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**CYNTHIA A. HARDING, M.P.H.**  
Interim Director

**JEFFREY D. GUNZENHAUSER, M.D., M.P.H.**  
Interim Health Officer

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January 24, 2017

TO: Each Supervisor

FROM: Cynthia A. Harding, M.P.H.  
Interim Director

A handwritten signature in blue ink that reads "Cynthia A. Harding".

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016 your Board instructed the Interim Director of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium ("Chromium-6") emissions in the City of Paramount. This report provides the first monthly update on these issues and it reflects collaboration with the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, and County Counsel.

**Timeline of Enforcement Activities**

On November 4, 2016, SCAQMD first reported to DPH that its air monitors had detected excessive levels of Chromium-6, at which time SCAQMD along with the Fire Department's Health Hazardous Materials Division began door-to-door investigations of over 150 facilities to determine the source of contamination. On November 29, 2016, SCAQMD issued Petitions for Orders of Abatement to both the Anaplex Corporation (Anaplex) and the Aircraft Heat Treating Company, Inc. (Aircraft) after determining that these two facilities were contributing to elevated airborne levels of Chromium-6. Two days later, on December 1, 2016, DPH, utilizing its authority as the Health Officer for the City of Paramount, issued Public Health Directives to both Anaplex and Aircraft, ordering each facility to work with SCAQMD to take all necessary actions to immediately eliminate the current nuisance endangering the health of the public, which may include full or partial suspension of operations. SCAQMD's proposed Orders of Abatement established that Chromium-6 emissions are not to exceed 1 ng/m<sup>3</sup> at either of these facilities. SCAQMD has also substantially enhanced air monitoring and testing in the area. Once the level of 1 ng/m<sup>3</sup> has been consistently achieved, DPH will interpret all data produced by the enhanced air monitoring to determine the need for further reductions.

On December 14, 2016, the SCAQMD Hearing Board held proceedings related to the proposed Orders of Abatement petition filed by SCAQMD against Anaplex and Aircraft. DPH experts



testified at the hearing on the dangers and health risks that excessive levels of Chromium-6 pose to persons living and working near the facilities. On December 16, 2016, the SCAQMD Hearing Board approved the Stipulated Order of Abatement that was voluntarily entered into by Aerocraft. Anaplex refused to voluntarily enter into a similar order at that time, and the SCAQMD Hearing Board continued the matter to January 5, 2017. DPH and SCAQMD concurred that the three week continuance of the Anaplex case constituted an unacceptable and ongoing threat to the public's health that required immediate legal action.

On December 21, 2016 the County and SCAQMD jointly filed a lawsuit against Anaplex in Los Angeles County Superior Court, and sought an emergency abatement order against Anaplex. On December 22, 2016 the Superior Court held a hearing, during which it denied the County and SCAQMD's motion for an emergency order against Anaplex. The Superior Court stated in its denial of the motion that it did not want to disturb the administrative jurisdiction of the SCAQMD Hearing Board to resolve the allegations against Anaplex.

On January 5, 2017, the SCAQMD Hearing Board reconvened on the Anaplex matter. Supervisor Janice Hahn and an expert from DPH provided public testimony. On January 10, 2017, Anaplex agreed to enter into a Stipulated Order of Abatement with SCAQMD, which was subsequently approved by the Hearing Board.

These Orders of Abatement allow SCAQMD to identify emissions of Chromium-6 at Aerocraft and Anaplex that present an endangerment to the public, and to initiate corrective action immediately upon detection. On January 19, 2017, monitoring at Aerocraft identified an exceedance of the requirements set forth in the order. As a result, Aerocraft was required to suspend all operations at the facility that could release Chromium-6. These operations will remain suspended until Aerocraft collects three measurements over a week demonstrating compliance with the Chromium-6 standard in the Order. DPH and SCAQMD will continue to closely monitor emissions and will take further actions as necessary to ensure compliance with the Orders.

Should it become necessary to take further legal actions beyond seeking to compel compliance with the Orders of Abatement, there are additional legal options that can be exercised. For example, SCAQMD can file a lawsuit against a responsible party alleging violation of the air quality standards required by California law.

### **Communications with the City of Paramount**

DPH has had several discussions with the City Manager and other senior officials in the City of Paramount to ensure they understand the role and authority of DPH as the city's Health Officer. DPH advised these officials of the urgency of the situation and the gravity of harm presented to their constituents by exposure to high levels of Chromium-6 during two Town Hall Meetings on November 9, 2016 and December 12, 2016. . DPH, with input from SCAQMD and the Fire Department, also advised city officials regarding the route of the city-sponsored "Santa Train" festival during the winter holidays, which was subsequently altered so as to avoid stops in the vicinity of the elevated Chromium-6 emissions to prevent unnecessary exposure to the public. DPH will continue to work closely with city officials to ensure that they are informed of important developments and provided with advisement on protecting the public's health.

## **Review of Reports on the City of Paramount's Water Supply**

In response to Supervisor Janice Hahn's request for information on the levels of Chromium-6 in the City of Paramount's water supply, DPH reviewed the current report from the State Water Resources Control Board's Division of Drinking Water. The recent test results for the City of Paramount show that Chromium-6 levels in the drinking water are currently below 1 part per billion (1 ppb), which is below the State standard of 10 ppb. The City of Paramount has informed DPH that it will continue testing the drinking water beyond State requirements, in order to maintain public confidence.

## **Next Steps**

In addition to the continued monitoring of Anaplex and Aerocraft to ensure compliance with the Orders of Abatement, SCAQMD, DPH, and the Fire Department are also expanding monitoring and inspection activities within the City of Paramount due to the large number of Chromium-6 emitting facilities in the area. This will allow for the identification of other potential sources of Chromium-6, beyond the Anaplex and Aerocraft facilities. SCAQMD is expanding air monitoring to include locations near other facilities that emit Chromium-6, and together SCAQMD, DPH, and the Fire Department are conducting door-to-door surveys of facilities in the City of Paramount to ascertain the status of their permits and current operations. This additional monitoring will allow for determination of whether further steps must be taken to abate the endangerment posed by elevated levels of Chromium-6 in the community.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

CAH:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department





**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

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March 6, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director 

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. This second monthly progress report provides information on air quality monitoring, soil assessment, and enforcement of the Chromium-6 emissions standard in the City of Paramount, as well as ongoing public education and communication efforts. DPH continues to collaborate with the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, and County Counsel.

**Air Quality Monitoring**

Air quality monitoring continues at both the Anaplex Corporation (Anaplex) and Aircraft Heat Treating Company, Inc. (Aerocraft). Results for the Anaplex indicate that the average Chromium-6 emissions in February 2017, which were 1.2 ng/m<sup>3</sup>, are similar to those detected in January 2017, 1.0 ng/m<sup>3</sup>. Air monitoring results for Aerocraft indicate that that the average Chromium-6 emissions in February 2017, which were 0.30 ng/m<sup>3</sup>, are lower than those detected in January 2017, 0.85 ng/m<sup>3</sup>. During February 2017, both facilities experienced periods of curtailment after exceeding the SCAQMD-imposed Chromium-6 emissions standard of 1 ng/m<sup>3</sup> that was stipulated in the Orders of Abatement. During any curtailment, the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. A facility may resume operations only after the average of three consecutive samples collected over a one-week period no longer exceeds the 1.0 ng/m<sup>3</sup> standard. Aerocraft went into curtailment from February 3-15, 2017, and has recently resumed operations under SCAQMD guidance and monitoring. Anaplex went into curtailment on February 15, 2017 and will not resume operations until air monitoring conditions under the Order are met. Of note, Aerocraft recently disputed an SCAQMD air monitoring result that caused the facility to go into curtailment. SCAQMD opposed Aerocraft’s dispute, and that matter, along with a supplemental monitoring plan submitted by Aerocraft, is currently under review.



In conjunction with the California Air Resources Board (CARB), SCAQMD is now conducting air sampling for Chromium-6 at schools in the Paramount area. Sampling began at six school sites (Major Lynn Mokler Elementary School, Alondra Middle School, Harry Wirtz Elementary School, Frank Zamboni Middle School, Wesley Gaines Elementary School and Mark Keppel Elementary School), and will continue until all school sites in Paramount are monitored for a minimum of seven valid results. Sampling results are compared to typical Chromium-6 levels found elsewhere in the Los Angeles Basin. Preliminary results have not identified significantly elevated levels of Chromium-6 adjacent to schools. School sampling and related source investigations are ongoing, and DPH will report back to your Board on additional findings as they become available.

### **Soil Assessment**

DPH and the Fire Department are working together to review soil samples that were collected near Anaplex and Aerocraft and tested for metals. Preliminary results indicate that Chromium-6 from these two facilities has not traveled more than a two-block radius from the facility perimeters; however, further review of the soil results and more extensive testing is necessary to determine potential exposures and possible health risks to nearby workers and residents. The City of Paramount has contracted with an environmental firm to sample soil at Village Park, which is a skate park west of Carlton Forge Works. The State Department of Toxic Substances Control (DTSC) is overseeing this sampling effort and DPH will work with DTSC to coordinate review and interpretation of its findings.

### **Enforcement**

The discovery of elevated levels of Chromium-6 was initially traced back to the operations of two industrial facilities, Anaplex and Aerocraft. SCAQMD expanded its enforcement efforts to the south of these facilities, and has subsequently detected levels of Chromium-6 ranging up to 3 ng/m<sup>3</sup> in the vicinity of three other facilities that involve metals or metal processing (Press Forge Co., Weber Metals Inc., and Mattco Forge). These preliminary detections do not represent an immediate health risk to residents; however, more investigation is required to characterize the full nature of emissions from these facilities. During the week of February 27, 2017, SCAQMD will conduct an interagency investigation to inspect these facilities and the surrounding areas. DPH is participating in this coordinated investigation. These expanded efforts are essential to determine the extent of potential exposures to the community beyond the emissions from Anaplex and Aerocraft.

SCAQMD has also responded to community reports of odors, which have been traced back to Carlton Forge Works. SCAQMD has issued a total of six Notices of Violation to Carlton Forge Works between January 20, 2017 and February 10, 2017. Carlton Forge Works is working with SCQMD to assess its operations and resolve the odor issues.

### **Communication**

DPH continues to respond to inquiries from the Paramount community via telephone and email, and has attended town hall meetings hosted by SCAQMD over the past month. Air monitoring results and information on DPH activities in the City of Paramount are available at <http://publichealth.lacounty.gov/eh/airtoxins/>. A fact sheet, which DPH provides at meetings and events, is available on this website in both English and Spanish. DPH is also working to make

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copies of the fact sheets available at various locations in the community, like health centers and libraries. Community members can also receive updates on a conference call hosted by SCAQMD on the 2<sup>nd</sup> and 4<sup>th</sup> Tuesdays of the month at 6:30pm. Information about the call is available at <http://www.aqmd.gov/home/regulations/compliance/air-monitoring-activities>.

To facilitate interagency collaboration, a weekly conference call is hosted by SCAQMD that includes the United States Environmental Protection Agency, the City of Paramount, DTSC, CARB, DPH, and the Fire Department. DPH also meets regularly with the Fire Department to identify additional opportunities, and as an initial activity, firefighters at stations in Paramount will be provided with training on health issues related to exposure to Chromium-6. Further, on February 10, 2017 DPH provided a briefing on Chromium-6 to the Health Officer for the City of Long Beach, as Long Beach is located near the City of Paramount.

### **Legislative Activity**

In February, Assembly Bill 1132 was introduced by Assemblymember Cristina Garcia. This bill would authorize the director of SCAQMD to issue an order for abatement pending a hearing before the SCAQMD hearing board, if the director determines that a facility has violated requirements related to the emission of air pollutants and the violation presents an imminent and substantial endangerment to the public health or welfare, or the environment. Currently, orders for abatement are only issued after notice and a hearing. Therefore, this bill provides another potential tool to facilitate a swift response to emissions that endanger the public's health.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department





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March 31, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director 

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. This third monthly progress report provides information on air quality monitoring, soil assessment, and enforcement of the Chromium-6 emissions standard in the City of Paramount, as well as ongoing public education and communication efforts. DPH is working closely with the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, County Counsel, Department of Toxic Substances Control (DTSC), California Department of Public Health (CDPH), and California Air Resources Board (CARB).

**Air Quality Monitoring**

Air quality monitoring by SCAQMD continues at both the Anaplex Corporation (Anaplex) and Aircraft Heat Treating Company, Inc. (Aerocraft), and has recently been significantly expanded to an industrial area approximately a half-mile to the south of these facilities. As previously reported, compliance monitoring points have been established at both of these facilities. When Chromium-6 emissions (measured over a 24-hour period) exceed 1 nanogram per meter cubed (ng/m<sup>3</sup>), SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions.

Chromium-6 concentrations in air immediately outside both facilities continue to remain more than 10-fold lower than concentrations detected before SCAQMD and DPH issued their Orders for Abatement and Health Directives, respectively. However, both facilities are still regularly exceeding or approaching the 1 ng/m<sup>3</sup> standard established for compliance purposes. Moreover, Chromium-6 concentrations remain above typical background levels for the Los Angeles Basin, which range from 0.03 to 0.1 ng/m<sup>3</sup>. SCAQMD ordered Aerocraft to shut-down Chromium-6



emitting operations for a third and a fourth time from March 4 to March 7, 2017 and on March 17, 2017 to present, respectively. Anaplex has not been required to shut-down its operations since early February.

SCAQMD, in cooperation with the City of Paramount and CARB, continues to expand its air monitoring to nearby schools and residential areas. As shown in the table below, the downwind residential monitors indicate a downward trend in Chromium-6 concentrations, consistent with the trend observed in the industrial area.

**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Industrial Investigation Area**

Month	Industrial		Residential	
	Aerocraft	Anaplex	300 ft downwind	1,400 ft downwind
October 2016	26		4.7	
November 2016	12	11	2.0	0.44
December 2017	3.0	2.5	0.7	0.2
January 2017	1.0	2.1	0.5	0.2
February 2017	1.1	0.5	0.6	0.3
March 2017*	1.5	0.9	0.9	

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

\*March results reflect data available to date (March 1 to March 20, 2017).

Since February 2017, SCAQMD has considerably expanded its monitoring to the south of the original investigation area, where several metal plating facilities are located. The 24-hour monitoring results in this southern investigation area range from 0.2 to 3.6 ng/m<sup>3</sup>, with 20% of the samples in exceedance of 1 ng/m<sup>3</sup>. SCAQMD and partner agencies are actively investigating potential sources of Chromium-6 in this southern corridor in order to work to address these elevated levels.

Additionally, SCAQMD has expanded its monitoring at two schools near the southern investigation area since mid-February: Alondra Middle School and Mokler Elementary School. Another school located east of Carlton Forge Works, Lincoln Elementary School, is also being monitored. Monitoring results for the three schools are listed below.

- Alondra Middle School: The average Chromium-6 level is 0.2 ng/m<sup>3</sup>. The highest concentration of 0.4 ng/m<sup>3</sup> was observed on February 15, 2017.
- Mokler Elementary School: The average Chromium-6 level is 0.2 ng/m<sup>3</sup>. The highest concentration of 0.8 ng/m<sup>3</sup> was observed on February 27, 2017 and March 14, 2017, corresponding to the same two days where higher levels of 2.0 ng/m<sup>3</sup> Chromium-6 were found in the southern investigation area.
- Lincoln Elementary School: The average Chromium-6 level is 0.5 ng/m<sup>3</sup>. The highest concentration of 1.0 ng/m<sup>3</sup> was observed on March 14, 2017.

Given the elevated levels of Chromium-6 found on March 14, 2017, DPH is currently assessing the results from the school monitoring data and working with SCAQMD and DTSC to identify

additional actions needed to better characterize exposure (e.g., assessing the potential need for indoor air sampling at the schools), and to determine any needed remediation.

### **Soil Assessment**

DPH has reviewed soil samples that the Fire Department collected near Anaplex and Aircraft and then tested for metals. The results indicate that soils in planters contain metals at levels in exceedance of both hazardous waste levels and human health screening levels that are designed to protect outdoor workers from long-term health risks. The Fire Department is requiring these soils to be abated, thereby protecting outdoor workers from potential exposure in the future. DPH is working with the Fire Department and other partner agencies to design a soil sampling plan that extends beyond the industrial area and tests soils in nearby residential areas.

### **Enforcement**

On March 10, 2017, a joint agency inspection was conducted at five facilities in the southern area of Paramount: Press Forge Co., Weber Metals Inc., Mattco Forge, California Air Conveying Corp., and Lubeco Inc. On March 22, 2017, the agencies returned to Lubeco Inc. for additional assessment. Representatives from SCAQMD, CARB, DTSC, Fire Department, and DPH participated, and SCAQMD is compiling the results from these inspections.

### **Communication**

DPH continues to respond to inquiries from the Paramount community via telephone and email, and attends town hall meetings hosted by SCAQMD. As part of ongoing outreach to community members, DPH is organizing a health fair in Paramount on April 8, 2017 as part of Public Health Week. The health fair will convene agency and vendor resources to provide a wide variety of free health screenings and community resources, in addition to updates on the Chromium-6 environmental investigation. DPH will utilize the health fair as an opportunity to survey community members for feedback on health resource and information needs. DPH continues to participate in local community activities to ensure that residents are informed, can access needed services, and have their questions answered.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department





**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
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April 21, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. This fourth monthly progress report provides information on four key elements of the interagency response: air quality monitoring, soil assessment, enforcement, and public communication. DPH is a part of an interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Department of Public Health (CDPH), and California Air Resources Board (CARB).

**Air Quality Monitoring**

Air quality monitoring by SCAQMD continues across the City of Paramount in order to identify and address sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of the Anaplex Corporation (Anaplex) and Aircraft Heat Treating Company, Inc. (Aircraft) facilities, the southern investigation area approximately a half-mile south of these facilities, and 11 area schools.

When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points exceed 1 nanogram per meter cubed ( $\text{ng}/\text{m}^3$ ), SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. Over the last month, Chromium-6 concentrations in air immediately outside both the Anaplex and Aircraft facilities continued to remain below the compliance standard of  $1 \text{ ng}/\text{m}^3$ . As shown in the table below, the compliance monitors and the closest downwind residential monitor show a downward trend in Chromium-6 concentrations.



**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aircraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aerocraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2017	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017*	1.2	0.8	0.7

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.  
 \*April results reflecting data for the entire month will be provided in the next monthly report

Monitoring in the southern investigation area is focused on metal facilities in and around Jackson Street, between Minnesota Avenue and Illinois Avenue, in the City of Paramount. In this area, Chromium-6 concentrations in air range from 0.1 to 3.6 ng/m<sup>3</sup>, with 22% of the samples exceeding the 1 ng/m<sup>3</sup> standard. SCAQMD and partner agencies are investigating additional potential source facilities in this area.

SCAQMD has expanded its monitoring from 7 schools last month to a total of 11 schools this month. The four additional schools with monitors are Los Cerritos, Tanner, Paramount High School West, and Roosevelt. Chromium-6 levels at these four schools range from 0.06 to 0.9 ng/m<sup>3</sup>, with averages that appear similar to levels found in other areas of Los Angeles. As reported previously, Lincoln Elementary School has an average Chromium-6 level of 0.5 ng/m<sup>3</sup>, which is higher than the range of typical outdoor air levels. Although these results do not indicate an immediate health risk, DPH has recommended to the interagency team and Paramount Unified School District that indoor testing at the schools should be conducted to assess potential long-term exposure at schools in Paramount. DPH is preparing the recommended scope of testing and will provide it to Paramount Unified School District by May 1, 2017. If expanded testing shows that Chromium-6 emissions have impacted indoor environments, schools can take appropriate steps to reduce exposure, such as air filter installation and other air system improvements.

**Soil Assessment**

DPH has reviewed soil samples that the Fire Department collected near Anaplex and Aircraft and tested for metals. The results indicate that these soils contain metals at levels exceeding both hazardous waste levels and human health screening levels that are designed to protect outdoor workers from long-term health risks. In response to soil Chromium-6 levels above hazardous waste thresholds, the Fire Department ordered Aircraft to clean up soils around its property. The soil clean-up plan is currently under review with the Fire Department. On April 20, 2017, DPH met with the Fire Department and DTSC to plan for ongoing soil investigations, which include expanded sampling beyond the industrial area to test soils adjacent to residential areas.

**Enforcement**

Joint agency inspections are ongoing and continue to focus on both closed and active metal facilities across the City of Paramount. Pending source investigation results and discovery of

Each Supervisor  
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other metal operations that are emitting elevated levels of Chromium-6, SCAQMD and DPH may need to enact and enforce the 1 ng/m<sup>3</sup> compliance standard for other facilities in the City of Paramount. Enforcing this compliance standard requires facilities to reexamine their operations and implement emission controls, such as building enclosures, ventilation systems, and improved housekeeping practices. The intended outcome of these actions is continued reduction of Chromium-6 emissions in the City of Paramount.

### **Communication**

DPH organized a health fair in Paramount on April 8, 2017 as part of Public Health Week activities. Multiple members of the interagency team participated in the health fair; CDPH prepared a new fact sheet on the interagency coordination efforts that was provided to local residents and SCAQMD demonstrated its air monitoring equipment to the public. To continue to keep the community informed, DPH is preparing a revised fact sheet for residents about the most recent air monitoring and soil sampling results, and will coordinate with the City of Paramount staff to distribute the fact sheet to community stakeholders. DPH continues to participate in local community activities to ensure that are informed, can access needed services, and have their questions answered.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

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Fire Department





**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

**JEFFREY D. GUNZENHAUSER, M.D., M.P.H.**  
Interim Health Officer

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May 17, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium ("Chromium-6") emissions in the City of Paramount. This fifth monthly progress report provides information on four key elements of the interagency response: air quality monitoring, soil assessment, enforcement, and public communication. DPH is a part of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Department of Public Health (CDPH), and California Air Resources Board (CARB).

### **Air Quality Monitoring**

Air quality monitoring by SCAQMD continues across the City of Paramount in order to identify and address sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of the Anaplex Corporation (Anaplex) and Aerocraft Heat Treating Company, Inc. (Aerocraft) facilities, the southern investigation area approximately a half-mile south of these facilities, and seven area schools. In the past month, the City of Paramount deployed five monitors, three of which have been co-located with SCAQMD monitors to validate their performance by comparing findings.

When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points outside of Anaplex and Aerocraft exceed 1 nanogram per meter cubed ( $\text{ng}/\text{m}^3$ ), the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. Over the last month, no shut-downs have been triggered, and there is a continued downward trend in Chromium-6 levels near these two facilities, which can be observed in the table below.



**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aircraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aircraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2017	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017	1.1	0.8	0.7
April 2017	0.6	0.4	0.3

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

While Chromium-6 emissions in the original investigation area have remained below the compliance standard of 1 ng/m<sup>3</sup>, emissions in the southern investigation area (in and around Jackson Street, between Minnesota Avenue and Illinois Avenue) remain elevated. In April 2017, Chromium-6 concentrations in air ranged from 0.09 to 4.5 ng/m<sup>3</sup>, with 34% of the samples in exceedance of 1 ng/m<sup>3</sup>. Additionally, average concentrations in the southern investigation area have increased from 0.6 ng/mg<sup>3</sup> in December 2016 to 1.2 ng/m<sup>3</sup> in April 2017. This general upward trend indicates the need for facilities in this southern investigation area to take all necessary actions to reduce Chromium-6 emissions.

Using data collected over the past several months, SCAQMD determined that the average Chromium-6 concentrations at four schools did not warrant further investigation and monitoring has since been discontinued at these locations (Alondra Middle, Keppel Elementary, Wirtz Elementary, Zamboni Middle). Outdoor air monitoring by SCAQMD continues at seven schools: Lincoln Elementary, Los Cerritos Elementary, Lynn Mokler Elementary, Paramount High School West, Roosevelt Elementary, Tanner Elementary, and Wesley Gaines Elementary. In April 2017, Chromium-6 levels at these schools ranged from 0.03 to 0.6 ng/m<sup>3</sup>, with averages that appear similar to levels found in other areas of the County. The average Chromium-6 concentration at Lincoln Elementary School was 0.3 ng/m<sup>3</sup> during the month of April, which is an improvement from levels detected during previous months.

