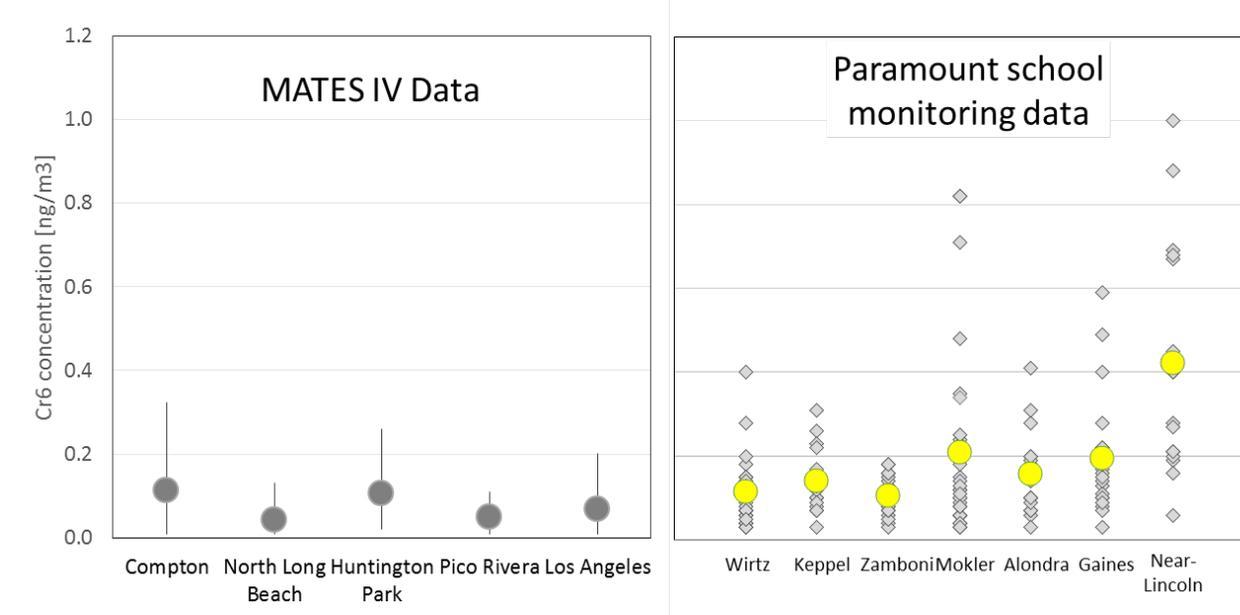
additional schools are part of this assessment: Abraham Lincoln Elementary School (“Lincoln”), Wesley Gaines Elementary School (“Gaines”) and Major Lynn Mokler Elementary School (“Mokler”). The following is an assessment of the Paramount school sites with seven or more valid results:

- Alondra Middle School: Based on valid results from the Alondra Middle School site collected between 12/23/16 through 3/17/17 (17 valid results), the average Cr6 level measured at this site was 0.16 ng/m³. The results ranged between 0.03 to 0.31 ng/m³, with the exception of one sample collected on 2/15/17, which had a level of 0.41 ng/m³. While the average level and all but one of the samples at this location are similar to Cr6 levels found elsewhere in the Basin in the MATES IV study, the one result from 2/15/17 is higher than the range of the 5th to 95th percentile data from the MATES IV study. However, there were a handful of samples from the MATES IV study that had concentrations higher than this one result. Importantly, it is the average level that provides the best estimate of long-term exposure, which is what affects long-term health risks.
- Wesley Gaines Elementary School: Based on valid results from the Wesley Gaines Elementary School site collected between 1/25/17 through 4/4/17 (21 valid results), the average Cr6 level measured at this site was 0.19 ng/m³, with a range of 0.03 to 0.59 ng/m³. While the average level and the majority of the samples at this location are similar to Cr6 levels found elsewhere in the Basin in the MATES IV study, three of the results from this site are higher than the range of the 5th to 95th percentile data from the MATES IV study. However, there were a handful of samples from the MATES IV study that had concentrations higher than these results. Importantly, it is the average level that provides the best estimate of long-term exposure, which is what affects long-term health risks. Staff are continuing to investigate potential sources of Cr6 in the areas near this school.
- Mark Keppel Elementary School: Based on valid results from the Mark Keppel Elementary School site collected between 12/23/16 through 3/17/17 (19 valid results), the average Cr6 level measured at this site was 0.14 ng/m³, with a range of 0.03 to 0.31 ng/m³, which is similar to Cr6 levels found elsewhere in the Basin in the MATES IV study.
- Abraham Lincoln Elementary School: Based on valid results from a monitoring location near Abraham Lincoln Elementary School collected between 2/18/17 through 4/4/17 (16 valid results), the average Cr6 level measured at this site was 0.42 ng/m³, with a range of 0.06 to 1.00 ng/m³. The average level at this site is higher than typical Cr6 levels in the Basin in the MATES IV study. Staff are continuing to investigate potential sources of Cr6 in the areas near this school.

- Major Lynn Mokler Elementary School: For this site, two monitors were placed side by side (“co-located”) at this school to help evaluate data quality. For the purpose of this data assessment, only data from the primary monitor (labeled “Mokler 1”) is used; the primary monitor had more complete data, and the results across the two monitors at this location were generally similar. Based on valid results from this site collected between 12/23/16 through 4/4/17 (30 valid results), the average Cr6 level measured at this site was 0.21 ng/m³, with a range of 0.03 to 0.82 ng/m³. While the average level and the majority of the samples at this location are similar to Cr6 levels found elsewhere in the Basin in the MATES IV study, a few of the results from this site are higher than the range of the 5th to 95th percentile data from the MATES IV study. However, there were a handful of samples from the MATES IV study that had concentrations higher than these results. Importantly, it is the average level that provides the best estimate of long-term exposure, which is what affects long-term health risks. Staff are continuing to investigate potential sources of Cr6 in the areas near this school.
- Harry Wirtz Elementary School: Based on valid results from the Wirtz Elementary School site collected between 12/23/16 through 3/14/17 (24 valid results), the average Cr6 level measured at this site was 0.12 ng/m³. The results ranged between 0.03 to 0.28 ng/m³, with the exception of one sample collected on 3/14/17, which had a level of 0.40 ng/m³. While the average level and all but one of the samples at this location are similar to Cr6 levels found elsewhere in the Basin in the MATES IV study, the one result from 3/14/17 is higher than the range of the 5th to 95th percentile data from the MATES IV study. However, there were a handful of samples from the MATES IV study that had concentrations higher than this one result. Importantly, it is the average level that provides the best estimate of long-term exposure, which is what affects long-term health risks.
- Frank J. Zamboni Middle School: Based on valid results from the Zamboni Middle School site collected between 12/23/16 through 3/17/17 (18 valid results), the average Cr6 level measured at this site was 0.11 ng/m³, with a range of 0.03 to 0.18 ng/m³, which is similar to Cr6 levels found elsewhere in the Basin in the MATES IV study.

The range and average of the sampling results for these sites are shown in the graph below.

Comparison of Paramount School Hexavalent Chromium Sampling Data to MATES IV Data



For MATES IV data, the graph displays the average (gray circles) and the range (lines) from the 5th to the 95th percentile of daily average data from the entire study period (7/2012-6/2013). For the Paramount school sites, the graph displays the average (yellow circles) and each of the valid results (gray diamonds). Only those schools that have at least 7 valid results are included in this graph. This graph reflects the monitoring data collected at Paramount schools from Dec. 23, 2016 through Mar. 17, 2017 for Wirtz, Keppel, Zamboni, and Alondra, from Dec. 23, 2016 through Apr. 4, 2017 for Mokler, from Jan. 22, 2017 through Apr. 4, 2017 for Gaines, and from Feb. 18, 2017 through Apr. 4, 2017 for the site near Lincoln school.

Because Cr6 is one of several air toxic pollutants, it is important to put these results into the larger context of the cancer risks associated with all air toxics in the region. Based on the MATES IV study, the average cancer risk in the Basin from all ambient air toxics combined (including Cr6) is approximately 900 chances in a million. While Cr6 may be a significant contributor to air toxics cancer risk in areas very close to Cr6 emitting sources, there are other important contributors to the overall risk. For example, diesel particulate matter contributes to about two-thirds of the overall air toxics cancer risk in the region.

Next Steps

SCAQMD staff are continuing to investigate and address sources of Cr6 in Paramount.

Samplers have been deployed at 4 additional Paramount schools (Los Cerritos Elementary School, Howard Tanner Elementary School, Paramount High School West, and Theodore Roosevelt Elementary School), but not enough data were available for assessment of these 4 school sites at the time of this report.

This report will be updated as additional data are available for assessment.