DPH met with representatives from Paramount Unified School District on May 4, 2017 to review measures the District has taken to reduce potential exposure and discuss DPH recommendations regarding indoor environmental sampling. The District provided an overview of its indoor air quality standards and practices, which include frequent maintenance of air filters and air handling systems, and commercial-grade surface cleaning. DPH provided the District with recommendations for indoor air sampling to help confirm the effectiveness of current preventive practices.

### **Soil Assessment**

In response to an order by the Fire Department, AeroCraft has begun cleaning up soil in flower beds and public areas around its facility. On May 1, 2017, the Fire Department issued a similar order to Anaplex to clean up soil outside its facility based on new sample results.

Further, DPH worked with the Fire Department to draft a plan and sample soil from 10 locations in public areas adjacent to residential areas that are downwind of the Anaplex and AeroCraft facilities. DPH will reconvene with the Fire Department and DTSC to discuss next steps when results from this sampling are available.

### **Enforcement**

Pending ongoing source investigation results, the 1 ng/m<sup>3</sup> compliance standard for additional metal facilities in the City of Paramount may need to be required and enforced. In addition, in the course of ongoing investigation activities, SCAQMD identified occupational health concerns at two metal polishing shops in the investigation area. SCAQMD referred these facilities to DPH and the state's Division of Occupational Safety and Health (Cal/OSHA). On May 9, 2017, staff from DPH conducted an environmental and occupational assessment at one of the facilities, which included a walkthrough, limited testing, and worker interviews. DPH will conduct a similar assessment of the second facility, and follow-up with a report to document key findings and recommendations. This report will be made available to both the facility operators and partner agencies.

### **Communication**

DPH prepared a revised fact sheet to inform Paramount residents about the most recent air monitoring and soil sampling results and is coordinating with the City of Paramount to broadly distribute the fact sheet over the coming weeks. This will include participating in several events in May and June 2017 to provide the fact sheet to community members and answer questions related to the ongoing investigation and interagency response. These events will include a weekly farmers market, a series of summer concerts, and a local heritage festival.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department





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June 21, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director 

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium ("Chromium-6") emissions in the City of Paramount. This sixth monthly progress report provides information on five key elements of the interagency response: air quality monitoring, soil assessment, enforcement, occupational health and public communication. DPH is a part of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), and California Air Resources Board (CARB).

**Air Quality Monitoring**

SCAQMD continues air quality monitoring across the City of Paramount in order to identify and address sources of Chromium-6. Monitors owned by CARB and the City of Paramount have also been deployed to aid in measuring emissions and locating potential sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of the Anaplex Corporation (Anaplex) and Aerocraft Heat Treating Company, Inc. (Aerocraft) facilities, the southern investigation area approximately a half-mile south of these facilities, and seven area schools.

When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points outside of Anaplex and Aerocraft exceed 1 nanogram per meter cubed (ng/m<sup>3</sup>), the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. Over the last month, no shut-downs have been triggered, and average Chromium-6 levels at these two facilities remained lower than in previous months (see table below).

**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aerocraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aerocraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2017	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017	1.1	0.8	0.7
April 2017	0.6	0.4	0.3
May 2017	0.7	0.6	0.4

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

While average Chromium-6 emissions in the original investigation area have remained below the compliance standard of 1 ng/m<sup>3</sup>, they are above the range of Chromium-6 concentrations observed elsewhere in the Los Angeles Basin (0.03 – 0.11 ng/m<sup>3</sup>). Emissions in the southern investigation area (in and around Jackson Street, between Minnesota Avenue and Illinois Avenue) remain elevated. In May 2017, Chromium-6 concentrations in air ranged from 0.08 to 2.64 ng/m<sup>3</sup>, with 26% of the samples in exceedance of 1 ng/m<sup>3</sup>. SCAQMD’s investigation into the source of Chromium-6 in the southern area is ongoing. Pending ongoing source investigation results, SCAQMD and DPH may need to enact and enforce the 1 ng/m<sup>3</sup> compliance standard for other metal facilities in the City of Paramount.

Outdoor air monitoring by SCAQMD continues at seven schools: Lincoln Elementary, Los Cerritos Elementary, Lynn Mokler Elementary, Paramount High School West, Roosevelt Elementary, Tanner Elementary, and Wesley Gaines Elementary. In May 2017, Chromium-6 levels at these schools ranged from 0.03 to 2.60 ng/m<sup>3</sup>, with averages higher than levels found in other areas of the County. The average Chromium-6 concentration at Lincoln Elementary School was 0.51 ng/m<sup>3</sup> during the month of May, which is an increase from levels detected during the previous month.

The continued presence of Chromium-6 in outdoor air in residential areas necessitates indoor sampling to characterize potential exposure inside homes and schools. DPH will be sampling indoor air and dust of several homes closest to industrial zones at the end of June 2017. Additionally, DPH is coordinating with Paramount Unified School District and the air agencies to conduct indoor sampling at schools, beginning with Lincoln Elementary. Results from the indoor sampling efforts will be used to inform any necessary recommendations for air filters or other measures for homes and schools.

**Soil Assessment**

In response to order by the Fire Department, Aerocraft continues clean-up of soil in flower beds and public areas around its facility. The Fire Department issued a similar order to Anaplex, and soil clean-up has begun at that facility, as well.



DPH worked with the Fire Department to draft a plan and sample soil from 10 locations in public areas adjacent to residential areas that are downwind of the Anaplex and Aerocraft facilities. Initial analysis from this sampling indicates that emissions from Anaplex and Aerocraft did not result in significant amounts of deposition in soil in residential areas. While this soil assessment is not yet finalized, these initial results indicate that inhalation of current Chromium-6 emissions in air is the primary health concern. Additional soil testing in other geographic areas with the City of Paramount is ongoing.

### **Enforcement**

SCAQMD is currently implementing its newly adopted emissions control rule for metal forging facilities (Rule 1430). The rule applies to metal grinding and cutting operations, which were previously exempt from SCAQMD permitting requirements. The new rule prohibits forging facilities from conducting metal grinding and cutting operations outdoors, requires the installation of emissions control equipment, and includes a series of housekeeping measures that facilities must implement to minimize fugitive emissions. The rule applies to 22 grinding facilities in SCAQMD's jurisdiction, including 4 facilities in the City of Paramount.

In response to a high volume of community complaints, SCAQMD allocated additional inspector resources to the Paramount area. For continued odor impacts, SCAQMD issued Carlton Forge Works a Notice of Violation on June 8, 2017. Subsequently, on June 13, 2017, SCAQMD filed a petition for an Order of Abatement to facilitate the curtailment of the odors as quickly as possible. SCAQMD confirmed that operations at Carlton Forge Works are causing metallic odor emissions that impact the nearby community. These odors can cause symptoms such as headache, nausea, respiratory irritation, and irritation of the eyes, nose, and throat, among others. Additionally, odors can negatively impact overall quality of life and sense of well-being. DPH determined that these emissions are in violation of the California Health and Safety Code and directed Carlton Forge Works to abate the odor problem. Carlton Forge Works responded to DPH on July 20, 2017 indicating its intent to abate any odorous emissions from its facility. The independent SCAQMD Hearing Board is expected to meet on July 13, 2017 for a hearing regarding the petition. DPH will provide testimony at this hearing.

DPH continues to attend monthly meetings of the City of Paramount's Air Quality Sub-Committee. This meeting has included discussion and planning for a newly launched pilot program that requires select business license applications and renewals to be submitted to SCAQMD staff for their review before then can receive approval by the City. The goals of the program are to enhance environmental protections and to improve compliance with air quality regulations.

### **Occupational Health**

As previously reported, DPH has raised occupational health concerns observed during joint agency facility inspections. The joint agency inspection teams referred cases, specifically Anaplex and Aerocraft, to the California Occupational Safety and Health Administration (Cal/OSHA) for further investigation. The Cal/OSHA report for Anaplex has been completed and DPH has requested a copy.

During an investigation of the industrial area around Anaplex and Aerocraft, the Fire Department referred a metal polishing facility to DPH for concerns regarding worker exposure to large amounts of metal dust. For consultative purposes, DPH conducted an environmental and

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occupational assessment at a metal polishing facility, which included a walkthrough, limited testing, and worker interviews. Although hexavalent chromium was not found in dust samples collected from the metal polishing facility, DPH observed the significant potential for dust combustion/explosions and adverse health effects of dust exposure for employees. DPH provided resources for the facility owner to contact the National Institute of Occupational Safety and Health (NIOSH) and Cal/OSHA for assistance with meeting required occupational safety standards.

### **Communication**

DPH continues to distribute its health fact sheet to Paramount residents. In the past month, this has included staffing a table at the weekly farmers' market and participating in a local heritage festival. DPH attended the most recent SCAQMD community meeting on June 13, 2017; these meetings take place periodically and are well attended by a variety of stakeholders including local community-based organizations and elected officials. Additionally, in the past month the office of Supervisor Hahn sent a letter to all households in the City of Paramount to inform residents about the ongoing Chromium-6 investigation.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department





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July 18, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium ("Chromium-6") emissions in the City of Paramount. This seventh monthly progress report provides information on five key elements of the interagency response: air quality monitoring, soil assessment, enforcement, occupational health, and public communication. DPH is a part of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), and California Air Resources Board (CARB).

**Air Quality Monitoring**

SCAQMD continues air quality monitoring across the City of Paramount in order to identify and address sources of Chromium-6. Monitors owned by CARB and the City of Paramount have also been deployed to aid in measuring emissions and locating potential sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of the Anaplex Corporation (Anaplex) and Aerocraft Heat Treating Company, Inc. (Aerocraft) facilities, the southern investigation area approximately a half-mile south of these facilities, and seven area schools. In the past month, Aerocraft completed construction of new scaffolding outside of its facility and has installed two of its own air quality monitors on the structure, along with two SCAQMD monitors. These new monitors are raised above the height of Aerocraft's perimeter wall in an effort to improve the accuracy of Chromium-6 emission readings.

When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points outside of Anaplex and Aerocraft exceed 1 nanogram per meter cubed (ng/m<sup>3</sup>), the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. On June 27, 2017, SCAQMD ordered Anaplex to temporarily shut down all Chromium-6 emitting operations. Operations remained suspended through July 6, 2017, at which point three-day average



measurements demonstrated compliance. As shown in the table below, average Chromium-6 emissions in the original investigation area are lower than previous months; however, they remain above the range of Chromium-6 concentrations observed elsewhere in the Los Angeles Basin (0.03 – 0.11 ng/m<sup>3</sup>).

**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aircraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aircraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2017	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017	1.1	0.8	0.7
April 2017	0.6	0.4	0.3
May 2017	0.7	0.6	0.4
June 2017	0.5	0.5	0.8

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

Emissions in the southern investigation area (in and around Jackson Street, between Minnesota Avenue and Illinois Avenue) also remain elevated. In June 2017, Chromium-6 concentrations in air ranged from 0.01 to 3.2 ng/m<sup>3</sup>, with 24% of the samples in exceedance of 1 ng/m<sup>3</sup>. SCAQMD has placed additional monitors east of the southern investigation area to estimate potential exposure to nearby sensitive populations, including homes and a hospital. SCAQMD’s investigation into the source of Chromium-6 in the southern area is ongoing, and has recently expanded further to the City of Long Beach. Pending ongoing source investigation results, SCAQMD and DPH may need to enact and enforce the 1 ng/m<sup>3</sup> compliance standard for other metal facilities in the City of Paramount.

Outdoor air monitoring by SCAQMD continues at seven schools: Lincoln Elementary, Los Cerritos Elementary, Lynn Mokler Elementary, Paramount High School West, Roosevelt Elementary, Tanner Elementary, and Wesley Gaines Elementary. In June 2017, Chromium-6 levels at these schools ranged from 0.04 to 2.6 ng/m<sup>3</sup>, with averages higher than levels found in other areas of the County. The average Chromium-6 concentration at Lincoln Elementary School was 0.7 ng/m<sup>3</sup> during the month of June.

While the concentrations of Chromium-6 in outdoor air near homes and schools do not pose an immediate health risk to public health and safety, future long-term risk must be further evaluated through the expanded network of outdoor air monitors and other environmental sampling efforts, as described below. To better understand potential exposure to Chromium-6 in indoor home environments, DPH sampled indoor air and dust of several homes closest to industrial zones at the end of June 2017, and expects results to be available in the coming weeks. DPH has also been providing guidance to the Paramount Unified School District regarding its indoor sampling plan at schools, which will be implemented in August 2017 before school resumes. Results from the



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indoor sampling efforts will be used to inform any necessary recommendations for air filters or other measures for homes and schools.

### **Soil Assessment**

The Fire Department issued a notice of violation to both Anaplex and Aerocraft for hazardous levels of metals in flower beds and public areas. Aerocraft has submitted a proposed plan, and the Fire Department is overseeing its clean-up process. Anaplex has not yet responded to the notice of violation; the County team is working to identify and pursue options for compliance.

DTSC is preparing a report that will summarize results for 20 surface soil samples that were collected in March 2017 in Village Park, which is a recreational area immediately adjacent to Carlton Forge Works. DTSC anticipates this report will be released within the next week, and DPH will review the results and recommended next steps to ensure protective public health measures are taken, if necessary.

DPH worked with the Fire Department to sample surface soil from 10 locations in public areas adjacent to residential areas that are downwind of the Anaplex and Aerocraft facilities. Sampling results indicate that emissions from Anaplex and Aerocraft did not result in significant amounts of deposition in soil in residential areas. These results indicate that inhalation of current Chromium-6 emissions in air is the primary health concern in the original investigation area.

### **Enforcement**

SCAQMD held a public hearing on July 13, 2017 regarding the petition for an Order of Abatement to Carlton Forge Works to mitigate odor emissions as quickly as possible. Carlton Forge Works has agreed to a stipulated order, which will include development of a comprehensive odor plan.

### **Occupational Health**

DPH is continuing to track the occupational health issues reported previously, which include concerns observed during joint agency facility inspections Anaplex and Aerocraft that were referred to the California Occupational Safety and Health Administration (Cal/OSHA). The Cal/OSHA report for Anaplex has been completed and DPH has requested a copy.

### **Communication**

DPH continues to distribute its health fact sheet to Paramount residents. In the past month, this has included staffing a table at the weekly farmers' market and at the first of a series of summer concerts at Progress Park.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

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County Counsel  
Executive Officer, Board of Supervisors  
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**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
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August 21, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. This eighth monthly progress report provides information on six key elements of the interagency response: air quality monitoring, soil assessment, enforcement, occupational health, public communication, and legislative activity. DPH is a part of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), and California Air Resources Board (CARB). With recent investigation activities expanding into the City of Long Beach, the Long Beach Department of Health and Human Services has joined the interagency team.

### **Air Quality Monitoring**

SCAQMD continues air quality monitoring across the City of Paramount in order to identify and address sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of Anaplex Corporation (Anaplex) and Aircraft Heat Treating Company, Inc. (Aircraft), the southern investigation area approximately a half-mile south of these facilities, and three area schools.

Outside Anaplex and Aircraft: When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points outside of Anaplex and Aircraft exceed 1 nanogram per meter cubed (ng/m<sup>3</sup>), the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. On July 22, 2017, SCAQMD ordered to temporarily shut down all Chromium-6 emitting operations at Anaplex. Operations remained suspended through August 3, 2017 at which point three-day average measurements demonstrated compliance. As shown in the table below, average Chromium-6 emissions in the original investigation area were higher in July 2017 than previous months.



**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aerocraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aerocraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2017	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017	1.1	0.8	0.7
April 2017	0.6	0.4	0.3
May 2017	0.7	0.6	0.4
June 2017	0.5	0.5	0.8
July 2017	0.3	1.9	1.6

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

Southern Investigation Area: Throughout the month of July, emissions in the southern investigation area (in and around Jackson Street, between Minnesota Avenue and Illinois Avenue) were elevated. In July, Chromium-6 concentrations in air ranged from 0.8 to 7.7 ng/m<sup>3</sup>, with 51% of the samples in exceedance of 1 ng/m<sup>3</sup>. Monitors located east of the southern investigation area that are nearby sensitive populations, including homes and a hospital, also reflected an area-wide increase in emissions. SCAQMD’s investigation into the source of Chromium-6 in the southern area continues, and has recently expanded further into the City of Long Beach.

Area Schools: SCAQMD has discontinued outdoor air monitoring at four area schools (Los Cerritos Elementary, Paramount High School West, Roosevelt Elementary, and Tanner Elementary). Monitoring by SCAQMD continues at three schools: Lincoln Elementary, Lynn Mokler Elementary, and Wesley Gaines Elementary. In July 2017, Chromium-6 levels at these schools ranged from 0.04 to 7.0 ng/m<sup>3</sup>, with averages higher than levels found in other areas of the County. The average Chromium-6 concentration at Lincoln Elementary School was 0.9 ng/m<sup>3</sup> during the month of July.

In response to elevated Chromium-6 levels in Paramount, DPH sampled indoor air and dust from several homes for one 24-hour period. Chromium-6 was not found in indoor air or dust in the sampled homes. These results, considered together with previous results of soil sampled from nearby areas (referenced below), indicate that inhalation of Chromium-6 emissions in outdoor air continues to represent the most urgent health concern. Additionally, DPH has been providing guidance to the Paramount Unified School District regarding its indoor sampling plan at schools. The District has provided an updated timeline for sampling that is scheduled to begin in September. Depending on the indoor test results, PUSD may need to take further steps to adequately prevent Chromium-6 exposure among students and steps.

**Soil Assessment**

DTSC finalized and published a report that summarizes results for 20 surface soil samples that were collected in March 2017 in Village Park, which is a recreational area immediately adjacent to



Carlton Forge Works. The report indicates that levels of Chromium-6 in soil samples collected to date fell below the screening level, and DTSC determined that no further action is required. DPH worked with the Fire Department to sample surface soil from 10 locations in public areas adjacent to residential areas that are downwind of the Anaplex and Aircraft facilities. Sampling results to date suggest that emissions from Anaplex and Aircraft have not resulted in significant amounts of deposition of Chromium-6 in soil in residential areas. These results indicate that inhalation of Chromium-6 emissions in air remains the most urgent health concern in the original investigation area.

### **Enforcement**

SCAQMD held a second public hearing on July 25, 2017 regarding the petition for an Order of Abatement to Carlton Forge Works to mitigate odor emissions as quickly as possible. Carlton Forge Works agreed to a stipulated order that includes several key conditions to minimize the potential for odors. These include curtailing of all grinding activities from 3 p.m. to 5 p.m. (the time period cited in numerous related odor complaints to SCAQMD), installing a system to effectively reduce odors in the grind building exhaust, and hiring an independent consultant to monitor odors and assess the effectiveness of control measures. The requirement to refrain from grinding activities between 3 p.m. to 5 p.m. will expire if the company can demonstrate that additional air pollution controls have effectively addressed odor issues.

On August 3, 2017, DPH issued four directives in order to protect the public's health from elevated Chromium-6 levels that were detected in the month of July by SCAQMD monitors at or near these facilities: Carlton Forge Works, Press Forge, Mattco, and Weber Metals. DPH directed these facilities to "take all necessary actions in cooperation with the SCAQMD to eliminate the current nuisance endangering the health of the public, which may include partial or full suspension of operations." On August 9, 2017, DPH and the City of Long Beach Department of Health and Human Services issued joint directives to two additional facilities in the City of Long Beach: NC Dynamics and Lubeco. Additionally, AQMD is seeking an administrative order with Lubeco to curtail Chromium-6 emissions, and a hearing took place on August 17, 2017. DPH expects Chromium-6 levels outside of these facilities to decrease, as these facilities continue to work with AQMD to control emissions. DPH will continue to interpret air quality results, and will consider further actions if improvements are not made.

### **Occupational Health**

DPH is continuing to track previous referrals made to the California Occupational Safety and Health Administration (Cal/OSHA) regarding Anaplex and Aircraft. The Cal/OSHA reports have been completed and DPH has requested copies for review.

### **Communication**

DPH continues to distribute its health fact sheet to Paramount residents. In the past month, this has included staffing a table at the weekly farmers' market and at five summer concerts at Progress Park. DPH has also developed a frequently asked questions document that provides information about what is known about Chromium-6 at schools in Paramount (see Attachment 1).

### **Legislative Activity**

Governor Brown signed Assembly Bill 1132 which authorizes the SCAQMD to issue an interim order of abatement to a facility pending a hearing before the SCAQMD hearing board for violations that present an imminent and substantial endangerment to the public health or welfare,



Each Supervisor  
August 21, 2017  
Page 4

or the environment. Once enacted in January 2018, this bill will substantially shorten the time needed for SCAQMD to address emissions that endanger public health, which under current law require a hearing and public notification; a process that on average takes 15 to 20 days.

Governor Brown also signed Assembly Bill 617, which contains several provisions aimed at addressing disproportionate air quality burdens impacting disadvantaged communities. The bill includes requirements for CARB to improve and enhance data collection, monitoring, and reporting of toxic air contaminants; to adopt a statewide emissions reduction strategy targeting pollution-burdened communities; and requires CARB and SCAQMD to implement community emissions reduction programs. Although the provisions of this bill will not be fully implemented for several years, once in place they will increase the amount of resources for environmental monitoring in local communities, and support DPH efforts to reduce the pollution burden and prevent environmental threats through strict enforcement of regulations.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

Attachment

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department

# OUTDOOR AIR NEAR SCHOOLS

## Chromium 6 in the City of Paramount



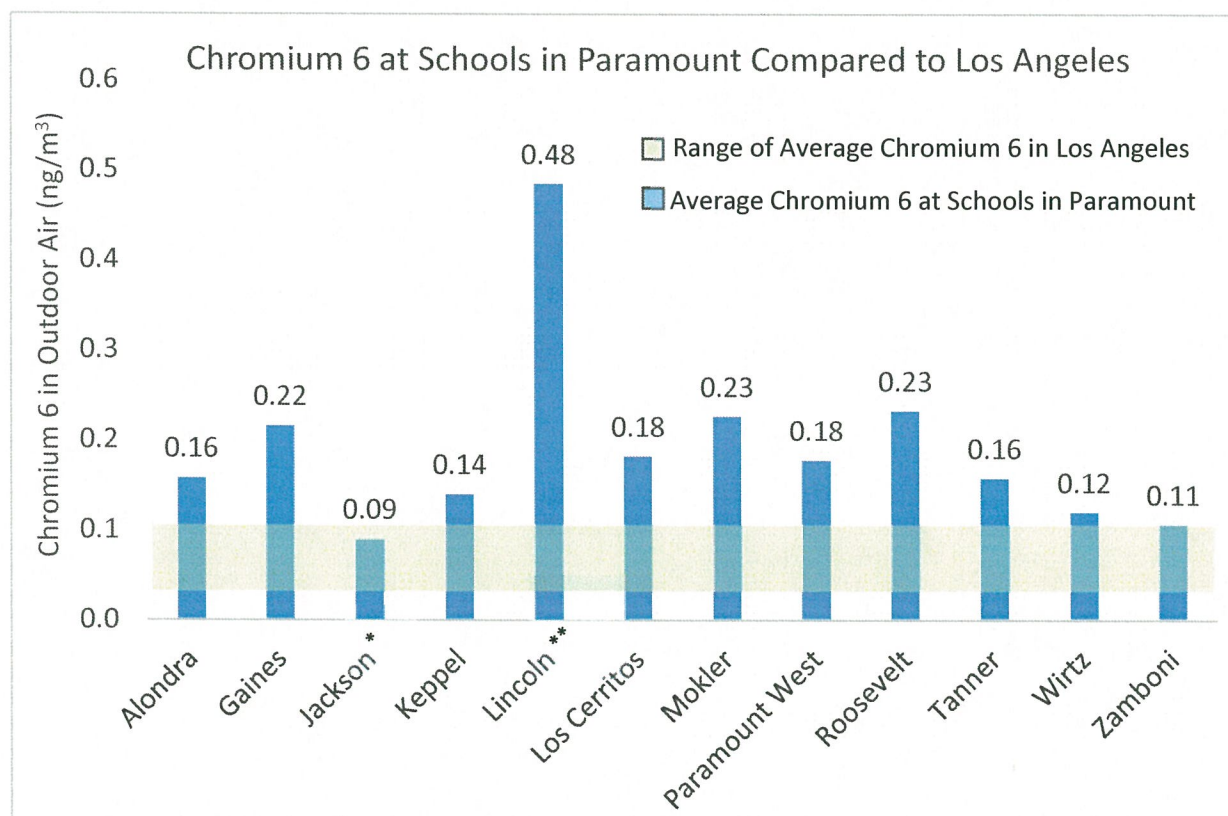
The South Coast Air Quality Management District (SCAQMD) with the help of the California Air Resources Board (CARB) is studying high levels of the air pollutant chromium 6 in the City of Paramount. Chromium 6 is a metal made by certain industries, such as metal processing, leather tanning, and welding. Overall, the levels of chromium 6 in Paramount are higher than elsewhere in the Los Angeles area and efforts need to be made to bring them down. This sheet provides information about what is known about chromium 6 at schools in Paramount.

### What has been done to check for chromium 6 in the air near schools?

Since December 2016, the SCAQMD has tested the outdoor air near 12 public schools in Paramount for chromium 6. The air testing looks at the average amount of chromium 6 in the outdoor air over 24 hours.

### What did the air testing near schools find?

The levels of chromium 6 in the air near schools are about the same as levels in other residential areas of Paramount. Schools and other residential areas of Paramount have average levels of chromium 6 that are higher than average levels of chromium 6 typically found in the Los Angeles area. The graph below shows the average amount of chromium 6 at the schools and the average levels seen throughout Los Angeles between 0.03 to 0.11 nanogram per meter cubed (ng/m<sup>3</sup>).<sup>1</sup>



\*Jackson Elementary School result is from one 24-hour outdoor air test on January 7, 2017.

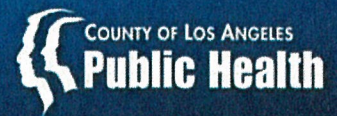
\*\* Lincoln Elementary School monitor is across the street from school property.

<sup>1</sup>Multiple Air Toxics Exposure Study IV (MATES IV) reported annual average levels of Chromium 6 for the Los Angeles Air Basin (South Coast Air Quality Management District, May 2015).



# OUTDOOR AIR NEAR SCHOOLS

## Chromium 6 in the City of Paramount



### **What is being done to address high levels of chromium 6?**

The following important steps are being taken:

- Local and state agencies are working to find the industries that are producing chromium 6 and lower the amount of chromium 6 they release.
- The SCAQMD is developing new air quality rules to regulate chromium 6 at metal facilities.
- The City of Paramount is proposing revised zoning rules that look at how close metal facilities are to homes and schools.
- Paramount Unified School District will begin testing the air inside school buildings in September 2017 for chromium 6.

### **What are the health effects from breathing in chromium 6?**

Breathing chromium 6 does not usually cause any immediate health symptoms. However, over many years breathing chromium 6 can cause:

- increased risk of lung and nasal cancers.

In addition, breathing chromium 6 at high levels over time can cause or worsen:

- Irritation to the nose, throat, and lungs (runny nose, coughing, or nose sores)
- Breathing problems or asthma (trouble breathing, shortness of breath, or wheezing)

### **What can I do to reduce potential health effects from chromium 6?**

The following precautionary measures may help reduce possible exposure to chromium 6:

- Limit exercise, such as running, around industrial places.
- Keep kids away from industrial places where soil may be unhealthy.
- Wash any fruits or vegetables grown close to industrial areas.
- Keep dirt and dust out of your home. Don't wear shoes inside the home. Regularly get rid of the dust in your home with a mop and wet cloth.
- Avoid smoking (e.g. cigars, cigarettes, pipes) and being around smoking.

### **What about odors at schools? Are they harmful?**

Odors have been reported at some schools. Chromium 6 does not smell, so these odors are not caused by chromium 6. However, odors can cause symptoms, such as nausea, dizziness, headaches and irritation of the eye, nose or throat. Symptoms resulting from smelling odors at school should be reported to the school nurse.

Please report any outdoor odors to SCAQMD by calling 800-CUT-SMOG.

### **For more information, please contact:**

Los Angeles County Department of Public Health, 213-738-3232

<http://publichealth.lacounty.gov/eh/airtoxins/>

SCAQMD, 800-288-7664

<http://www.aqmd.gov/home/regulations/compliance/air-monitoring-activities>





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September 18, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. This ninth monthly progress report provides information on five key elements of the interagency response: air quality monitoring, soil assessment, enforcement, occupational health, and public communication. DPH is a part of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), California Air Resources Board (CARB), and the Long Beach Department of Health and Human Services.

**Air Quality Monitoring**

SCAQMD continues air quality monitoring across the City of Paramount in order to identify and address sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of Anaplex Corporation (Anaplex) and Aerocraft Heat Treating Company, Inc. (Aerocraft), the southern investigation area approximately a half-mile south of these facilities, and three area schools.

Anaplex and Aerocraft Facility Monitoring: When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points outside of Anaplex and Aerocraft exceed 1 nanogram per meter cubed (ng/m<sup>3</sup>), the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. In the month of August, no shut-downs have been triggered. As shown in the table below, average Chromium-6 emissions in the original investigation area were lower in August 2017 than in the previous month.



**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aerocraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aerocraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2017	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017	1.1	0.8	0.7
April 2017	0.6	0.4	0.3
May 2017	0.7	0.6	0.4
June 2017	0.5	0.5	0.8
July 2017	0.3	1.9	1.6
August 2017	0.4	0.2	0.3

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

Southern Investigation Area: Emissions in the southern investigation area (in and around Jackson Street, between Minnesota Avenue and Illinois Avenue) were lower than the previous month. In August, Chromium-6 concentrations in air ranged from 0.1 to 1.5 ng/m<sup>3</sup>, with 10% of the samples in exceedance of 1 ng/m<sup>3</sup>. SCAQMD’s investigation into the source of Chromium-6 in the southern area continues, including facilities located in the City of Long Beach.

Area Schools: Monitoring by SCAQMD and CARB continues at three schools: Lincoln Elementary, Lynn Mokler Elementary, and Wesley Gaines Elementary. In August 2017, Chromium-6 levels at these schools ranged from 0.07 to 0.6 ng/m<sup>3</sup>, which are lower than levels reported for the previous month. The average Chromium-6 concentration at Lincoln Elementary School was 0.25 ng/m<sup>3</sup> during the month of August.

DPH met with the Paramount Unified School District and the Paramount City Manager on August 30, 2017 regarding the District’s indoor air sampling at schools. The District informed DPH that it is testing indoor air for Chromium-6 at several schools, and advised that they would share the testing protocol. DPH will provide recommendations to the District on its testing protocol when it is received.

**Soil Assessment**

DPH worked with the Fire Department to sample surface soil from 10 locations in public areas adjacent to residential areas that are downwind of the Anaplex and Aerocraft facilities. Sampling results to date suggest that emissions from Anaplex and Aerocraft have not resulted in significant amounts of deposition of Chromium-6 in soil in residential areas. The findings are detailed in Attachment 1.

**Enforcement**

As follow-up to the health directives issued in July 2017, DPH continues to track compliance with SCAQMD rules and permit applications to implement more effective pollution control measures.

SCAQMD reported that it is currently reviewing permit applications for new pollution control equipment for Weber Metals, Press Forge and Mattco Manufacturing.

On August 23, 2017, the SCAQMD's independent Hearing Board approved issuance of a stipulated Order for Abatement requiring Lubeco Inc., a metal-finishing facility in north Long Beach (6859 Downey Ave), to reduce its emissions of Chromium-6. The Hearing Board's order includes short and long-term measures to reduce Lubeco's emissions of Chromium-6. Lubeco will be required to curtail its Chromium-6 emitting operations when concentrations exceed 1 ng/m<sup>3</sup>, based on a three sample average. Additionally, Lubeco will develop and submit a plan to SCAQMD that is expected to result in the addition of new air pollution control equipment at the facility, including emissions monitors and a meteorological station.

Additionally, Carlton Forge Works is complying with the SCAQMD Stipulated Order for Abatement to mitigate odors from its facility. SCAQMD continues to monitor odor reports to track the effectiveness of mitigation measures being taken by Carlton Forge Works.

### **Occupational Health**

DPH is continuing to track previous referrals made to the California Occupational Safety and Health Administration (Cal/OSHA) regarding Anaplex and Aerocraft. The Cal/OSHA reports have been completed and DPH has requested copies for review.

### **Communication**

DPH continues to distribute health education material to Paramount residents. In the past month, this has included staffing a table at the weekly farmers' market. p

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department



# Residential Soil Sampling

## Chromium 6 in the City of Paramount



September 5, 2017

### Soil Sampling Results

#### Residential Areas Near Anaplex and Aircraft Heat Treating

As part of ongoing efforts to control public health risks from industrial emissions of chromium 6 impacting residents in the City of Paramount, the Los Angeles County Department of Public Health (DPH) partnered with the Fire Department Health Hazardous Materials Division (Health Hazmat) and the City of Paramount to assess chromium 6 and other metals in surface soils. In May 2017, DPH selected ten locations in residential areas to sample surface soil downwind of Anaplex Corporation (Anaplex) and Aircraft Heat Treating (Aircraft), two facilities identified by the South Coast Air Quality Management District (SCAQMD) as contributing to air emissions of the chromium 6.

#### Background

Since October 2016, SCAQMD, in partnership with state and local agencies, has been conducting an investigation of chromium 6 emissions from industrial facilities in the City of Paramount, where concentrations of chromium 6 in the air were found to be up to 400 times greater than concentrations elsewhere in Los Angeles County. SCAQMD issued an Order of Abatement to Anaplex and Aircraft to implement air pollution controls to reduce chromium 6 emissions.

Emissions from industrial facilities could have resulted in deposition of chromium onto nearby soils, possibility representing a hazard to residents. Dust accumulation indoors could contain soil that migrated from the outdoors. Young children are more susceptible to exposures to soil or dust.

Given the proximity of the nearest residential property (300 feet) to the Anaplex and Aircraft facilities, DPH and Health HazMat initiated surface soil sampling in residential areas adjacent to the Anaplex and Aircraft facilities.



# Residential Soil Sampling

## Chromium 6 in the City of Paramount



In November 2016, Health HazMat collected surface soil samples from public right-of-way areas around several industrial facilities in Paramount, including Anaplex and Aerocraft. Total chromium detected in soils near the Anaplex and Aerocraft facilities ranged from 51 to 4,670 mg/kg, which exceed typical background soil levels in the area of 21 to 64 mg/kg.<sup>1</sup> Preliminary sampling using X-ray fluorescence (XRF) technology showed a sharp decline of total chromium in soil in the closest residential area (300 feet away).

Measurement of total chromium does not tell the full story. Total chromium consists of several forms of chromium found in the environment, including chromium 3 and chromium 6. While chromium 3 naturally occurs and is an essential nutrient for humans, chromium 6 is produced from industrial processes and is a known cause of human cancer. DPH determined that it was necessary to test not only for chromium 6 in soil, but also for other important metals, to examine the extent of metals deposited on nearby soils and their potential public health impacts.

### Methods

On May 20, 2017, ten surface soil samples were collected by Health HazMat from public right-of-way areas near residences (see Figure 1). Health HazMat collected the top 1-inch of soil for each sample. Vegetative matter was removed from the surface sample, and soil sampling equipment was decontaminated prior to sampling and in between samples.

At the request of the City of Paramount, split soil samples were collected from each of the ten sampling locations. A split sample means that a sample is divided into two equivalent portions to be analyzed separately, typically by two different laboratories. The soil samples collected for DPH were analyzed by American Environmental Testing Laboratory, Inc. (AETL) in Burbank, California and the split soil samples were delivered to the City of Paramount's contractor, Tetra Tech, for analysis by Eurofins CalScience.

Each soil samples were analyzed for 21 metals: antimony, arsenic, barium, beryllium, cadmium, chromium (total), chromium 6, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, tin, titanium, vanadium and zinc (EPA Methods 6020B/7470A, 6010B and 3060A/7199).



# Residential Soil Sampling

## Chromium 6 in the City of Paramount



A summary result for each location was determined by selecting the maximum concentration reported from the two split soil samples taken at each of the ten locations. In the case where there were non-detected concentrations for both split samples, the value for the lowest laboratory reporting limit was selected.

In order to assess the potential for health impacts from metals in soil, the summary results for the surface soil sampling were compared to standards established by federal and state agencies, including the *Residential Soil Regional Screening Levels* (U.S. Environmental Protection Agency) and the *California Human Health Screening Levels* (California Environmental Protection Agency).<sup>2,3</sup> These screening levels are designed to protect the most sensitive populations, including children, from long-term cancer and non-cancer health risks. Additionally, summary results were compared to local background reference levels previously established by soil sampling conducted in the City of Paramount and overseen by the Department of Toxic Substances Control.<sup>1</sup> Note that these background soil samples were collected upwind and away from industrial sources.

### Results

For each of the 21 metals, the minimum, maximum, and average concentrations are presented in Table 1, as well as the summary results for the split soil samples taken at each of the ten locations. Four metals were detected at a concentration above state or federal health screening levels, namely, arsenic, cadmium, chromium 6 and lead. Arsenic, cadmium and lead were found to be within typical local background levels. A background reference value was not established for chromium 6, however, because it was not detected in any of the background samples. Since chromium 6 does not occur naturally in soils, any detectable level of chromium 6 would be in excess of background levels. Ten other metals (antimony, beryllium, cobalt, copper, manganese, molybdenum, nickel, titanium, vanadium and zinc) were detected at concentrations above local background levels, but below all available health screening levels.

Out of the ten sampling locations, only one soil sample had a detectable concentration of chromium 6 at 0.4 mg/kg, which exceeds the EPA's Regional Screening Level of 0.3 mg/kg but is below the California Human Health Screening Level of 17.0 mg/kg for residential soil. Summary results for chromium 6 at the other nine locations were either below or estimated to be below the laboratory reporting limit of 0.4 mg/kg.



# Residential Soil Sampling

## Chromium 6 in the City of Paramount



### Conclusion

Out of ten sampling locations, one surface soil sample detected chromium 6 at a concentration above the EPA Regional Screening Level but below the California Human Health Screening Level. This soil sample was taken at a location that was downwind and closest to one of the metal facilities, Aircraft, at a distance of approximately 300 feet.

The low detection of chromium 6 at the ten soil sampling locations suggest that the majority of air emissions of chromium 6 from Anaplex and Aircraft have either not settled or not persisted on the surface soils of nearby residential areas. In addition, historical deposits of chromium 6 may have converted to chromium 3, the non-toxic form of chromium, by organic matter in the soil environment.<sup>4</sup> At this time, direct contact with or accidental ingestion of these surface soils would not appear to represent an exposure pathway of public health concern for chromium 6. Inhaling chromium 6 poses the most significant threat to public health, and efforts to reduce health risks should continue to focus on reducing air emissions from facilities emitting chromium 6.

It is important to note that these surface soil samples were limited to a specific area downwind of Anaplex and Aircraft. As the interagency investigation continues, additional soil sampling may be warranted to evaluate soil near other industrial sources of chromium 6 in the City of Paramount.

- 
1. ToxStrategies, 2015. Summary Results for Soil and Dust Samples Collected in the Vicinity of Carlton Forge Works. Retrieved from [http://www.envirostor.dtsc.ca.gov/public/deliverable\\_documents/5807800114/CFW%20Sampling%20Report%20%202015%20%2003-31.pdf](http://www.envirostor.dtsc.ca.gov/public/deliverable_documents/5807800114/CFW%20Sampling%20Report%20%202015%20%2003-31.pdf)
  2. United States Environmental Protection Agency (USEPA). Regional Screening Levels – Residential Soil Table (June 2017). Retrieved from <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-june-2017>.
  3. California Environmental Protection Agency (Cal/EPA). California Human Health Screening Levels – Residential Soil. Office of Environmental Health Hazard Assessment. Retrieved from <https://oehha.ca.gov/chhsltable>, accessed on June 2017.
  4. Xiao, W., Zhang, Y., Li, T., Chen, B., Wang, H., He, Z., & Yang, X. (2012). Reduction kinetics of hexavalent chromium in soils and its correlation with soil properties. *Journal of Environmental Quality*, 41(5), 1452-8. <http://doi.org/10.2134/jeq2012.0061>

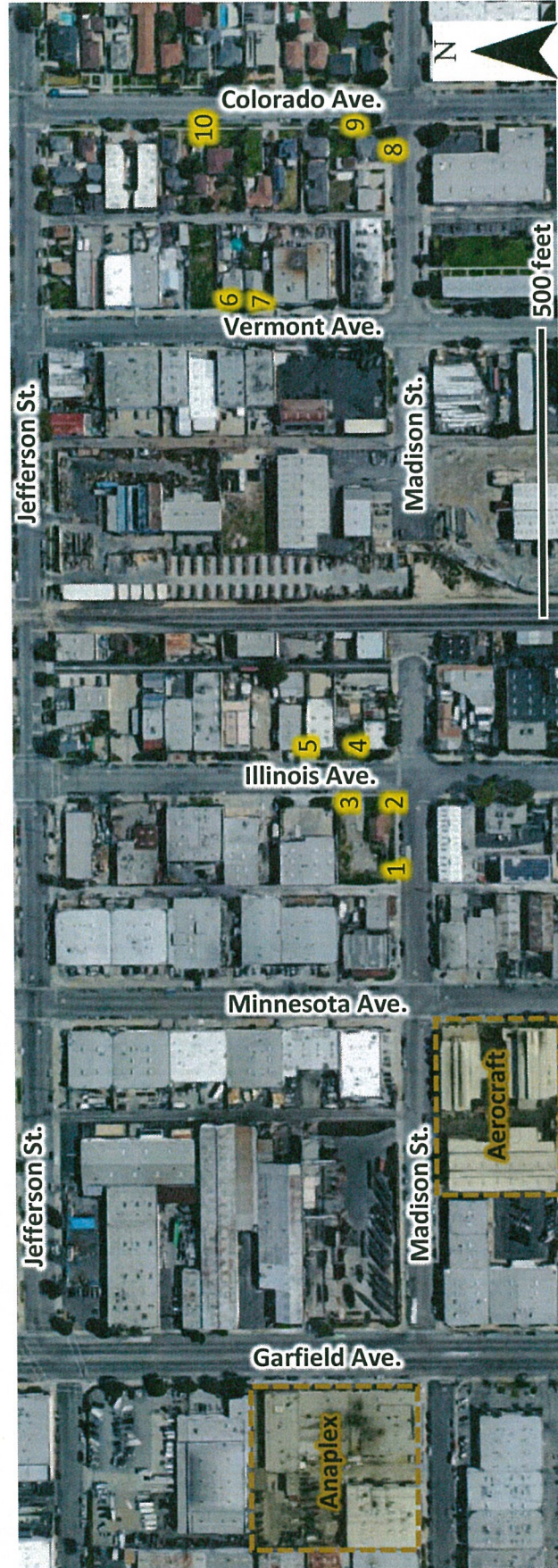


# Residential Soil Sampling Chromium 6 in the City of Paramount



COUNTY OF LOS ANGELES  
**Public Health**

Figure 1: Locations of surface soil sampling near Aerocraft and Anaplex, Paramount, California.





# Residential Soil Sampling Chromium 6 in the City of Paramount



Table 1: Summary of 21 metals from surface soil sampling, Paramount, California.

Metals	EPA Screening Level <sup>p</sup>	CA Health Screening Level <sup>p</sup>	Background Level <sup>c</sup>	Min <sup>d</sup>	Max <sup>d</sup>	Avg <sup>e</sup>	Spilt Soil Samples (1 – 10) <sup>f</sup>									
							1A/1B	2A/2B	3A/3B	4A/4B	5A/5B	6A/6B	7A/7B	8A/8B	9A/9B	10A/10B
Antimony	31	30	1.04	0.32	- 1.25	0.59	0.52 <sup>^</sup>	1.25 <sup>^</sup>	0.41 <sup>^</sup>	0.60 <sup>^</sup>	0.49 <sup>^</sup>	0.32 <sup>^</sup>	0.47 <sup>^</sup>	0.84 <sup>^</sup>	0.60 <sup>^</sup>	0.45 <sup>^</sup>
Arsenic	0.68 <sup>†</sup>	0.07	5.50	1.74	- 4.16	3.0	3.41	3.51	3.83	2.76	4.16	2.88	2.61	1.74	2.63	2.89
Barium	15,000	5,200	200	87	- 176	130	132	176	139	145	172	103	87	103	118	130
Beryllium	160	16	0.29	0.21	- 0.33	0.27	0.28 <sup>^</sup>	0.33	0.30 <sup>^</sup>	0.24 <sup>^</sup>	0.31 <sup>^</sup>	0.21 <sup>^</sup>	<1.0	<1.0	0.25 <sup>^</sup>	0.27 <sup>^</sup>
Cadmium	71	1.7	4.3	0.32	- 2.26	0.98	2.26	1.09	0.73 <sup>^</sup>	1.22	2.08	0.32 <sup>^</sup>	0.45 <sup>^</sup>	0.41 <sup>^</sup>	0.45 <sup>^</sup>	0.81 <sup>^</sup>
Chromium	120,000	100,000	64	21	- 57	34	49	45	27	30	41	23	21	24	57	23
Chromium 6	0.3 <sup>†</sup>	17	NA <sup>‡</sup>	0.12	- 0.41	0.23	0.41	0.13 <sup>^</sup>	<0.4	<0.4	0.25 <sup>^</sup>	<0.4	0.12 <sup>^</sup>	0.22 <sup>^</sup>	<0.4	0.14 <sup>^</sup>
Cobalt	23	660	12	8	- 22	12	16	15	10	11	10	9	8	11	22	9
Copper	3,100	3,000	140	57	- 151	93	102	85	151	74	80	67	68	138	113	57
Lead	400	80	465	29	- 106	62	35	83	106	74	72	29	31	45	64	79
Manganese	1,800	NA <sup>§</sup>	340	233	- 442	349	354	442	424	327	391	327	262	233	303	423
Mercury	11	18	0.69	0.02	- 0.11	0.06	0.03 <sup>^</sup>	0.04 <sup>^</sup>	0.03 <sup>^</sup>	0.06 <sup>^</sup>	0.09	0.02	0.02 <sup>^</sup>	0.11	0.102 <sup>^</sup>	0.10 <sup>^</sup>
Molybdenum	390	380	6.3	1.6	- 11.1	3.7	4.8	7.0	2.0	2.6	1.7	1.6	1.8	2.8	11.1	1.9
Nickel	1,500	1,600	65	33	- 166	71	132	85	33	48	35	39	51	85	166	36
Selenium	390	380	NA <sup>‡</sup>	0.27	- 0.68	0.44	0.68 <sup>^</sup>	0.59 <sup>^</sup>	0.31 <sup>^</sup>	0.34 <sup>^</sup>	0.56 <sup>^</sup>	<1.0	0.27 <sup>^</sup>	0.44 <sup>^</sup>	<1.0	0.37 <sup>^</sup>
Silver	390	380	NA <sup>‡</sup>	0.26	- 0.80	0.46	<1.0	0.26 <sup>^</sup>	<1.0	0.34 <sup>^</sup>	0.80 <sup>^</sup>	<1.0	<1.0	<1.0	<1.0	<1.0
Thallium	0.78	5	NA <sup>‡</sup>	NA	- NA	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tin	47,000	NA <sup>§</sup>	NA <sup>‡</sup>	12	- 18	15	14	14	18	16	16	15	12	13	14	14
Titanium	NA <sup>§</sup>	NA <sup>§</sup>	1002	612	- 1040	882	961	836	1020	797	986	1040	878	612	843	845
Vanadium	390	530	33	19	- 36	28	30	31	36	26	31	29	25	19	28	25
Zinc	23,000	23,000	500	186	- 1650	467	399	654	231	524	1650	186	250	260	260	255



# Residential Soil Sampling

## Chromium 6 in the City of Paramount



**Table 1: Continued**

**Notes:**

- a Regional Screening Levels published by the US EPA for residential soils with target non-cancer risk of 1 in one million<sup>2</sup>
- b California Human Health Screening Levels (Residential Soil) published by the Office of Environmental Health Hazard Assessment<sup>3</sup>
- c Upper bound background levels calculated by using U.S. EPA's ProUCL software based upon ten background samples collected in 2014<sup>1</sup>
- d Minimum and maximum values take into account detected values and "J-flagged" estimated values
- e Average takes into account detected values and "J-flagged" estimated values
- f The highest value for each split sample at the same location is presented
- ^ Result is a "J-flagged" estimated value that is less than the reporting limit but greater than or equal to the method detection limit
- † Screening level risk is based on target cancer risk of 1 in one million
- < Not detected, value below the laboratory reporting limit
- ‡ Not applicable (NA) because the metal was not detected in enough samples to calculate a background value
- § Not applicable (NA) because no Regional Screening Level or California Human Health Screening Level was developed for this compound

Orange shading indicates result exceeds the health screening level  
 Blue shading indicates result exceeds the background level





**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

**JEFFREY D. GUNZENHAUSER, M.D., M.P.H.**  
Interim Health Officer

**CYNTHIA A. HARDING, M.P.H.**  
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Fifth District

October 18, 2017

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back monthly on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. This tenth monthly progress report provides information on five key elements of the interagency response: air quality monitoring, soil assessment, enforcement, occupational health, and public communication. DPH is a part of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), California Air Resources Board (CARB), and the Long Beach Department of Health and Human Services.

**Air Quality Monitoring**

SCAQMD continues air quality monitoring across the City of Paramount in order to identify and address sources of Chromium-6. Monitoring is focused on several geographic areas: compliance monitoring points previously established outside of Anaplex Corporation (Anaplex) and Aerocraft Heat Treating Company, Inc. (Aerocraft), the southern investigation area approximately a half-mile south of these facilities, and three area schools.

Anaplex and Aerocraft Facility Monitoring: When Chromium-6 emissions (measured over a 24-hour period) at the compliance monitoring points outside of Anaplex and Aerocraft exceed 1 nanogram per meter cubed (ng/m<sup>3</sup>), the SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. In the month of September, no shut-downs have been triggered. As shown in the table below, average Chromium-6 emissions in the original investigation area have remained below 1 ng/m<sup>3</sup> since April 2017, with the exception of average emissions near Anaplex in July 2017.



**Hexavalent Chromium Monitoring Results (ng/m<sup>3</sup>) – Aircraft, Anaplex and Nearby Residential Areas**

Month	Industrial		Residential
	Aircraft	Anaplex	300 ft downwind
October 2016	26		4.7
November 2016	12	11	2.0
December 2016	3.0	2.5	0.7
January 2017	1.0	2.1	0.5
February 2017	1.1	0.5	0.6
March 2017	1.1	0.8	0.7
April 2017	0.6	0.4	0.3
May 2017	0.7	0.6	0.4
June 2017	0.5	0.5	0.8
July 2017	0.3	1.9	1.6
August 2017	0.4	0.2	0.3
September 2017	0.6	0.2	0.5

Note: Grey shading indicates air monitoring was not conducted for this location during month listed.

Southern Investigation Area: Emissions in the southern investigation area (in and around Jackson Street, between Minnesota Avenue and Illinois Avenue) were similar to the previous month. In September, Chromium-6 concentrations in air ranged from 0.1 to 2.6 ng/m<sup>3</sup>, with 14% of the samples in exceedance of 1 ng/m<sup>3</sup>. SCAQMD's investigation into the source of Chromium-6 in the southern area continues, including facilities located in the City of Long Beach.

Area Schools: Monitoring by SCAQMD and CARB continues at three schools: Lincoln Elementary, Lynn Mokler Elementary, and Wesley Gaines Elementary. In September 2017, Chromium-6 levels at these schools ranged from 0.04 to 0.35 ng/m<sup>3</sup>, which are lower than levels reported for previous months. The average Chromium-6 concentration at Lincoln Elementary School was 0.19 ng/m<sup>3</sup> during the month of September.

The Paramount Unified School District released its report of indoor air sampling that was conducted at five schools between August 4 and 9, 2017. DPH is reviewing the indoor sampling protocol and results, and will recommend next steps to the District.

**Soil Assessment**

DPH attended the Paramount City Council meeting on September 19, 2017, when the City Council received into the record DPH's final soil assessment report, *Soil Sampling Results – Residential Areas Near Anaplex and Aircraft Heat Treating. 2*

**Enforcement**

As follow-up to the health directives issued in July 2017, DPH continues to track compliance with SCAQMD rules and permit applications to implement more effective pollution control measures. SCAQMD reported that it is currently reviewing permit applications for new pollution control equipment for Weber Metals, Press Forge and Mattco Manufacturing.

Each Supervisor  
October 18, 2017  
Page 3

Additionally, Carlton Forge Works has been curtailing grinding operations during the hours of 3:00pm and 5:00pm, as required by the SCAQMD Stipulated Order for Abatement. SCAQMD continues to monitor odors through two mechanisms: 1) daily odor surveillance, and 2) odor complaint tracking. SCAQMD reports that it receives odor complaints outside of the curtailment hours, suggesting that grinding operations at Carlton Forge Works are contributing to these odors. As a result, Carlton Forge Works will be implementing additional mitigation measures in its grinding room to control odors.

### **Occupational Health**

DPH is continuing to track previous referrals made to the California Occupational Safety and Health Administration (Cal/OSHA) regarding Anaplex and Aerocraft. The Cal/OSHA reports have been completed and DPH has requested copies for review.

### **Communication**

DPH continues to distribute health education material to Paramount residents. In the past month, this has included staffing a table at the weekly farmers' market.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report monthly on progress to protect the public's health in the City of Paramount. If you have questions or need additional information, please let me know.

BF:ab

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Fire Department





**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
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Fifth District

January 19, 2018

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director 

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. DPH is part of an interagency team working to assess and abate industrial emissions and improve conditions within the affected communities. These agencies include DPH, South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department (Fire Department), California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), California Air Resources Board (CARB), and the Long Beach Department of Health and Human Services. This quarterly progress report provides information on four key elements of the interagency response: air quality monitoring, enforcement, public communication, and rulemaking activity.

**Background**

SCAQMD has been conducting investigations to identify the sources of Chromium-6 in the City of Paramount since November 2016. Early in the investigations, SCAQMD determined that two facilities, Anaplex Corporation (Anaplex) and Aerocraft Heat Treating Company, Inc. (Aerocraft), were contributing to elevated airborne levels of Chromium-6. Subsequently, SCAQMD expanded its monitoring and enforcement efforts to the area south of these facilities, nearby residential areas, and multiple schools within the Paramount Unified School District (PUSD).

In response to elevated Chromium-6 in Paramount, DPH sampled indoor air and dust from several homes and PUSD sampled indoor air at several schools. DPH also worked with the Fire Department and the City of Paramount to sample surface soil from multiple locations in residential areas near the Anaplex and Aerocraft facilities. In addition, DTSC collected and analyzed surface soil samples from a recreational area adjacent to Carlton Forge Works. Results from these sampling activities indicate that inhalation of Chromium-6 emissions in air remains a priority health concern.



### **Air Quality Monitoring**

Air quality monitoring by SCAQMD is focused on several geographic areas: compliance monitoring points previously established outside of the Anaplex and Aerocraft facilities, the southern investigation area approximately a half-mile south of these facilities, and three area schools within PUSD. The attached report published by SCAQMD in December 2017 summarizes its monitoring activities, highlighting considerable reductions in Chromium-6 in outdoor air within the industrial areas of the City of Paramount (Attachment I).

Over the last year, Chromium-6 levels in outdoor air have improved. Chromium-6 levels in some areas of Paramount are approaching typical ambient levels elsewhere in the Los Angeles Basin, while other areas remain above typical levels. Monthly average Chromium-6 concentrations have been reduced from 9.2 to 0.5 nanograms per cubic meter ( $\text{ng}/\text{m}^3$ ), a 25-fold reduction, in the industrial areas of the City of Paramount. Following enforcement activities to control emissions from Anaplex and Aerocraft in late 2016, monthly average levels across industrial corridors were reduced to below the enforcement standard of  $1 \text{ ng}/\text{m}^3$ , with the exception of July 2017. The monthly average Chromium-6 concentrations in residential and school areas have been reduced from  $1.0$  to  $0.2 \text{ ng}/\text{m}^3$  (5-fold). Average levels in areas near these sensitive populations over the last quarter are slightly above the significant long-term health risk level of  $0.2 \text{ ng}/\text{m}^3$ , and remain higher than typical ambient levels ( $0.04$ - $0.1 \text{ ng}/\text{m}^3$ ). The attached graphs provide monthly Chromium-6 levels over the last year (Attachment II).

### **Area Schools**

PUSD released its report of indoor air sampling that was conducted at five schools between August 4 and 9, 2017. DPH reviewed the indoor sampling protocol and results, and recommended that the District develop and implement an Indoor Air Quality Management Plan that would include regular preventative cleanings, maintenance of building controls, and periodic monitoring to ensure a clean and safe indoor environment. Attached is the review letter from DPH to PUSD regarding the indoor sampling results and corresponding recommendations (Attachment III).

On October 25, 2017, Supervisor Janice Hahn requested that DPH conduct follow-up indoor air testing in PUSD classrooms. Since then, DPH has met with PUSD on multiple occasions to develop a protocol to conduct indoor sampling at several PUSD schools. The sampling protocol has been agreed upon and DPH and PUSD are finalizing a memorandum of understanding (MOU) that is satisfactory to both parties. Testing will begin as soon as the MOU is finalized.

### **Enforcement**

When Chromium-6 emissions at the compliance monitoring points outside of Anaplex and Aerocraft exceed  $1 \text{ ng}/\text{m}^3$ , SCAQMD requires the shut-down of all operations that contribute to Chromium-6 emissions. As such, on December 15, 2017, SCAQMD ordered Anaplex to shut down all operations that emit Chromium-6 after air monitors detected elevated levels at two stations outside the facility. This order was lifted on December 19, 2017.

As required by SCAQMD's Stipulated Order for Abatement, Carlton Forge Works began curtailing grinding operations during the hours of 3:00pm and 5:00pm in July 2017. Over the last several months, SCAQMD has recorded odor complaints outside of those curtailment hours through daily odor surveillance and odor complaint tracking, suggesting that grinding operations at Carlton Forge Works are contributing to these odors. On January 3, 2018, Carlton Forge Works implemented additional odor control measures in its grinding room to mitigate odors, and



subsequently discontinued curtailment hours. SCAQMD will continue to monitor odor complaints to track the effectiveness of the additional control measures.

As a follow-up to the odor concerns reported by community members, DPH conducted a preliminary odor survey on November 7, 2017. Three teams canvassed an area within a half mile of the Carlton Forge Works facility. DPH is currently analyzing the data and will utilize this preliminary information, if needed, to inform discussions with State and local regulatory partners regarding a more comprehensive odor assessment.

### **Public Communication**

DPH continues to distribute health education materials to Paramount residents. These activities have included staffing a table at the weekly farmers' market through November 2017. DPH continues to provide information to individuals by email, phone, in-person meetings, and via online resources.

### **Rulemaking Activity**

SCAQMD is updating its Rule 1469, which covers facilities that conduct chromium electroplating or chromic acid anodizing operations. The updated Rule 1469 seeks to establish requirements for hexavalent chromium-containing tanks that are currently unregulated by the existing Rule 1469. The requirements will include building enclosures, enhanced housekeeping and best management practices, periodic source testing, and permanent total enclosures for facility areas where chromium-containing tanks are located. DPH reviewed SCAQMD's proposed amendments to Rule 1469 and submitted a letter urging SCAQMD to prioritize the health of communities near industrial areas that face multiple social and economic burdens (Attachment IV). SCAQMD is holding several more Working Group meetings to finalize the updated Rule 1469 to prepare for the Governing Board hearing on April 6, 2018.

DPH will continue to work closely with SCAQMD, Fire Department, and County Counsel to report quarterly on progress to protect the public's health in the City of Paramount. Ongoing interagency monitoring and enforcement activities remain critical to sustained reductions in airborne levels of Chromium-6.

If you have questions or need additional information, please let me know.

BF:ab

### **Attachments**

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Los Angeles County Fire Department



# Summary of Efforts in Paramount

## Significant Improvements Since October 2016

*The South Coast Air Quality Management District has undertaken unprecedented, extensive efforts to identify and reduce sources of hexavalent chromium in the City of Paramount.*

*This report summarizes the significant progress made and provides highlights of monitoring, enforcement, rule development, public outreach, and coordination efforts.*



## Introduction

This report summarizes the significant efforts and progress made since October 2016 in reducing levels of hexavalent chromium detected in outdoor air in Paramount. It includes a brief background on what led to this effort and highlights some of the key work and results. The South Coast Air Quality Management District (SCAQMD) website has more detailed information on air sampling, multiple data reports and assessments, compliance efforts, meetings and events, and additional resources.

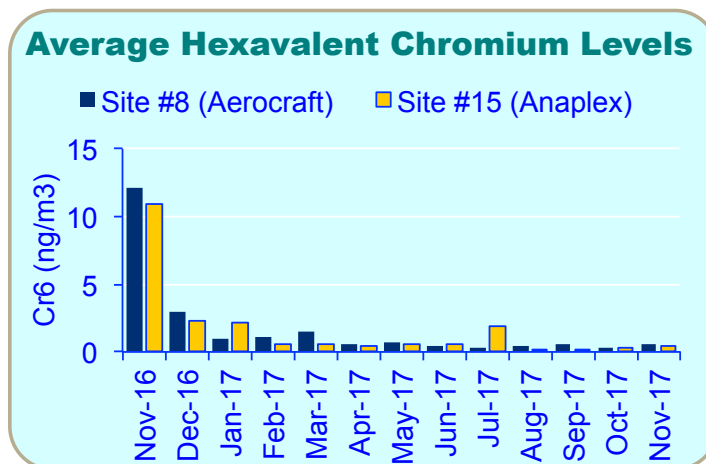
Efforts in 2016 and 2017 stemmed from work that started in 2013 when the SCAQMD began sampling the air around facilities in Paramount after receiving complaints about metallic odors. Data showed elevated levels of nickel and hexavalent chromium across from Carlton Forge Works. The facility voluntarily made some changes that reduced its emissions of nickel and other metals—however, hexavalent chromium levels did not decrease. In 2016, an unprecedented, much more intensive effort began that involved extensive monitoring, working with many different agencies, and ensuring the community was involved and informed throughout. The approach was to focus on achieving results, in a collaborative and transparent fashion.

Hexavalent chromium can cause cancer over years-to-decades of exposure. It can come from metal plating, forging, and heat treating operations as well as other industrial operations. SCAQMD has rules that cover these businesses, but we have discovered previously unknown sources of hexavalent chromium that need to be assessed, and if necessary, controlled—and SCAQMD staff has proposed new rules to reduce these and other air toxics emissions.

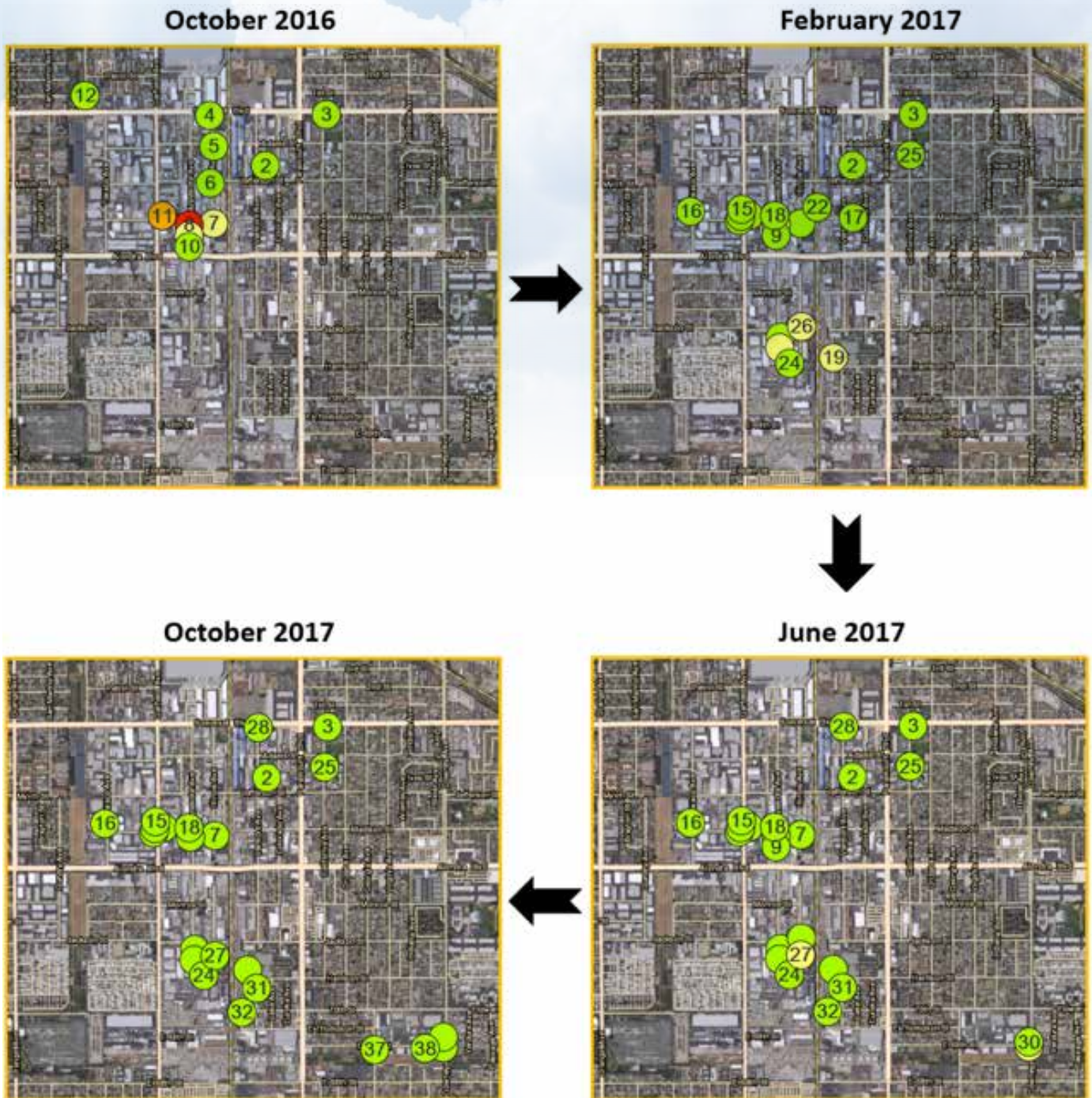
As shown below, readings from air samples over the last year show large reductions in emission levels.

### Hexavalent Chromium

- Hexavalent chromium can cause cancer over years to decades of exposure
- Some metal finishing, welding, heat treating and other industrial operations can emit hexavalent chrome
- SCAQMD has rules for some of these operations, but we have discovered previously unknown sources that need to be controlled



Trace amounts of hexavalent chromium are measured in nanograms (ng), or billionths of a gram



**Location of sampling sites and monthly average levels of hexavalent chromium**





## Outreach and Collaboration

SCAQMD has one of the few labs in the U.S. that can accurately analyze community air samples for hexavalent chromium. Our staff quickly analyzes samples and makes monitoring data available on the website in a matter of days after samples are collected. In addition, audio recordings of the public conference calls and presentation materials from the public meetings are posted online.

SCAQMD has hosted five town hall meetings in the community, as well as working group and public consultation meetings for proposed rule enhancements related to metal processing, and a public meeting related to a facility covered under the AB 2588 “Air Toxics Hotspots” program. The agency also issued more than a dozen news releases during this period.

Over the last year, there have been more than 50 regularly scheduled conference calls with other government agencies such as the City of Paramount, Los Angeles County Department of Public Health, Los Angeles County Fire Department, U.S. Environmental Protection Agency, California EPA, California Air Resources Board, California Department of Toxic Substances Control, Paramount Unified School District, Los Angeles Regional Water Quality Control Board, and others. There have been 25 evening conference calls with the public (in English and Spanish), which included staff directly answering questions sent in by email, and 30 conference calls with the offices of elected representatives.

On our website ([www.aqmd.gov](http://www.aqmd.gov)), staff have published 3 reports on community monitoring for hexavalent chromium and multi-metals, 3 reports on the data from school monitoring, and information on how “3-sample averages” are determined for the Orders for Abatement. SCAQMD has collaborated with the state Office of Environmental Health Hazard Assessment and the Los Angeles County Department of Public Health on fact sheets related to the Paramount hexavalent chromium investigations.

### Approach

- Approach: transparency, accessibility, collaboration, solution oriented
- Joint inspections and information sharing
- Over 50 conference calls with the City and other government agencies; 30 conference calls with elected officials and 25 community conference calls (scheduled for evening hours, bilingual); 5 Town Hall and many community meetings
- Website updated frequently

## Monitoring

Through an innovative use of portable air samplers, filter samples are collected and then analyzed in SCAQMD's state-of-the-art laboratory. The chemical analysis at the low concentrations seen in community air samples (trace amounts measured in nanograms, or billionths of a gram) can only be done by a few laboratories in the nation. Monitoring has occurred at 38 community locations and 10 schools where sample equipment was provided by the California Air Resources Board. Samplers are currently in place at 23 sites, as well as 3 schools. Over 2,700 samples have been analyzed for hexavalent chromium. Another tool, placed at the parking lot of Promise Hospital, is a multi-metals monitor that identifies and measures the levels of 21 metals in close to real time (one hour). This has provided useful information on hourly and day-of-week patterns for several metals.

SCAQMD staff also collected and analyzed 148 samples of dust or loose debris collected from 18 facilities and tested emissions from 17 pieces of equipment at 6 facilities. This work has helped to identify the types of operations, and some specific facilities that have contributed to high levels of hexavalent chromium in the air.

## Inspections and Enforcement Actions

SCAQMD and other agencies have done joint inspections at approximately 194 potential metal handling/processing facilities. SCAQMD has also done many additional unannounced door-to-door inspections. Inspections identified a variety of compliance and permitting issues (the majority not related to hexavalent chromium). Over 3 dozen Notices of Violation (NOVs) have been issued to 8 facilities and approximately 94 Notices to Comply (NCs) were issued to 60 facilities, resulting in changes to operations and additional facilities coming under SCAQMD permits.

Inspections, air monitoring and equipment testing, and evaluation of wind data helped identify facilities with high hexavalent chromium emissions. SCAQMD filed petitions against some facilities through our independent Hearing Board. After hearing all sides at public hearings (which are also webcast), the Hearing Board weighs the evidence and reaches a decision. Orders for Abatement were issued, and all facilities agreed to the terms of the orders: Aerocraft (December 2016), Anaplex (January 2017), and Lubeco (August 2017). Some companies were required to add control equipment and some

### Air Monitoring

- At 38 neighborhood locations and 10 schools; some sites also had multi-metals analysis; more than 2,700 air samples
- Facilities: 148 samples of dust and debris collected at 18 facilities + 17 tests on equipment at 6 facilities

### Positive Results

- Almost 200 joint agency inspections, subsequent facility improvements, new rules, and other efforts have yielded positive results
- Under Orders for Abatement, 3 companies were required to take additional measures to reduce hexavalent chromium, and 1 company was required to take measures to reduce odors
- Air samples show large reductions in emission levels and generally remain low
- New state law provides additional authority if facility poses "imminent and substantial endangerment"



had to reduce operations if air samples were above certain levels. As of November 2017, Aerocraft and Anaplex have each had to curtail their chromium-related processes four times and each partial shutdown lasted about a week. SCAQMD staff continue to work with these facilities to reduce their emissions even further.

Since October 2016, the SCAQMD has responded to approximately 900 air quality complaints in the Paramount community; the majority were odor complaints alleging Carlton Forge Works as the source. Carlton Forge Works is also under an Order for Abatement (July 2017) to reduce odors. Air quality inspectors are in the area on a regular basis to respond to complaints and do odor surveillance. The number of odor complaints has fallen and the facility has made changes to reduce odors from their operation, and is continuing to make more improvements to further reduce odors.

SCAQMD also continues to conduct regular, unannounced inspections, surveillance and complaint investigations, and follows up with facilities that have been issued NOVs or NCs to ensure compliance.

In addition, SCAQMD sponsored successful legislation, AB 1132, which starting in 2018 gives air pollution control officers the authority to issue an interim Order for Abatement to immediately protect public health or welfare from “imminent and substantial endangerment.”

## Facility Improvements

Changes at facilities have included compliance and enforcement responses, voluntary actions by companies, and new rule requirements. Additional requirements are anticipated for facilities across the Basin (through future rule changes) and for specific companies (Anaplex, Aerocraft, and potentially Carlton Forge Works) which are implementing risk reduction plans for air toxics, required under SCAQMD Rule 1402.)

Anaplex added new controls for hexavalent chromium and other toxics from process tanks and a spray booth. Aerocraft added temporary portable control devices venting 2 buildings that have furnaces used for heat treating metal parts. Carlton Forge Works improved air pollution controls in their grinding room to reduce odors on an immediate basis, and is on schedule to add additional controls by anuary 2018.

The following rule changes apply to facilities throughout the SCAQMD’s jurisdiction: Rule 1430, adopted in March, reduces emissions from grinding at metal forging facilities. Rule 1469 scheduled for amendment in 2018, proposes new requirements for certain process tanks found at chrome plating and anodizing facilities, and further reduces emissions from these operations.

### Next Steps

- Still some work to do
- Continue teamwork in an open, transparent, accessible, collaborative fashion
- Lessons learned are being applied to other facilities and other cities

## **Conclusions and Next Steps**

SCAQMD and all team partners have learned a lot in the last year from our collective efforts and have made significant progress in identifying facilities and operations that can emit high levels of hexavalent chromium, and most importantly, in reducing those emissions. A range of improvements have been made by facilities—some voluntary, and some compelled through rule changes, enforcement actions, and Orders for Abatement. There is still more work to do, and SCAQMD is committed to this effort. We will also continue to collaborate with other agencies, elected officials, and the public, and operate in a transparent, open manner. Important information and lessons learned in Paramount will help SCAQMD as we expand our work to other areas in the Basin, as resources allow.

### ***For more information on the status of air toxics actions in Paramount:***

Visit our Paramount webpage at:

<http://www.aqmd.gov/home/regulations/compliance/paramount-ongoing-air-monitoring>

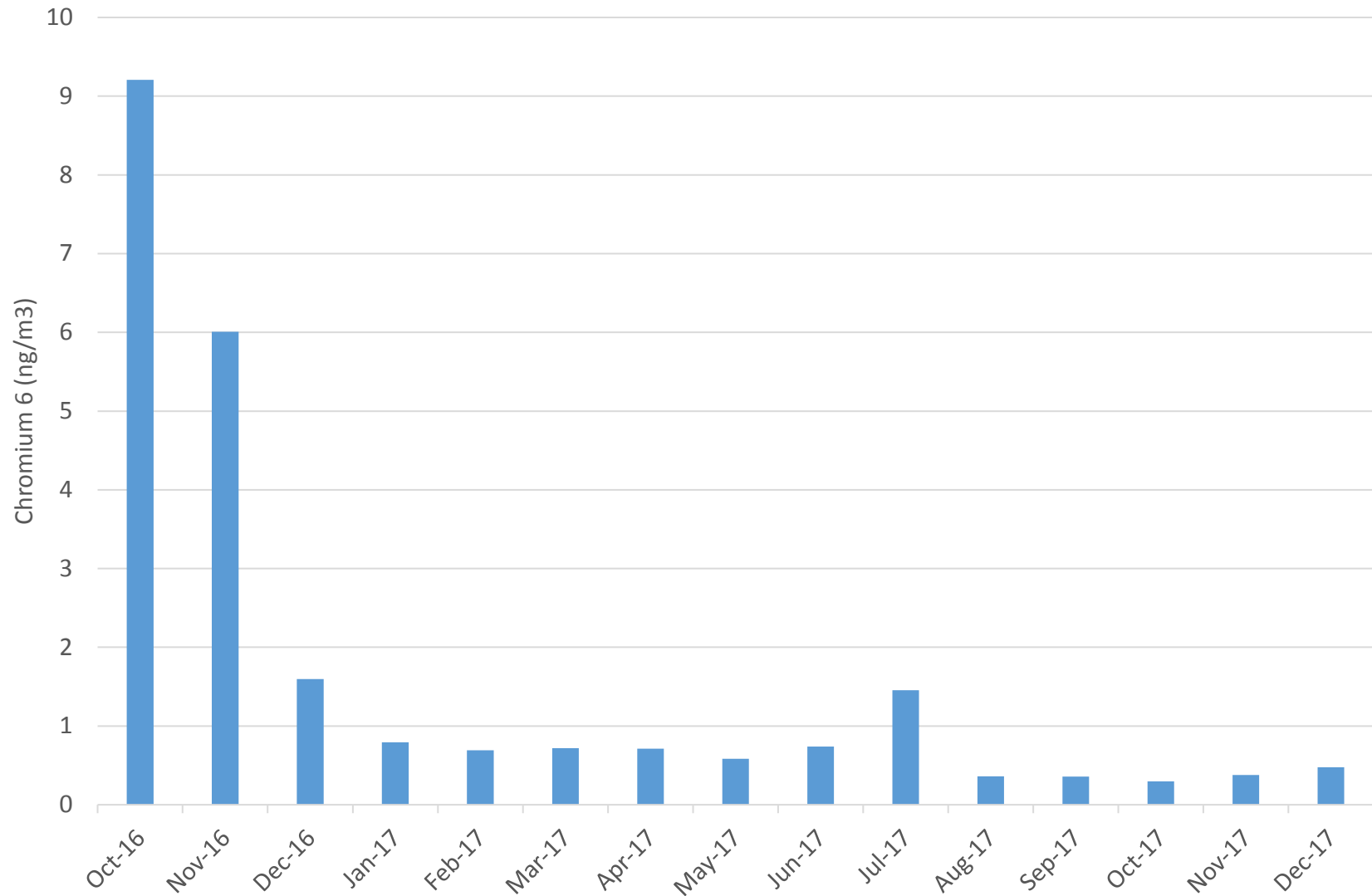
Call us or email us:

Phone: Office of the Public Advisor, 909/396-2432

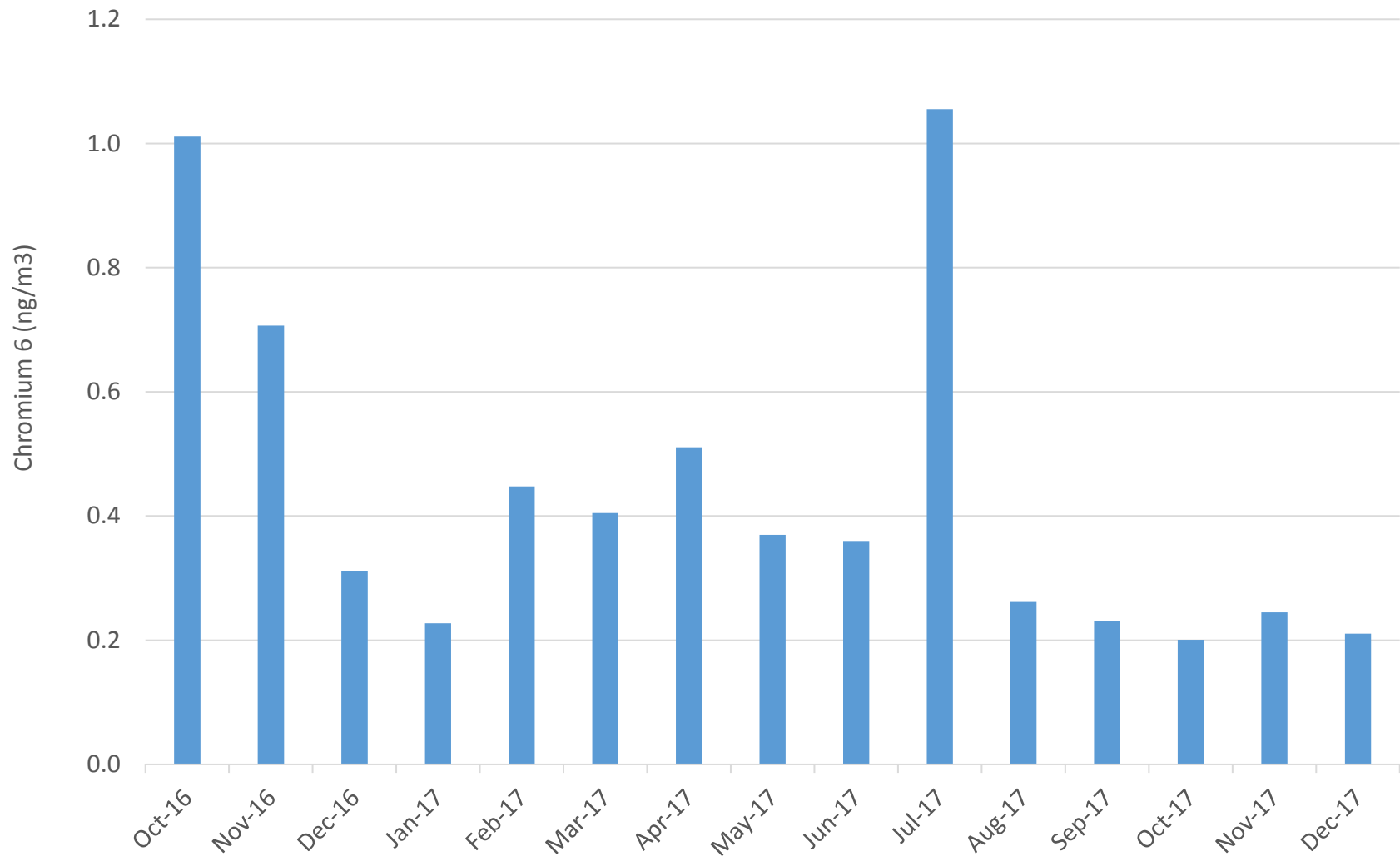
Email: [publicadvisor@aqmd.gov](mailto:publicadvisor@aqmd.gov)



**Figure 1. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Industrial Facilities in Paramount**



**Figure 2. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Residential Areas and Schools in Paramount**







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Director

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Fifth District

October 20, 2017

VIA EMAIL

Dr. Ruth Perez, Superintendent  
Paramount Unified School District  
15110 California Avenue  
Paramount, CA 90723-4378

Re: Review Letter Regarding Paramount Unified School District Indoor Sampling Results and Recommendations

Dear Dr. Perez:

The Los Angeles County Department of Public Health (DPH) has completed its review of the *Industrial Hygiene Survey Report, Paramount Unified School District, Various Sites, Paramount, California* dated September 30, 2017. In this report, the Paramount Unified School District (the District) provided sampling methods and results for indoor air sampling it conducted at five school sites in August, 2017. Please refer to Attachment 1 for our specific comments on the report.

The indoor sampling conducted by the District provides preliminary screening data suggesting that hexavalent chromium in indoor air is not currently posing an immediate health risk to students and staff. DPH recommends that the District continue regular preventative cleanings, maintenance of building controls, and periodic monitoring to ensure a clean and safe indoor school environment.

DPH recommends that the District develops and implements an Indoor Air Quality (IAQ) Management Plan for the District, to support a safe, healthy, and productive learning environment for students and staff. While the District has communicated various steps taken to prevent

potential exposure to hexavalent chromium, DPH recommends that these and other best management practices are best identified and communicated through written policies and procedures.

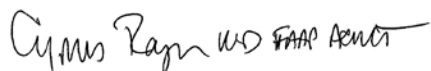
The United States Environmental Protection Agency (EPA) provides guidance to implementing an effective IAQ Program. We recommend that the District use the EPA's IAQ Tools for Schools Program to develop an IAQ Management Plan that includes the following essential elements:

- Regular and periodic deep-cleaning schedule and measures.
- Schedule and specifications for preventative maintenance and operations of building structures and systems (e.g. heating, ventilating and air conditioning system, unit ventilators, local exhaust, fresh air intakes and flooring).
- Monitoring schedule for periodic testing of the indoor environment, including sampling for metals in air and dust (i.e. wipe samples to monitor hard surfaces and vacuum dust samples to monitor soft surfaces).
- Staff education and communication to ensure successful implementation of the IAQ Management Plan.

We are available to provide assistance in developing and implementing the District's IAQ Management Plan. Thank you for taking preventative measures to maintain a healthy school environment for students and staff.

If you have any questions or require additional information, please do not hesitate to contact me at (213) 738-3220.

Sincerely,



Cyrus Rangan, MD, FAAP, FACMT

CR:kb

Enclosure: DPH Comments on Paramount School District's Indoor Air Sampling Results

cc: Barbara Ferrer, Director  
Jeffrey D. Gunzhauser, Interim Health Officer  
Cynthia A. Harding, Chief Deputy Director  
Angelo J. Bellomo, Deputy Director, Health Protection



## ATTACHMENT 1:

### DPH COMMENTS ON PARAMOUNT SCHOOL DISTRICT'S INDOOR AIR SAMPLING REPORT

#### General Comments

1. The District sampled hexavalent chromium in indoor air at five school sites: Abraham Lincoln Elementary School, Frank J. Zamboni Middle School, Leona Jackson Middle School, Major Lynn Mokler Elementary School and Wesley Gaines Elementary School. Please explain the criteria for school site selection.
2. Field observations during sampling documented that all rooms were unoccupied, and had recently been deep-cleaned as is typical for the beginning of the academic year. The heating, ventilation and air conditioning systems were operated as is typical during the school day. Depending on the frequency of deep cleaning, these conditions during sampling may not represent the typical indoor environment throughout the school year. Please address this in the IAQ Management Plan.
3. Hexavalent chromium was not detected in the indoor air samples above the laboratory reporting limits, ranging from 0.37 to 0.39 ng/m<sup>3</sup>. The results of the indoor air sampling were compared to occupational health limits. These limits are not appropriate for comparison to screen for health risks of staff and students, since they are intended to evaluate worker exposures in chromium-related industries. There is no available health screening level for evaluating indoor air, therefore DPH recommends that the results be assessed in the context of indoor air at schools that are in areas not near metal facilities. Typical ambient levels in central and southern areas of Los Angeles (e.g. 0.04 – 0.11 ng/m<sup>3</sup>) may provide additional context.
4. Hexavalent chromium was detected in outdoor air samples at two of the five school sites: Lincoln and Zamboni (at concentrations of 0.40 and 0.39 ng/m<sup>3</sup>, respectively). DPH reviewed this outdoor air results in the context of average hexavalent chromium detected at outdoor SCAQMD monitoring sites in Paramount during the same period (averaged 0.33 ng/m<sup>3</sup> across all monitors). This agreement between the District and SCAQMD sampling results suggests reliability of field and laboratory methods employed by the District. Moving forward, we suggest clarifying the selection of rooftop locations and whether these locations were near air intake.
5. The report concludes that current building maintenance and operational measures are effective in that there were no measureable hexavalent chromium inside the classrooms, while there were levels measures outside at two locations. At Lincoln, an outdoor concentration of 0.4 ng/m<sup>3</sup> was measured and indoor concentrations were not detected above 0.37 and 0.39 ng.m<sup>3</sup>. While these indoor results are encouraging, they are not sufficient to show a depreciable attenuation between outdoor and indoor air (due to the laboratory detection limit). This is also the case for the results at Zamboni. However, DPH believes that continued maintenance and operation of building controls, along with follow-up monitoring, can support a clean and safe environment for students and staff. The IAQ Management Plan can be used to define these steps and provide assurance that the protocols are in place to ensure effective monitoring and mitigation.

6. The report recommends that in a preponderance of caution, the District should continue to conduct additional sampling at school sites and during recess. DPH agrees with this recommendation. Periodic follow-up testing should be used to confirm these results under different conditions (e.g. varying outdoor air levels, not immediately following deep-cleaning performed at the beginning of the academic year). We suggest including information addressing sampling selection and sampling timelines in the IAQ Management Plan.

### **Specific Comments**

1. Page 4, second bullet. The units described for the outdoor levels are inconsistent with the laboratory results and Table 1.
2. Meteorological conditions during sampling should be documented and described in the report.





Attachment IV



**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

**JEFFREY D. GUNZENHAUSER, M.D., M.P.H.**  
Interim Health Officer

**CYNTHIA A. HARDING, M.P.H.**  
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**ANGELO J. BELLOMO, REHS, QEP**  
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December 8, 2017

Wayne Nastri, Executive Director  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

**Re: Proposed Amended Rule 1469, Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations**

Dear Mr. Nastri,

The Los Angeles County Department of Public Health (DPH) appreciates this opportunity to comment on the Proposed Amended Rule 1469 regarding hexavalent chromium emissions from hexavalent chromium electroplating and chromic acid anodizing operations. We support the South Coast Air Quality Management District's (SCAQMD) policy and enforcement efforts over the last year to reduce chromium emissions in the Los Angeles Basin. In October 2016, SCAQMD discovered that Anaplex, a chromium electroplating facility in the City of Paramount, was responsible for ambient chromium emissions up to 400 times higher than those reported for other urban areas in Los Angeles. SCAQMD and DPH coordinated their enforcement efforts to require Anaplex to reduce its chromium emissions to below 1 ng/m<sup>3</sup>. In this case, swift abatement action was necessary due to the well-known carcinogenicity of hexavalent chromium and proximity of residential areas. Hexavalent chromium compounds have been shown to cause lung cancer in humans when inhaled at high concentrations for long periods of time.

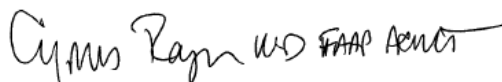
DPH is concerned that the potential for elevated hexavalent chromium emissions extends well beyond the borders of the City of Paramount and concentrates in communities already facing many other social, economic and environmental burdens. There are a total of 87 chromium electroplating and chromic acid anodizing operations with SCAQMD permits in Los Angeles County, and the majority of these are located in the most burdened areas of Los Angeles, as shown by the red shading in the attached map. The Proposed Amended Rule 1469 presents a golden opportunity for facilities to institute the necessary emission controls and prioritize the health of surrounding neighborhoods and

chromium workers. After review of the Proposed Amended Rule 1469, DPH recommends that SCAQMD revise the Rule to include the following requirements:

- Consistent with recent European Union legislation, ban hexavalent chromium for decorative purposes.
- Periodic fence-line air monitoring to facilitate continued assessment of ambient hexavalent chromium emissions across Los Angeles County.
- Prior to using chemical fumes suppressants that do not contain perfluorooctanesulfonic acid (PFOS), which were banned in the Federal NESHAPs Rule, comprehensive toxicity assessments must be completed and demonstrate the safety of the proposed alternative chemicals. Available toxicity assessments by the Office of Environmental Health Hazard Assessment raised serious concerns about the safety of these chemicals (see attached). It is essential these alternative chemicals not be relied upon as a means to control emissions of hexavalent chromium in plating tanks unless and until their safety has been demonstrated.
- The current version of the proposed rule provides for additional protections for schools situated within 100 feet from a plating facility. While we support additional protections for schools and other sensitive land uses in proximity to plating facilities, we believe the distance of 100 feet is insufficient. These additional protections are warranted for any sensitive population in close proximity to emissions of hexavalent chromium.
- Establish a mandatory consultative process with the California Division of Occupational Safety and Health's (Cal/OSHA) to ensure adequate worker protection.

Considering both the toxicity of hexavalent chromium and the proximity of chromium facilities to Los Angeles County residents, we urge the SCAQMD to ensure that the Proposed Amended Rule 1469 requires the best technology available to prevent chromium emissions from impacting local air quality.

Sincerely,



Cyrus Rangan, M.D., F.A.A.P., F.A.C.M.T.  
Director, Toxicology & Environmental Assessment  
Environmental Health Division, Department of Public Health

Enclosures: (2)





**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

**JEFFREY D. GUNZENHAUSER, M.D., M.P.H.**  
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April 5, 2018

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director 

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back on the progress to abate the endangerment posed by elevated hexavalent chromium ("Chromium-6") emissions in the City of Paramount. DPH has reported to the Board on this issue since January 2017, with the last quarterly report dated January 19, 2018. This quarterly report provides information on five key elements of the interagency response: status of the interagency team, air quality monitoring, enforcement, public communication, and rulemaking activity.

**Status of the Interagency Team**

Since December 2016, DPH has been a member of the interagency team consisting of the South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department, California Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (CalEPA), California Air Resources Board (CARB), and the Long Beach Department of Health and Human Services. As of January 2018, the interagency team has discontinued regular meetings, as SCAQMD and these agencies have shifted resources from investigating Chromium-6 in Paramount to related issues more broadly across the county of Los Angeles and within other cities. DPH continues to work with these agency partners and surrounding cities as needed on an individual basis.

**Air Quality Monitoring**

Air quality monitoring by SCAQMD is focused on several geographic areas: compliance monitoring points previously established outside of the Anaplex and Aerocraft facilities, the southern investigation area approximately a half-mile south of these facilities, and two area schools within the Paramount Unified School District (PUSD). As reported in the previous update, SCAQMD released a summary report in December 2017 highlighting reductions in Chromium-6 in outdoor air within the industrial areas of the City of Paramount. Currently, there are 16 monitors operating in the community of Paramount and 2 monitors at schools. Reduced levels have been maintained over the last quarter.

Each Supervisor

April 5, 2018

Page 2

The monthly average in industrial areas of Chromium-6 concentrations for the quarter ranged from 0.4 to 0.5 nanograms per meter cubed ( $\text{ng}/\text{m}^3$ ) (see Attachment I). For residential and school areas, monthly average Chromium-6 concentrations ranged from 0.2 to 0.9  $\text{ng}/\text{m}^3$  (see Attachment I). These levels are slightly above the significant long-term health risk level of 0.2  $\text{ng}/\text{m}^3$ , and remain higher than typical ambient levels (0.04-0.1  $\text{ng}/\text{m}^3$ ).<sup>i</sup>

### **Area Schools**

In October 2017, Supervisor Hahn directed DPH to conduct follow-up indoor air testing in PUSD classrooms. Over the last six months, DPH has met with PUSD on multiple occasions to develop a sampling protocol at several PUSD schools. While the sampling protocol has been agreed upon, PUSD has continued to deny access unless DPH agrees to overly broad indemnification language that Counsel and DPH believe would place an undue burden on the County. This impasse leaves continued uncertainty as to whether conditions in the schools pose a threat to the health of students and staff.

### **Enforcement**

#### *Anaplex and Aircraft*

When Chromium-6 emissions at the compliance monitoring points outside of Anaplex and Aircraft exceed 1  $\text{ng}/\text{m}^3$ , SCAQMD requires shut-down of all operations that contribute to Chromium-6 emissions. On February 26, 2018, SCAQMD ordered Anaplex to shut down all operations that emit Chromium-6, after air monitors detected elevated levels at outside the facility. This is the fifth time SCAQMD has ordered Anaplex to curtail its operations since the Hearing Board adopted its order in January 2017.

#### *Carlton Forge Works:*

On January 2, 2018, Carlton Forge Works implemented additional measures in its grinding room to control odors. SCAQMD reports that in the months since the new controls were put in place, odor complaints have significantly decreased.

### **Public Communication**

DPH continues to provide information and health education material to Paramount residents by email, phone, in-person meetings, and through online resources. The frequently asked questions (FAQ) document for community members was also updated to include the most recent air monitoring results (see attachment II).

### **Rulemaking Activity**

SCAQMD is currently updating its Rule 1469, which covers facilities that conduct chromium electroplating or chromic acid anodizing operations. The updated Rule seeks to establish requirements for hexavalent chromium-containing tanks that are currently unregulated by the existing Rule 1469. These requirements include building enclosures, enhanced housekeeping and best management practices, periodic source testing, and permanent total enclosures for facility areas where chromium-containing tanks are located. To inform SCAQMD's rulemaking process, DPH hired a contractor to research technologies to control emissions and alternatives to using Chromium-6 in industrial processes. The contractor will submit a written report to DPH that will be shared with SCAQMD. SCAQMD is expected to schedule the next public hearing related to the proposed Rule 1469 in May 2018.



Each Supervisor  
April 5, 2018  
Page 3

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report quarterly on progress to protect the public's health in the City of Paramount.

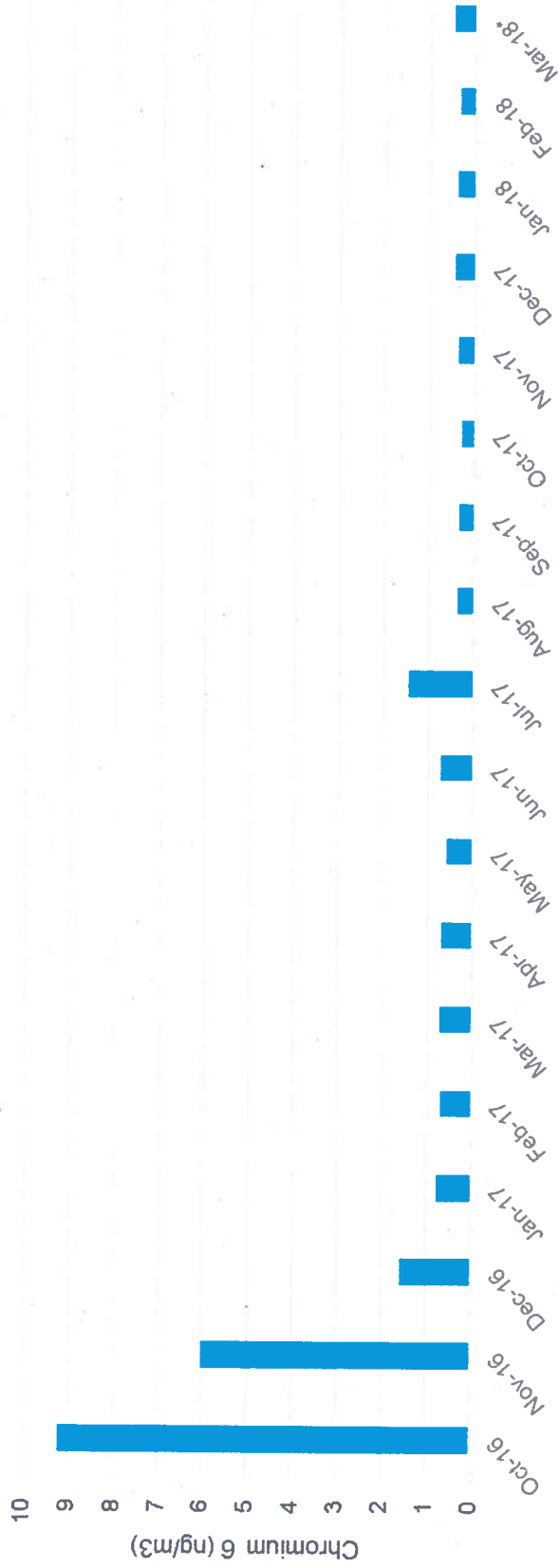
If you have questions or need additional information, please let me know.

BF:ab

Attachments

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Los Angeles Fire Department

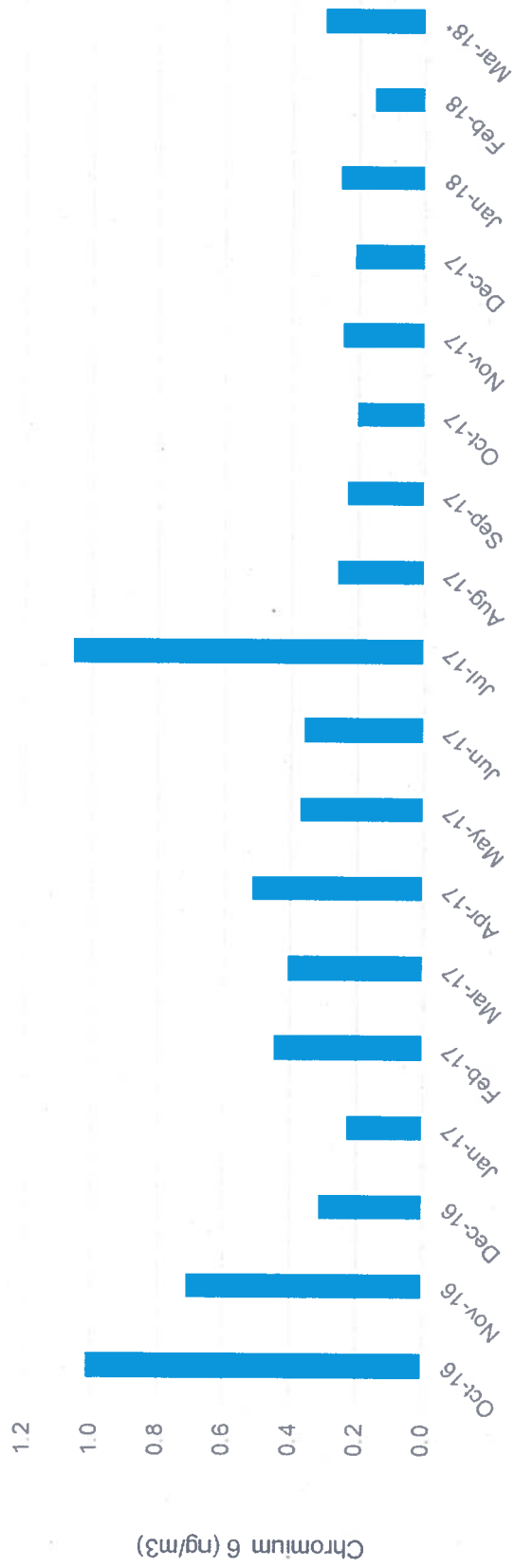
Figure 1. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Industrial Facilities in Paramount



\* Partial data is available for March, 2018 as of the date of this report



Figure 2. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Residential Areas and School Areas in Paramount



\* Partial data is available for March, 2018 as of the date of this report



# Response to Hexavalent Chromium in the City of Paramount

Hexavalent Chromium, also known as chromium-6, is a metal used in certain industrial processes, such as metal plating, leather tanning, and welding. In late 2016, the South Coast Air Quality Management District (SCAQMD) determined that the airborne levels of chromium-6 in Paramount were higher than other areas in the Los Angeles region. Since then, the SCAQMD, the California Air Resources Board, and other local agencies have been investigating the extent of chromium-6 pollution and potential sources of this problem. While exposure to chromium-6 generally does not lead to immediate health symptoms, breathing chromium-6 at high levels over many years can cause or worsen breathing problems such as asthma, and cause irritation to the nose, throat, and lungs. Chromium-6 is a known human carcinogen, and exposure to high levels over many years may increase the risk of lung and nasal cancers.

## 1. What has been found through air quality testing?

SCAQMD began monitoring air in the City of Paramount in August 2013. In October 2016, monitoring near the intersection of Minnesota and Madison streets found much higher chromium-6 levels than in other areas of Los Angeles County. Air monitoring was expanded to the City's southeast industrial area and school zones, and into northern Long Beach in 2017. The southeast industrial area has shown chromium-6 levels up to 50 times greater than levels in other areas of Los Angeles County, with the highest recorded levels reaching 9 nanograms per cubic meter (ng/m<sup>3</sup>).

Chromium-6 levels generally improved in Paramount through 2017, but Paramount continue to have higher levels than other areas in Los Angeles. In March 2018, levels in Paramount were recorded in the 0.3 to 0.49 ng/m<sup>3</sup> range, while the central and southern regions of Los Angeles County generally run in the 0.04 to 0.11 ng/m<sup>3</sup> range.

Details of the air quality investigation can be found at:

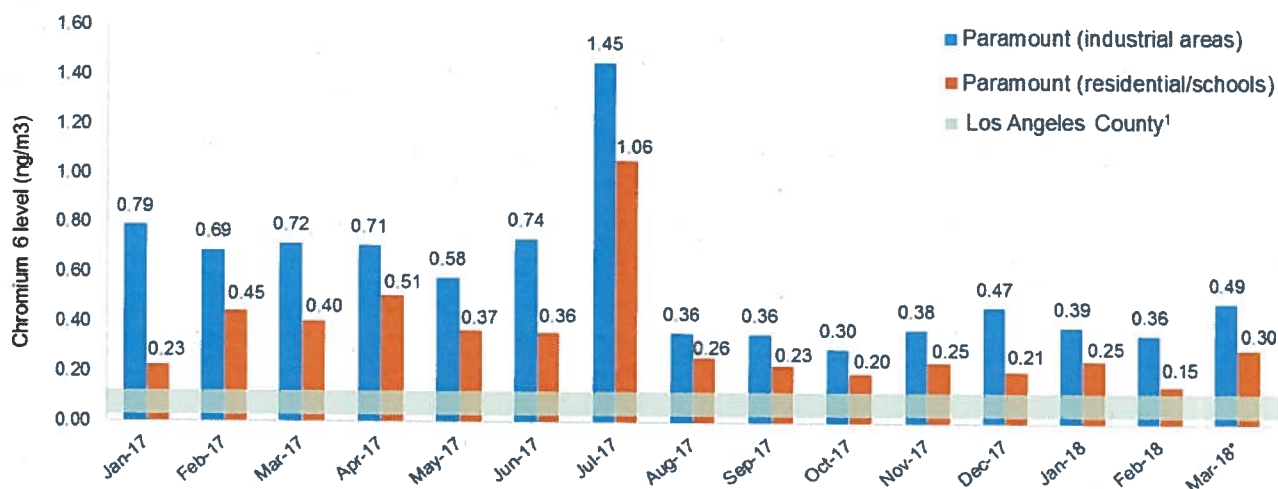
<http://www.aqmd.gov/home/news-events/community-investigations/air-monitoring-activities#>, and are shown in the following graph:

### Key Points

- High levels of toxic chromium-6 were found in the air in the City of Paramount in 2016.
- Chromium-6 levels in outdoor air have improved, but remain higher than average chromium-6 levels in other parts of Los Angeles County.
- Exposure to high levels of chromium-6 over long periods of time can affect your health.
- Several metal businesses have been directed by SCAQMD to reduce chromium-6 emissions.



Chromium 6 in Paramount Compared to Los Angeles



\* Partial data is available for March 2018 as of the date of this report.

<sup>1</sup> Multiple Air Toxics Exposure Study IV annual average levels of chromium 6 from the air monitoring locations closest to Paramount, including Compton, North Long Beach, Huntington Park, Pico Rivera and downtown Los Angeles (South Coast Air Quality Management District, May 2015).

## 2. What has been found in outdoor air near schools?

Since December 2016, the SCAQMD has tested chromium-6 in outdoor air near 12 public schools in Paramount. Schools, like other residential areas of Paramount, have had average levels of chromium-6 that are higher than levels of chromium-6 typically found in the Los Angeles area. For further details see:

[http://publichealth.lacounty.gov/eh/docs/PH\\_RelHexChrom\\_ParamountSchoolFAQ-en.pdf](http://publichealth.lacounty.gov/eh/docs/PH_RelHexChrom_ParamountSchoolFAQ-en.pdf)

## 3. What other chromium-6 testing has been done?

The Los Angeles County Department of Public Health (Public Health) tested the indoor air for chromium-6 in a small number of homes close to select metal facilities with known air emissions of chromium-6 and, in partnership with the City of Paramount, tested for chromium-6 in soil near homes. Additionally, the California Department of Toxic Substances Control, in partnership with the City of Paramount, tested the soil at Village Skate Park. Preliminary soil testing in the industrial zones has shown elevated levels of chromium-6 and other metals in the soil near metal industries, suggesting the need for expanded soil testing in these industrial zones. Overall, these sampling results do not represent an immediate health hazard, but future testing will be essential as chromium-6 mitigation continues in this area.

#### **4. What are the health effects of breathing chromium-6?**

Breathing chromium-6 generally does not cause immediate health symptoms. However, breathing chromium-6 over many years can increase your risk of lung and nasal cancers, irritation to the nose, throat, and lungs (runny nose, coughing, or nose sores), and can worsen existing conditions such as asthma and other respiratory illnesses.

Metallic odors have been reported in the community. These odors are not likely to be caused by chromium-6, which tends to be odorless, but may represent other metals emitted by industries in the area. Odors can lead directly to symptoms such as nausea, dizziness, headaches, and irritation of the eye, nose, or throat. Please report all outdoor odors to SCAQMD by calling 1-800-CUT-SMOG.

#### **5. What is being done to address high levels of chromium-6 in Paramount?**

Local and state agencies have worked to identify facilities that produce chromium-6, and to lower the amount of chromium-6 that they release. Since November 2016, Public Health and SCAQMD have issued directives and orders to 8 businesses in Paramount and North Long Beach related to chromium-6 emissions and/or odors: Anaplex, Aerocraft MattCo, Press Forge, Weber Metals, Carlton Forge Works, and LubeCo.

The SCAQMD is developing new air quality rules to regulate chromium-6 in metal processing facilities. Link to more information about the rule-making process here:

<http://www.aqmd.gov/home/rules-compliance/rules/proposed-rules#1469>

The City of Paramount has adopted revised zoning rules for metal processing operations to reduce emissions.

#### **6. What can I do to reduce potential health problems from chromium-6?**

The following precautionary measures may help reduce possible exposure to chromium 6:

- Limit physical activity around industrial facilities.
- Keep children away from industrial facilities, where soil and dust may be unhealthy.
- Wash fruits or vegetables grown at home.
- Keep dirt and dust out of your home. Avoid wearing shoes inside the home. Use a mop and wet cloth to clean dust inside your home.
- Do not smoke or use tobacco products.
- Visit your health care provider for questions about your health.



For employees working in industrial areas:

- Reduce workplace exposure to dust, mists, and fumes that may contain metals. Ask your employer for proper requirements for your facility, such as such as gloves, protective clothing, face and eye protection, and/or respirators.
- Use wet clean up methods for dust. Do not dry sweep. Vacuum with HEPA filter. Wash hands before eating or drinking, including before meal breaks.
- When leaving work, remove work clothing and footwear, and wash hands to avoid bringing contamination home.
- For health-related questions, visit your health care provider. If your health care provider has further questions, please call the Toxicology and Environmental Assessment Branch, at 213-738-3220.



**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

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July 6, 2018

**TO:** Each Supervisor

**FROM:** Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director 

**SUBJECT:** **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. DPH has reported to the Board on this issue since January 2017, with the last quarterly report dated April 5, 2018. This quarterly report provides information on four key elements of the interagency response: air quality monitoring, enforcement, public communication, and rulemaking activity.

### **Air Quality Monitoring**

Reduced levels of Chromium-6 have been maintained over the last quarter. The monthly average Chromium-6 concentrations ranged from 0.26 to 0.41 nanograms per meter cubed (ng/m<sup>3</sup>) for industrial areas; 0.36 to 0.55 ng/m<sup>3</sup> for residential areas and 0.03 to 0.19 ng/m<sup>3</sup> for the school location (see Attachment I). Levels in industrial and residential areas are slightly above the significant long-term health risk level of 0.2 ng/m<sup>3</sup>, and the school location measures below this long-term health risk level. Levels across Paramount remain higher than ambient levels in other areas of the region (0.04-0.1 ng/m<sup>3</sup>).

### *Status of SCAQMD Air Monitoring Network*

The South Coast Air Quality Monitoring District (SCAQMD) convened a multi-agency call on June 6 to provide information on their updated air monitoring plan for Paramount. As stated in the updated plan (Attachment II), SCAQMD based the decision to reduce the monitoring network from 16 to 11 monitors on the overall decreased Chromium-6 levels in Paramount, and the need to relocate monitors to other areas that have potential for air toxic exposure.



A total of 11 monitors will remain in Paramount. This includes 6 compliance monitors for facilities that have been issued an Order for Abatement (Anaplex, Aerocraft, and LubeCo), and 5 “area wide” monitoring sites. Monitoring at the 6 compliance sites and one nearby “area wide” site will continue on a 1-in-3 day sampling frequency until the Order for Abatement at the nearest facility has been lifted. At that point, SCAQMD plans to monitor with a 1-in-6 day sampling frequency for several weeks before removing the samplers. The frequency of sampling at the 4 remaining “area wide” sites will be decreased from a 1-in-3 day schedule to a 1-in-6 day schedule, and will continue until the City of Paramount has a plan in place to take over monitoring for those sites. SCAQMD hosted a town hall at the Paramount Community Center on June 20 to inform residents about the updated monitoring plan.

### **Area Schools**

DPH met with representatives from the Paramount Unified School District (PUSD) on June 13 to continue discussions regarding indoor air testing in PUSD classrooms. DPH requested to serve in an oversight role for the sampling efforts to help resolve the legal disagreements and still accomplish the sampling. PUSD indicated they were amenable to this approach and suggested that DPH could receive a “visitor pass” for the day to oversee the work that would be conducted by PUSD’s contractor. Both parties agreed that sampling will take place at the beginning of the school year after students go back to school so the sampling day represents more typical conditions, as opposed to summer vacant conditions.

### **Enforcement**

Currently SCAQMD has Orders for Abatement in place pertaining to air emissions for three facilities: Anaplex, Aerocraft, and LubeCo. There is also an Order pertaining to odors for Carlton Forge Works. SCAQMD has reported no violations of these Orders over the last quarter.

### **Public Communication**

DPH continues to provide information and health education material to Paramount residents by email, phone, in-person meetings, and through online resources. Online resources include a frequently asked questions document that is updated periodically to reflect current issues, relevant directives and orders, and information on air monitoring efforts.

### **Rulemaking Activity**

SCAQMD is currently updating its Rule 1469, which covers facilities that conduct chromium electroplating or chromic acid anodizing operations. The updated Rule seeks to establish requirements for hexavalent chromium-containing tanks that are currently unregulated by the existing Rule 1469. These requirements include building enclosures, enhanced housekeeping and best management practices, periodic source testing, and permanent total enclosures for facility areas where chromium-containing tanks are located. To inform SCAQMD’s rulemaking process, DPH hired a contractor to research technologies to control emissions and alternatives to using Chromium-6 in industrial processes. The contractor has completed its first report, which reviews the European Union regulation of Chromium-6 and associated compounds (Attachment III). In summary, the European Chemical Agency has banned the use of Chromium-6, however many companies have been granted an exemption and still use Chromium-6 in practice. Chromium-6 is closely regulated and monitored, with the goal of industry eventually eliminating its use in all

Each Supervisor  
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Page 3

European industry operations; furthermore, the Chromium-6 ban has hastened research into alternative technologies. SCAQMD is expected to schedule the next public hearing related to the Rule in the summer of 2018 and will hold the board hearing on September 7, 2018.

DPH staff attended a Working Group meeting on June 13 for SCAQMD's Proposed Rule 1480, Air Toxic Metals. Rule 1480 would expand monitoring for metal emission sources, and aims to provide an approach for monitoring toxic metals in a more inclusive manner instead of rule-by-rule or with legal orders. Components under consideration for the rule include ambient concentration limits and monitoring plans. SCAQMD plans to continue stakeholder engagement in order to capture input as they develop specifics for Proposed Rule 1480, and will hold the next working group meeting later this summer. DPH will continue to track the development of the rule and confer with SCAQMD regarding any comments or suggestions.

DPH will continue to work closely with SCAQMD, the Fire Department, and County Counsel to report quarterly on progress to protect the public's health in the City of Paramount.

If you have questions or need additional information, please let me know.

BF:ab

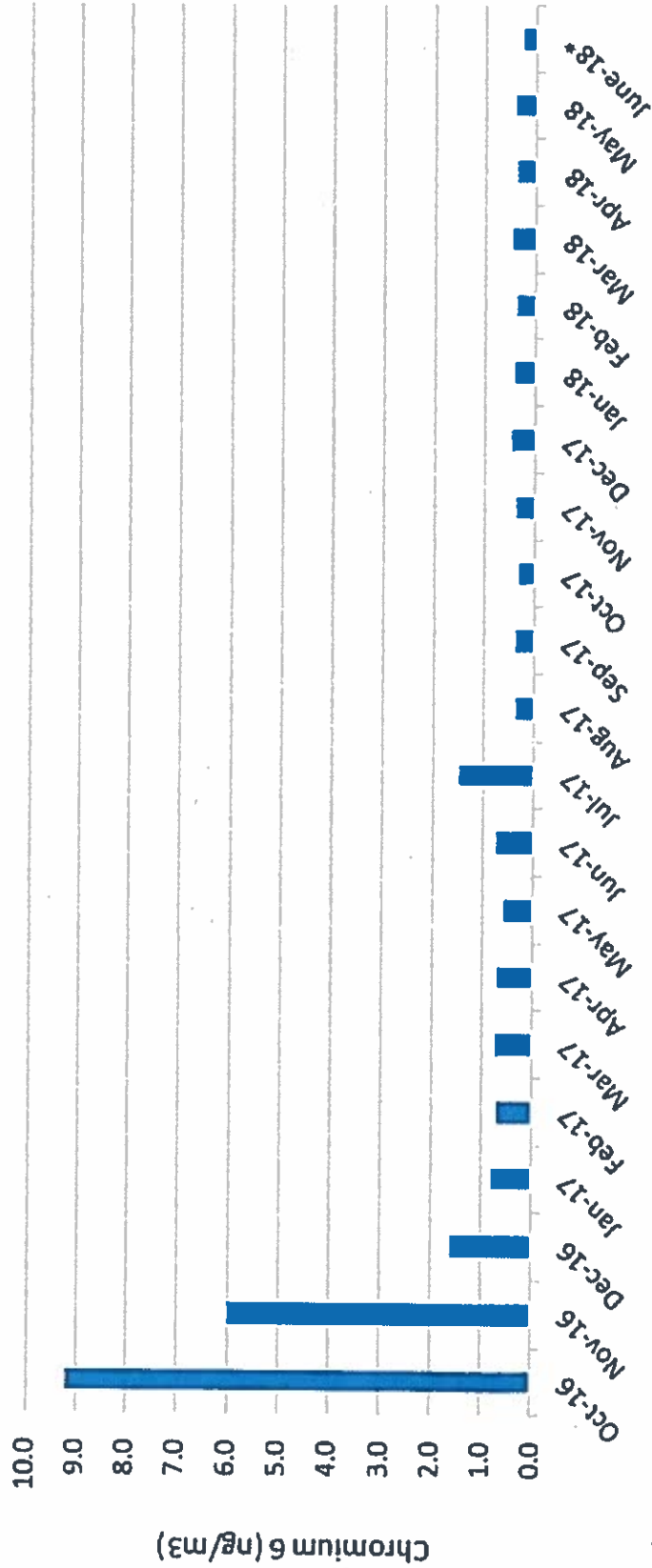
#### Attachments

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors  
Los Angeles Fire Department



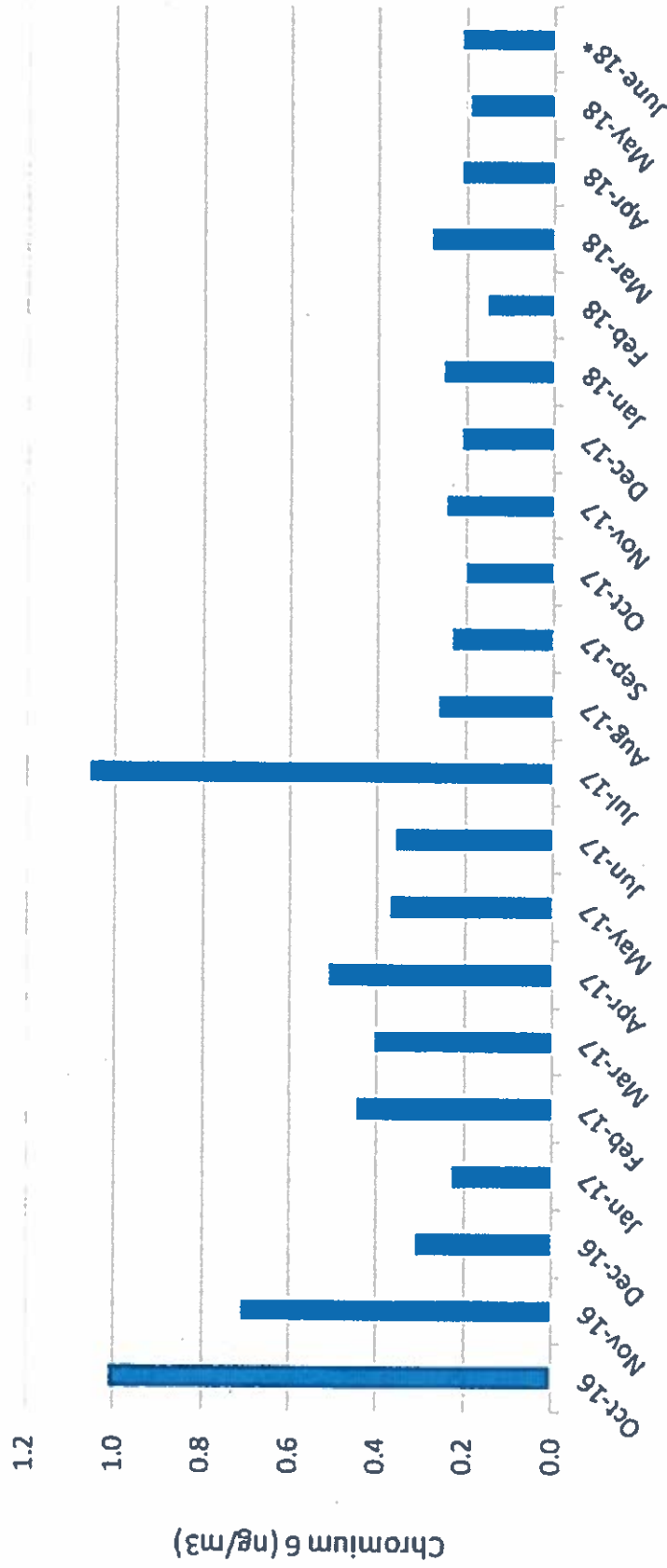
**ATTACHMENT I**  
**Chromium 6 Graphs for Industrial and Residential Areas in Paramount**

**Figure 1. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Industrial Facilities in Paramount**



\* Partial data is available for June, 2018 as of the date of this report

Figure 2. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Residential Areas and School Areas in Paramount



\* Partial data is available for June, 2018 as of the date of this report.  
Frequency of measurements for residential areas was reduced from every 3 days to every 6 days as of May 29, 2018



## Updated Air Monitoring Plan for Paramount

The South Coast Air Quality Management District (SCAQMD) has been collecting air samples for toxic metals analysis in the City of Paramount since 2013. This investigation focused on two toxic metals of concern: nickel and hexavalent chromium (Cr6+). In July 2016, a larger number of samplers were deployed to allow the SCAQMD to better measure spatial and temporal variations of Cr6+ in the area and identify its potential sources. Once potential sources were identified, the sampling strategy was adjusted to focus on specific facilities and on characterizing Cr6+ levels in the adjacent communities. As a result, several facilities made a range of improvements, some voluntary and some through rule changes and enforcement actions. These changes have substantially reduced ambient Cr6+ levels in the Paramount area.

Throughout this period, air monitoring in Paramount has occurred at a total of 38 locations (Figure 1) and 12 schools. School sampling has been supported by the California Air Resources Board. Currently, the SCAQMD collects air samples for Cr6+ analysis at 16 locations in the City of Paramount. Among these active monitoring locations, six are adjacent to facilities that are currently under an Order of Abatement with the SCAQMD's independent Hearing Board ("Compliance" sites; see white circles in Figure 1). The remaining monitoring sites are close to other potential sources or near residential areas and sensitive receptors of the City ("Area Wide" sites; see blue circles in Figure 1).

Table 1 provides summary statistics of Cr6+ concentrations measured at each currently-active sites since the beginning of this study as well as the facilities being monitored to ensure compliance with an Order of Abatement. Figures 2 and 3 illustrate the monthly average Cr6+ levels at "Compliance" and "Area Wide" sites, respectively, since the beginning of this study. It is evident that ambient Cr6+ concentrations at all locations have declined substantially over time, and monthly average Cr6+ levels at all currently-active sites have been consistently near or below 1ng/m<sup>3</sup> during the past nine months.

Because Cr6+ levels in the City of Paramount have been declining steadily and are now within the typical levels, the size of this monitoring network can be reduced to focus on other areas that have higher potential for air toxics exposure. Considering the large number of samples that have been collected and analyzed at each monitoring location (see column "N" in Table 1) and the consistently low Cr6+ levels measured over the past nine months (Figures 2 and 3), staff recommends to modify the sampling strategy as described below and summarized in Table 2:

- Continue monitoring at "Compliance" sites #8, #11, #14, #15 and at "Area Wide" site #16 with a 1-in-3 day sampling frequency until the Order of Abatement for the facilities closest to these sites (i.e., Anaplex and Aircraft) has been lifted. To ensure that Cr6+ levels remain low after the Order of Abatement has been lifted, continue monitoring at the aforementioned sites with a 1-in-6 day sampling frequency for a few weeks before removing the samplers.
- Continue monitoring at "Compliance" sites #29 and #38 with a 1-in-3 day sampling frequency until the Order of Abatement for the facility closest to these sites (i.e., LubeCo) has been lifted. To ensure that Cr6+ levels remain low after the Order of Abatement has been lifted, continue

monitoring at the aforementioned sites with a 1-in-6 day sampling frequency for a few weeks before removing the samplers.

- Remove "Area Wide" samplers #24, #27, #28, #31, and #37 in May, 2018.
- Decrease the sampling frequency of the remaining "Area Wide" sites (#2, #19, #23, and #25) from 1-in-3 day to 1-in-6 day until the City of Paramount has a strategy/contract in place for their monitoring effort.

The updated plan will help maintain a comprehensive, efficient, and cost-effective monitoring effort and meet the increasing demand for more extensive metal monitoring as part of CATI. It should be noted that the City of Paramount owns three time-integrated filter samplers (i.e., two BGI PQ100 and one BGI OMNI) that have been used by the SCAQMD's staff to collect filter samples as part of this monitoring effort. SCAQMD's staff will work with the City of Paramount to provide them with guidance on where to locate their samplers and a list of certified contractors and laboratories to collect and analyze samples for Cr6+. The SCAQMD will perform sampling at selected locations within the community as needed, and as the result of inspection activities or other unexpected events that may arise in the area.



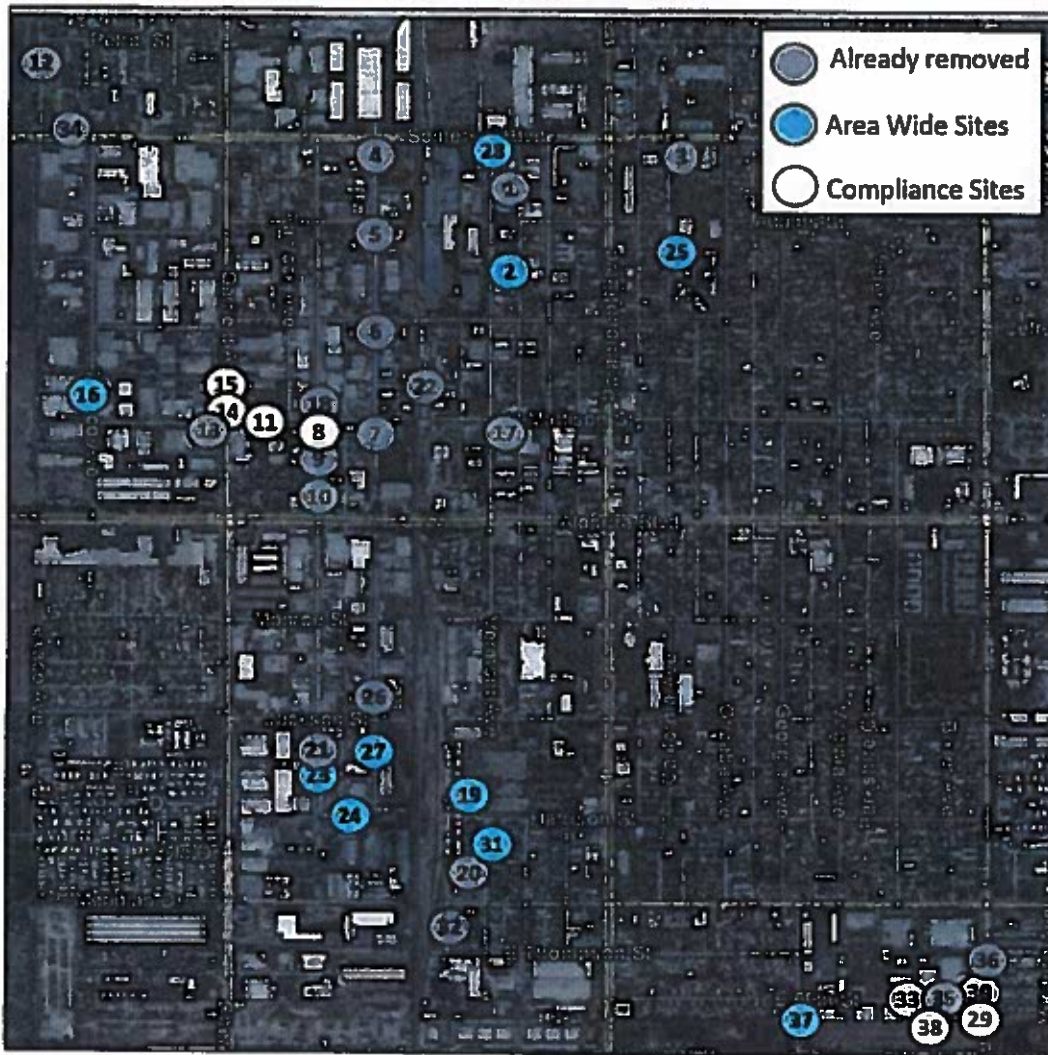


Figure 1. Location of the monitoring sites in the City of Paramount.

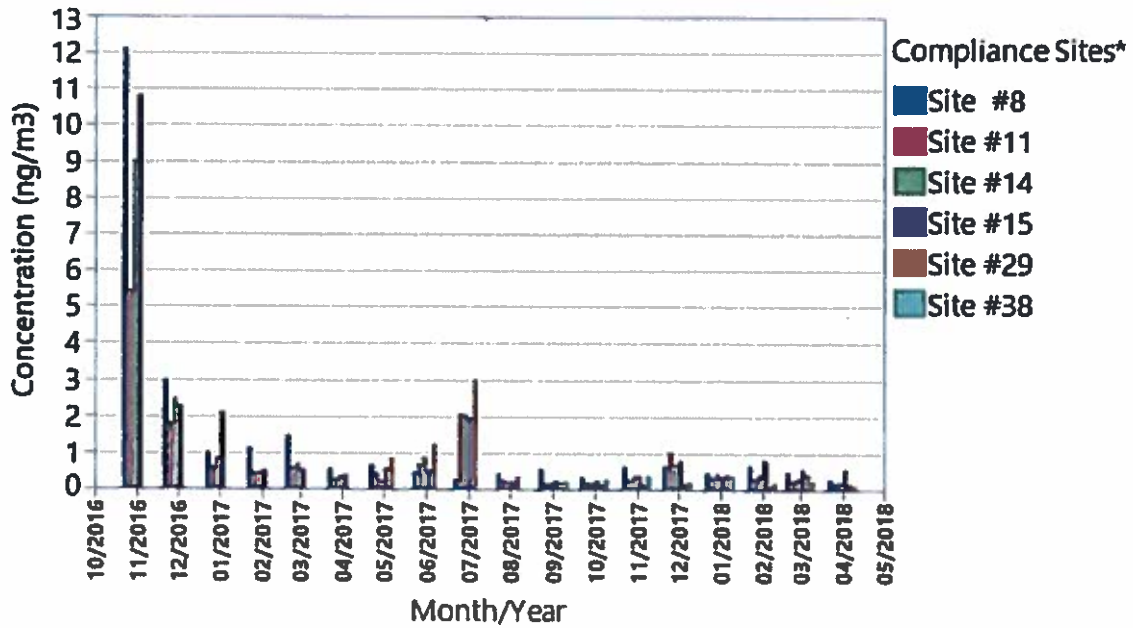


Figure 2. Monthly average levels of hexavalent chromium (Cr6+) at Compliance sites.  
 \*Compliance sites target the facilities that are currently under an Order of Abatement with the SCAQMD's independent Hearing Board.

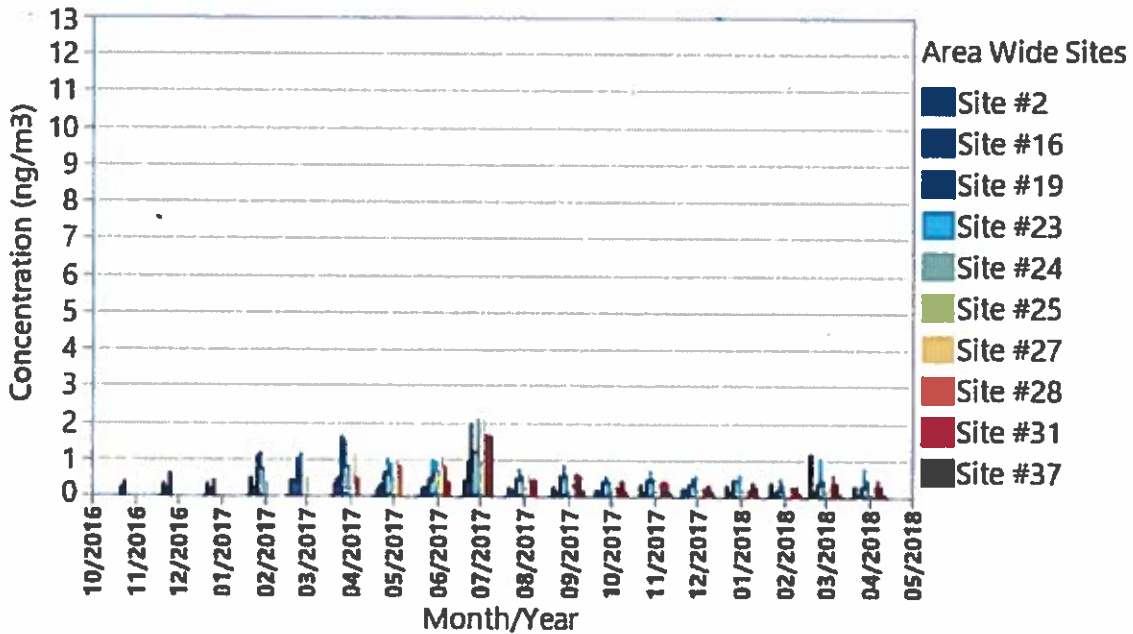


Figure 3. Monthly average levels of hexavalent chromium (Cr6+) at Area Wide sites.

**Table 1. Summary statistics of hexavalent chromium (Cr6+) concentrations at currently-active monitoring sites in the City of Paramount since the beginning of the study. The total number of samples that have been collected and analyzed at each monitoring location is reported in column "N".**

	Site	N	Min (ng/m3)	Max (ng/m3)	Average (ng/m3)	Median (ng/m3)	Target Facility
<b>Compliance Sites</b>	Site #8	179	0.02	26	1.61	0.40	Aerocraft
	Site #11	168	0.05	17	0.92	0.29	Anaplex
	Site #14	170	0.05	18	1.05	0.28	Anaplex
	Site #15	174	0.05	26	1.25	0.35	Anaplex
	Site #29	110	0.05	15.4	0.61	0.20	LubeCo
	Site #38	72	0.05	1.30	0.26	0.17	LubeCo
<b>Area Wide Sites</b>	Site #2	176	0.02	4.07	0.36	0.27	
	Site #16	164	0.03	3.26	0.27	0.15	
	Site #19	156	0.02	5.19	0.69	0.42	
	Site #23	141	0.01	3.38	0.89	0.72	
	Site #24	124	0.07	7.69	0.73	0.61	
	Site #25	137	0.03	4.27	0.34	0.20	
	Site #27	120	0.04	7.66	0.70	0.40	
	Site #28	116	0.04	7.40	0.57	0.33	
	Site #31	98	0.04	3.71	0.51	0.39	
	Site #37	69	0.04	0.59	0.13	0.11	



**Table 2. Summary of the recommended actions for the currently-active monitoring sites in Paramount.**

Site	Recommended action	Recommended sampling frequency
#2	Continue Sampling*	1-in-6 day
#8	Continue Sampling#	1-in-3 day
#11	Continue Sampling#	1-in-3 day
#14	Continue Sampling#	1-in-3 day
#15	Continue Sampling#	1-in-3 day
#16	Continue Sampling#	1-in-3 day
#19	Continue Sampling*	1-in-6 day
#23	Continue Sampling*	1-in-6 day
#24	Remove	-
#25	Continue Sampling*	1-in-6 day
#27	Remove	-
#28	Remove	-
#29	Continue Sampling#	1-in-3 day
#31	Remove	-
#37	Remove	-
#38	Continue Sampling#	1-in-3 day

*\*Sampling will continue at the specified frequency until the City of Paramount has a strategy/contract in place for their monitoring effort*

*#Sampling will continue at the specified frequency until the Orders of Abatement for the facilities closest to these sites have been lifted. Then the monitoring will continue with a 1-in-6 day sampling frequency for a few weeks to ensure that Cr6+ levels remain low after the Orders of Abatement have been lifted.*



**ROUX ASSOCIATES, INC.**  
*Environmental Consulting  
& Management*

March 14, 2018

Meredith Church, PG  
Leighton Consulting  
17781 Cowan  
Irvine, CA 92614

Charlene Contreras, R.E.H.S.  
Environmental Health Manager  
Los Angeles County Dept. of Public Health  
5050 Commerce Drive  
Baldwin Park, CA 91706

Re: European Chemicals Agency's (ECHA) Regulations on Hexavalent Chromium Compounds

Dear Ms. Church and Ms. Contreras:

Roux Associates, Inc. (Roux Associates) presents a summary of our review of ECHA's regulations on hexavalent chromium. This is the deliverable for Task 2 of Roux Associates' February 15, 2018 proposal.

Under the Commission Regulation (EU) No 348/2013 dated April 17, 2013<sup>1</sup> numerous hexavalent chromium compounds are deemed to have probable serious effects to human health or the environment and are therefore included in Annex XIV to Regulation (EC) No 1907/2006:

- Acids generated from chromium trioxide and their oligomers are classified as carcinogenic
- Chromium trioxide and potassium chromate are classified as carcinogenic and mutagenic
- Sodium dichromate, potassium dichromate, ammonium dichromate and sodium chromate are classified as carcinogenic, mutagenic and toxic for reproduction

The inclusion of these compounds in Annex XIV means these compounds are no longer allowed to be on the market or used in the European Union (EU) (as of September 21, 2017 – referred to as the "sunset date"), unless an application for an exemption was filed by March 21, 2016.<sup>2</sup> Applicants may be placed on the authorization list and allowed to use such compounds in compliance with a site-specific chemical safety report issued by ECHA for a specified amount of time.

Numerous EU companies from a broad spectrum of industries (including automobile, aerospace and surface treatment) applied for inclusion on the authorization list for use of chromium trioxide. Each operational use of hexavalent chromium is given a review period based on an estimate on the amount of time it will take to find and make broadly-available an appropriate alternative. For hexavalent chromium compounds, the review period ranges from four to twelve years based on the operational use. Thus, while the ECHA's regulations suggest hexavalent chromium use is banned, in practice it is not.

<sup>1</sup> "Commission Regulation (EU) No 348/2013 of 17 April 2013." Official Journal of the European Union, [eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0348&from=FRN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0348&from=FRN)

<sup>2</sup> "Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006." Official Journal of the European Union, <http://www.reach-compliance.eu/english/legislation/docs/launchers/launch-2006-1907-EC-06.html>

March 14, 2018  
Page 2

Instead, hexavalent chromium is closely regulated and monitored by the ECHA, with the explicit goal of EU industry eventually eliminating its use in all operations.

Table 1 lists the relevant conditions of use for hexavalent chromium and its associated compounds in the EU as required by chemical safety reports for various plating operational uses. Table 1 also compares the conditions of use in the EU to the South Coast Air Quality Management District (SCAQMD) Proposed Amended Rule (PAR) 1469 hexavalent chromium requirements.

ECHA's hexavalent chromium ban has hastened the research for alternatives within the industrial plating industry. The preferred alternative is to perform chromium plating using trivalent chromium instead of hexavalent chromium. Atotech, a producer of electronics and general metal finishings, states that they have a trivalent chromium hard chrome decorative plating process in the market through use of BluCr.<sup>3</sup> Faraday Technology, Inc. has also developed a process (FARADAYIC TriChrome Plating) that successfully replaces hexavalent chromium with trivalent chromium when producing heavy-duty plated products, but which has not yet been adopted throughout the industry.<sup>4</sup>

While research and development has demonstrated that plating processes are possible for use of trivalent chromium as a substitute for hexavalent chromium for numerous chromium plating processes, multiple companies in the aerospace and automobile industry have stated that trivalent chromium would not be a sufficient replacement. These companies claim that trivalent chromium and other alternatives are not feasible economically or for widespread industry-use quite yet. LANXESS believes a trivalent chromium alternative for surface plating will be not be feasible for the aerospace sector until after 2020.<sup>5</sup> Thus, while use of hexavalent chromium is still an option, companies such as LANXESS will follow the conditions of use for hexavalent chromium-related plating activities as required by ECHA. If the ECHA stop allowing exceptions to the hexavalent chromium ban through its authorization list or make the conditions of use prohibitively strict, EU companies would continue to evaluate the cost versus benefit of moving their chromium plating operations to non-EU countries.

If you have any questions, please feel free to call Dr. Adam Love at (415) 967-6023.

Sincerely,

ROUX ASSOCIATES, INC.



Adam Love, Ph.D.  
Vice President/Principal Scientist

<sup>3</sup> "Atotech Launches the First Trivalent Chromium Hard Chrome." Atotech, [www.atotech.com/atotech-launches-the-first-trivalent-chromium-hard-chrome-general-metal-finishing/](http://www.atotech.com/atotech-launches-the-first-trivalent-chromium-hard-chrome-general-metal-finishing/).

<sup>4</sup> "Presidential Green Chemistry Challenge: 2013 Small Business Award." EPA, [Environmental Protection Agency, 20 June 2017, www.epa.gov/greenchemistry/presidential-green-chemistry-challenge-2013-small-business-award](http://www.epa.gov/greenchemistry/presidential-green-chemistry-challenge-2013-small-business-award).

<sup>5</sup> "Analysis of Alternatives for Chromium Trioxide." LANXESS, <https://echa.europa.eu/documents/10162/abfeff08-5b9e-4e89-8296-8d8f08c1aac7>.

ROUX ASSOCIATES, INC.



	Proposed Amended Rule 1469 (2018)		EGHA Conditions of Use
	Tier I*	Tier II**	
<b>Air Sparging</b>	Both Tier I and Tier II tanks that existed before rule adoption will be required to undergo specific modifications to maintain a freeboard height within the range specified in the most current edition of Industrial Ventilation, a Manual of Recommended Practice for Design.	Any air sparged tank with a hexavalent chromium concentration over 1,000 PPM will be required to have add-on pollution controls.	
<b>Best Management Practices</b>	<ul style="list-style-type: none"> <li>Expands requirements for minimization of drag-out to Tier I and Tier II tanks.</li> <li>Cleaning requirements and methods added.</li> <li>Prohibits compressed air cleaning or drying within 15 feet of any hexavalent chromium-related operation without a barrier.</li> </ul>	<ul style="list-style-type: none"> <li>Expands requirements for minimization of drag-out to Tier I and Tier II tanks.</li> <li>Cleaning requirements and methods added.</li> <li>Tank marking requirements added.</li> <li>Prohibits compressed air cleaning or drying within 15 feet of any hexavalent chromium-related operation without a barrier.</li> </ul>	<ul style="list-style-type: none"> <li>Requires plating operations to be inside, at specific temperatures and other indoor conditions.<sup>4</sup></li> <li>Only one electroplating tank of specific dimensions is allowed to decrease surface area of liquid in contact with open air.<sup>4</sup></li> <li>Required storage of CrO3 in small steel barrels.<sup>5</sup></li> <li>Use of electric lift arms to move hangers by lowering/lifting the lock parts from one bath to another. Arms are equipped with integral LEVs to remove gases and mists emitted from the treated parts.<sup>6</sup></li> <li>Use of mechanical walls/covers on the conveyor belt and tanks to reduce fugitive emissions.<sup>7</sup></li> <li>Limits to the amount of hexavalent chromium in mixture, frequency of activity and duration of activity dependent on activity.<sup>7</sup></li> <li>Minimum air exchange rate requirement.<sup>8</sup></li> </ul>
<b>Add-On Air Pollution Control Devices and Emission Standards</b>	<ul style="list-style-type: none"> <li>Removes requirement to utilize a certified chemical fume suppressant.</li> <li>Prohibits the use of PFOS-containing chemical fume suppressant.</li> </ul>	<ul style="list-style-type: none"> <li>Additional add-on air pollution control device requirements/standards for Tier II tanks that are not chromium electroplating or chromic acid anodizing tanks.</li> <li>Additional permit applications.</li> </ul>	<ul style="list-style-type: none"> <li>Exhaust gas management system required with integrated local exhaust ventilations and wet scrubber with efficiency greater than 99%.<sup>9</sup></li> <li>Unnecessary mist generation in the chrome bath is controlled by effective process control and mist suppressants.<sup>9</sup></li> <li>Required use of a wetting agent.<sup>9</sup></li> </ul>

\* Chemical Safety Report for Chromium Trioxide - Abley Cr <https://www.chemsafetyreport.com/entry/1167218767-1304-4305-8719-8a7d5-83443>  
 † Chemical Safety Report for Chromium Trioxide - LANXESS <https://www.chemsafetyreport.com/entry/1167218767-1304-4305-8719-8a7d5-83443>

<p><b>Hexavalent Chromium Phase-out</b></p>	<p>If a facility that contains Tier II tanks and plans to phase-out or reduce hexavalent chromium concentrations within, the tanks will not be subject to the requirements of add-on air pollution control devices based on qualifications with additional regulations.</p>	<p>Required within 4-12 years depending on operational use.</p>
<p><b>Building Enclosures</b></p>	<ul style="list-style-type: none"> <li>• Tier I and Tier II tanks must be operated within a building enclosure beginning 90 days after date of rule adoption. Specific requirements are outlined to qualify a building enclosure. Operation and maintenance requirements will also be put in place.</li> <li>• The building enclosure must comply with both SCAQMD and Cal-OSHA/federal OSHA in regards to worker safety.</li> </ul>	<p>Certain operations required to be conducted indoors.</p>
<p><b>Housekeeping</b></p>	<ul style="list-style-type: none"> <li>• Changes to approved cleaning methods.</li> <li>• Increase frequency of cleaning to weekly.</li> <li>• Containers that contain chromium or chromium-containing waste material shall be kept closed at all times except when filling or emptying.</li> <li>• Requires facility flooring to not be made of fabric or fibrous material.</li> <li>• Adds requirements for installation, modification, or removal of any add-on air pollution control device to prevent fugitive emissions.</li> </ul>	<p>Maintenance/cleaning frequency requirements for equipment including electroplating and rinsing tanks, pumps, heaters, coolers, exhaust scrubbers, sensors and other control equipment, local exhaust ventilation at designated frequencies<sup>5</sup></p>
<p><b>Alternative Compliance Methods, New and Modified Sources, Title V Permit, and Chromium Electroplating or Chromic Acid Anodizing Kits</b></p>	<p>Sections removed.</p>	
<p><b>Source Test Requirements and Test Methods</b></p>	<ul style="list-style-type: none"> <li>• Periodic source tests and emission screenings will become a requirement.</li> <li>• Requires demonstration of adequate slot velocity and push air manifold pressure.</li> </ul>	
<p><b>Certification of Wetting Agent Chemical Fume Suppressant</b></p>	<ul style="list-style-type: none"> <li>• Prohibits the use of PFOS-based chemical fume suppressants and lowering the minimum surface tension of tanks.</li> <li>• Updates certification process.</li> <li>• In lieu of installing or modifying air pollution control technique, the facility can phase-out the use of hexavalent chromium by July 1, 2023.</li> <li>• New certification process that considers additional factors such as toxicity reviews of compounds in chemical fume suppressants.</li> </ul>	<p>Use of approved wetting agent<sup>5</sup></p>
<p><b>Parameter Monitoring</b></p>	<p>Require revised and additional parameter monitoring requirements for add-on air pollution control devices in regards to differential and static pressure, HEPA filters, wetting agent chemical fume suppressants, mechanical fume suppressants.</p>	<p>Worker exposure to hexavalent chromium is monitored systematically through urine samples (biomonitoring).<sup>6</sup></p>



**BARBARA FERRER, Ph.D., M.P.H., M.Ed.**  
Director

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September 27, 2018

**TO:** Each Supervisor

**FROM:** Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director *Barbara Ferrer*

**SUBJECT: UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. DPH has reported to your Board on this issue since January 2017, with the last quarterly report dated July 6, 2018. This quarterly report provides information on four key elements of the interagency response: air quality monitoring, enforcement, public communication, and rulemaking activity.

### **Air Quality Monitoring**

Generally, levels of Chromium-6 have remained low over the last quarter. There was a slight increase observed during the month of July, possibly due to a seasonal increase in production during the summer months. DPH will continue to monitor air levels closely and confer with South Coast Air Quality Monitoring District (SCAQMD) if this increase persists (Attachment 1). The monthly average Chromium-6 concentrations ranged from 0.53 to 0.65 nanograms per meter cubed ( $\text{ng}/\text{m}^3$ ) for industrial areas, 0.46 to 1.20  $\text{ng}/\text{m}^3$  for residential areas, and 0.46 to 0.61  $\text{ng}/\text{m}^3$  for the school location (see Attachment 1). Levels in the school location, industrial, and residential areas are slightly above the significant long-term health risk level of 0.2  $\text{ng}/\text{m}^3$ . Levels across Paramount have generally decreased since last year, but remain higher than ambient levels in other areas of the region (0.04-0.1  $\text{ng}/\text{m}^3$ ). It is expected that levels will decrease further with full implementation of SCAQMD applicable rules (see Rulemaking Activity section).

### **Status of SCAQMD Air Monitoring Network**

The SCAQMD has reduced their air monitoring network from 16 to 11 monitors due to the general decrease of Chromium-6 levels in Paramount, and their need to relocate monitors to other areas that may be subject to air toxic exposure. As a result, there is currently one monitor left for the school location. Please see Attachment 2 for the Updated Air Monitoring Plan for the City of Paramount.



### **Area Schools**

Last June, the Paramount Unified School District (PUSD) agreed to DPH serving in an oversight capacity for air testing inside PUSD classrooms to be conducted by a PUSD contractor at the beginning of the school year. A Memorandum of Understanding to formalize this agreement was drafted, reviewed by counsel from both parties, and is in the process of being signed.

Additionally, school testing has been programmed for September 26 and 27, 2018. Staff from the DPH Toxicology and Environmental Assessment Branch plan to be present to oversee the testing process and provide technical assistance as needed.

### **Enforcement**

Currently, SCAQMD has Orders of Abatement in place pertaining to air emissions for three facilities: Anaplex, Aerocraft, and LubeCo. These Orders of Abatement expire on December 31, 2018 (Anaplex and Aerocraft), and on 12/1/18 (LubeCo.). There is also an Order pertaining to odors for Carlton Forge Works, which is expiring on December 31, 2018. Two orders to temporarily suspend operations were given to Anaplex Corporation by the SCAQMD during the last quarter due to elevated ambient Chromium-6 levels at a monitor just downwind of Anaplex. The orders were given on June 27 and August 9, 2018.

### **Public Communication**

DPH continues to provide information and health education material to Paramount residents by email, phone, in-person meetings, and through online resources. Online resources include a frequently asked questions document that is updated periodically to reflect current issues, relevant directives and orders, and information on air monitoring efforts.

### **Rulemaking Activity**

SCAQMD Rule 1430 aims to reduce particulate matter emissions, in addition to odors, from metal grinding and cutting operations at metal forging facilities. The Rule incorporates point of emission controls, HEPA filtration, total enclosures with negative air, and housekeeping measures. The Rule also requires periodic and continuous testing of controls, installation of signage with contact information for the facility and SCAQMD visible to the public, and recordkeeping for housekeeping, monitoring, maintenance, and air quality complaints. Of the four metal forging facilities in the City of Paramount, all four require and have installed total enclosures. All four have also submitted grinding and control equipment applications. Three (Press Forge, Carlton Forge Works, and Mattco Forge, Inc.) have received control equipment construction permits with a six-month completion timeline. One (Weber Metals) is pending City approval of its control equipment construction permit.

SCAQMD is in the process of updating its Rule 1469 to include requirements for hexavalent chromium-containing tanks in electroplating or chromic acid anodizing operations. These requirements include building enclosures, enhanced housekeeping and best management practices, periodic source testing, and permanent total enclosures for facility areas where chromium-containing tanks are located. A public hearing on the updated Rule was held on September 7, 2018.

Each Supervisor  
September 27, 2018  
Page 3

SCAQMD Proposed Rule 1480 plans to expand monitoring for metal emission sources and approach monitoring of toxic metals in a more inclusive manner instead of rule-by-rule or with legal orders. DPH staff have prepared a set of recommendations for SCAQMD Proposed Rule 1480 – Air Toxic Metals Monitoring related to the dissemination of test results to the community.

The California Air Resources Board (CARB) has announced that it will be amending its Hexavalent Chromium Airborne Toxic Control Measure for Chrome Plating and Chromic Acid Anodizing Operations (Chrome Plating ATCM) in order to minimize community exposure to hexavalent chromium and other compounds used in plating operations. DPH is engaged in discussions with CARB to provide input on the development of this amendment to ensure community health is protected to the maximum extent possible. Suggestions include, but are not limited to, the use of less toxic trivalent chromium, engineering control measures, and possible alternatives to chemical fume suppressants.

DPH will continue to work closely with SCAQMD, CARB, the Fire Department, and County Counsel to report quarterly on progress to abate hexavalent chromium levels and protect the public's health in the City of Paramount.

If you have questions or need additional information, please let me know.

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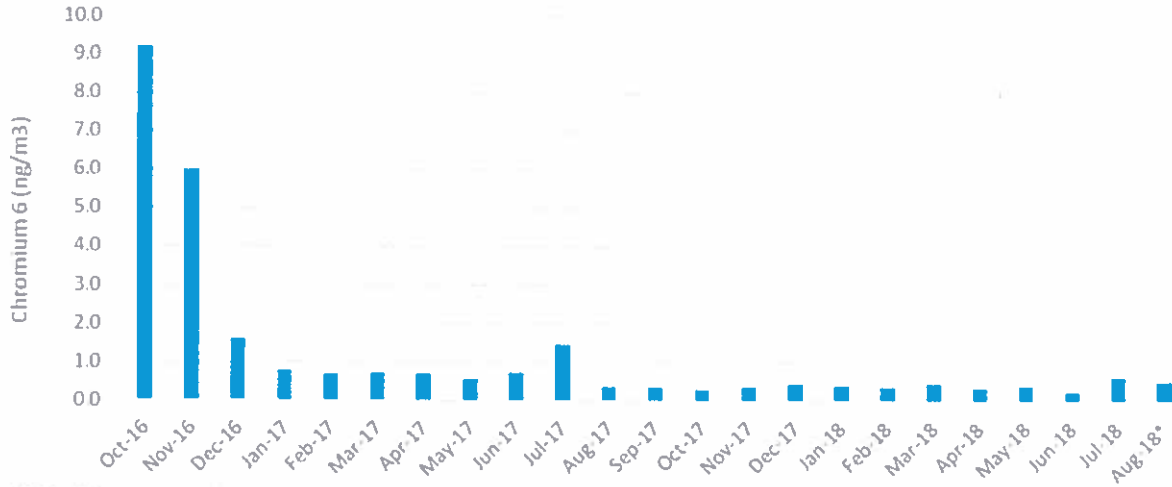
Attachments

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors

# ATTACHMENT 1

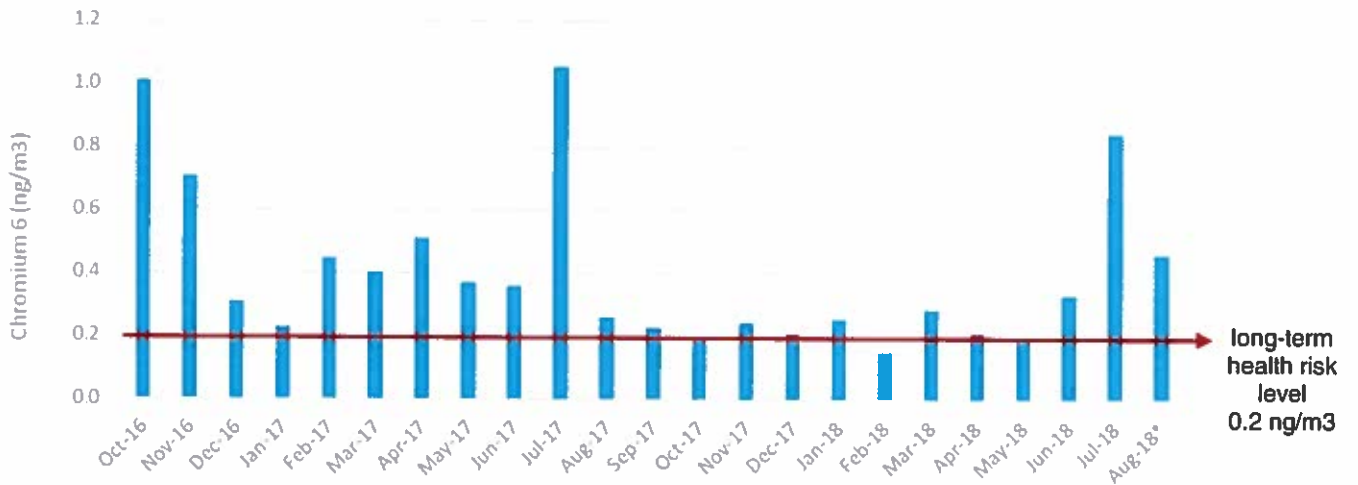
## Chromium-6 Graphs for Industrial and Residential Areas in Paramount

Figure 1. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Industrial Facilities in Paramount



\* Partial data is available for August, 2018 as of the date of this report

Figure 2. Chromium 6 in Outdoor Air (ng/m<sup>3</sup>)  
Near Residential Areas and School Areas in Paramount



\* Partial data is available for August, 2018 as of the date of this report.

Frequency of measurements for residential areas was reduced from every 3 days to every 6 days as of May 29, 2018.



## Updated Air Monitoring Plan for the City of Paramount

The South Coast Air Quality Management District (SCAQMD) has been collecting air samples for toxic metals analysis in the City of Paramount since 2013. This investigation focused on two toxic metals of concern: nickel and hexavalent chromium (Cr6+). In July 2016, a larger number of samplers were deployed to allow the SCAQMD to better measure spatial and temporal variations of Cr6+ in the area and identify its potential sources. Once potential sources were identified, the sampling strategy was adjusted to focus on specific facilities and on characterizing Cr6+ levels in the adjacent communities. As a result, several facilities made a range of improvements, some voluntary and some through rule changes and enforcement actions. These changes have substantially reduced ambient Cr6+ levels in the City of Paramount (Paramount) area.

Throughout this period, air monitoring in Paramount has occurred at a total of 38 locations (Figure 1) and 12 schools. School sampling has been supported by the California Air Resources Board. Currently, the SCAQMD collects air samples for Cr6+ analysis at 16 locations in the City of Paramount. Among these active monitoring locations, six are adjacent to facilities that are currently under an Order of Abatement with the SCAQMD's independent Hearing Board ("Compliance" sites; see white circles in Figure 1). The remaining monitoring sites are close to other potential sources or near residential areas and sensitive receptors of the City ("Area Wide" sites; see blue circles in Figure 1).

Table 1 provides summary statistics of Cr6+ concentrations measured at each currently-active sites since the beginning of this study as well as the facilities being monitored to ensure compliance with an Order of Abatement. Figures 2 and 3 illustrate the monthly average Cr6+ levels at "Compliance" and "Area Wide" sites, respectively, since the beginning of this study. It is evident that ambient Cr6+ concentrations at all locations have declined substantially over time, and monthly average Cr6+ levels at all currently-active sites have been consistently near or below 1ng/m<sup>3</sup> during the past nine months.

Because Cr6+ levels in the City of Paramount have been declining steadily and are now within the typical levels, the size of this monitoring network can be reduced to focus on other areas that have higher potential for air toxics exposure. Considering the large number of samples that have been collected and analyzed at each monitoring location (see column "N" in Table 1) and the consistently low Cr6+ levels measured over the past nine months (Figures 2 and 3), staff recommends to modify the sampling strategy as described below and summarized in Table 2:

- Continue monitoring at "Compliance" sites #8, #11, #14, #15 and at "Area Wide" site #16 with a 1-in-3 day sampling frequency until the Order of Abatement for the facilities closest to these sites (i.e., Anaplex and Aerocraft) has been lifted. To ensure that Cr6+ levels remain low after the Order of Abatement has been lifted, continue monitoring at the aforementioned sites with a 1-in-6 day sampling frequency for a few weeks before removing the samplers.

- Continue monitoring at “Compliance” sites #29 and #38 with a 1-in-3 day sampling frequency until the Order of Abatement for the facility closest to these sites (i.e., LubeCo) has been lifted. To ensure that Cr6+ levels remain low after the Order of Abatement has been lifted, continue monitoring at the aforementioned sites with a 1-in-6 day sampling frequency for a few weeks before removing the samplers.
- Remove “Area Wide” samplers #24, #27, #28, #31, and #37 in May, 2018.
- Decrease the sampling frequency of the remaining “Area Wide” sites (#2, #19, #23, and #25) from 1-in-3 day to 1-in-6 day until the City of Paramount has a strategy/contract in place for their monitoring effort.

The updated plan will help maintain a comprehensive, efficient, and cost-effective monitoring effort and meet the increasing demand for more extensive metal monitoring as part of CATI. It should be noted that the City of Paramount owns three time-integrated filter samplers (i.e., two BGI PQ100 and one BGI OMNI) that have been used by the SCAQMD’s staff to collect filter samples as part of this monitoring effort. SCAQMD’s staff will work with the City of Paramount to provide them with guidance on where to locate their samplers and a list of certified contractors and laboratories to collect and analyze samples for Cr6+. The SCAQMD will perform sampling at selected locations within the community as needed, and as the result of inspection activities or other unexpected events that may arise in the area.

Figure 1. Location of the monitoring sites in the City of Paramount.

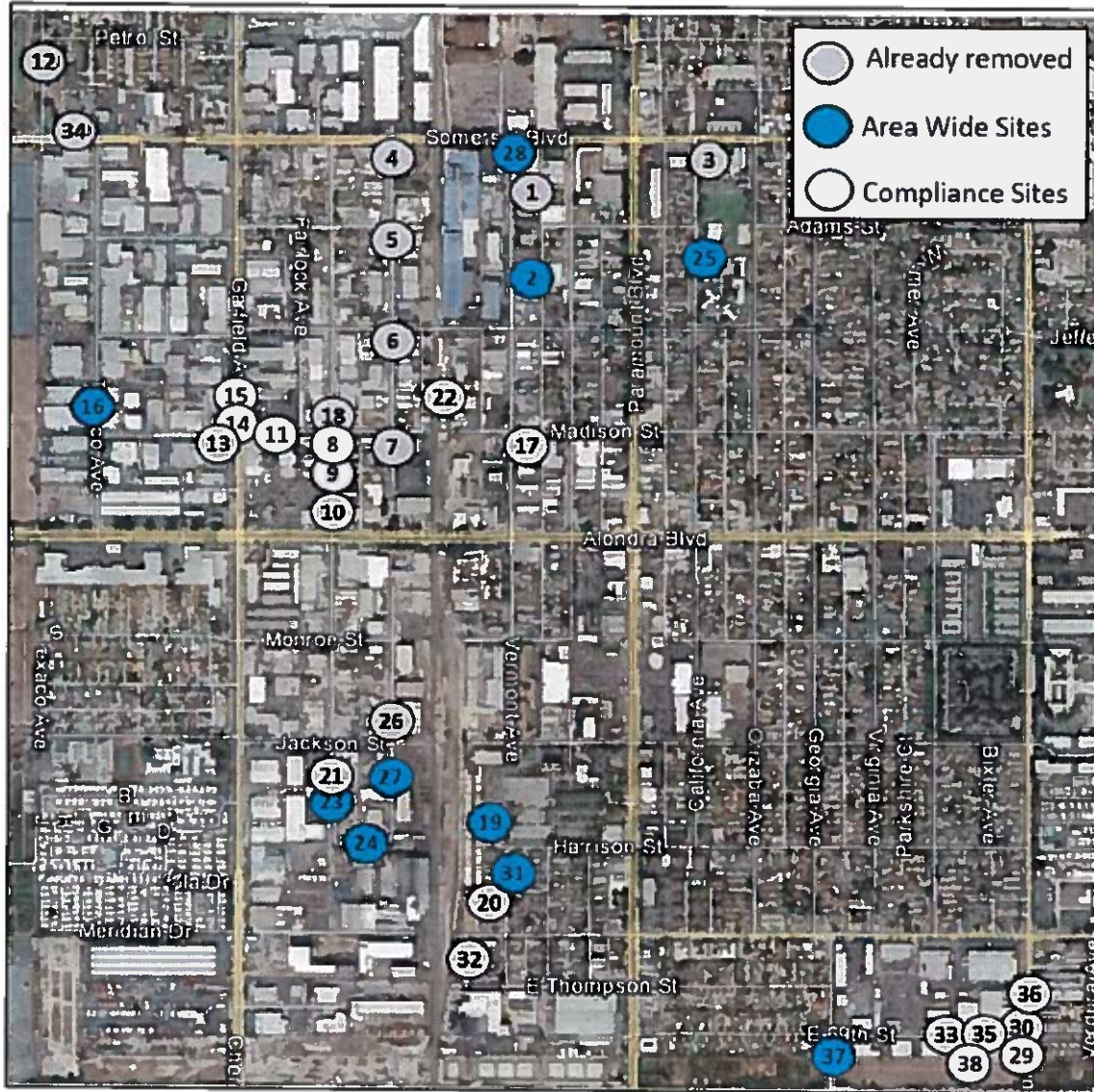




Figure 2. Monthly average levels of hexavalent chromium (Cr6+) at Compliance sites.

\*Compliance sites target the facilities that are currently under an Order of Abatement with the SCAQMD's independent Hearing Board.

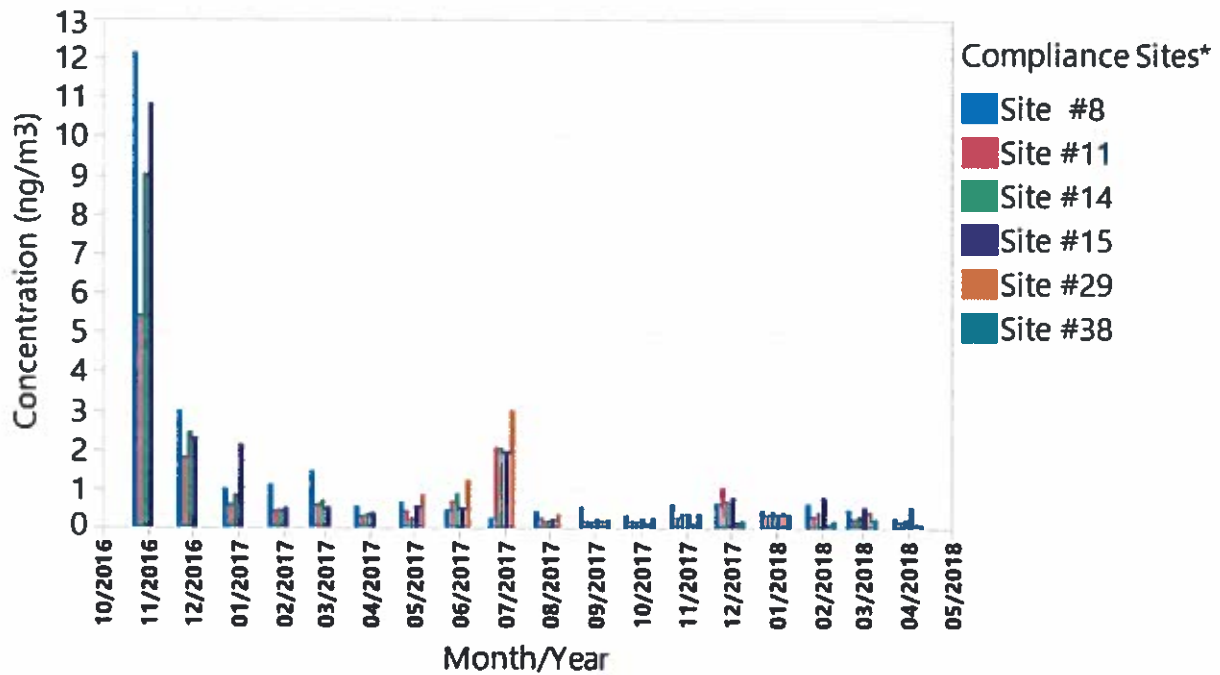
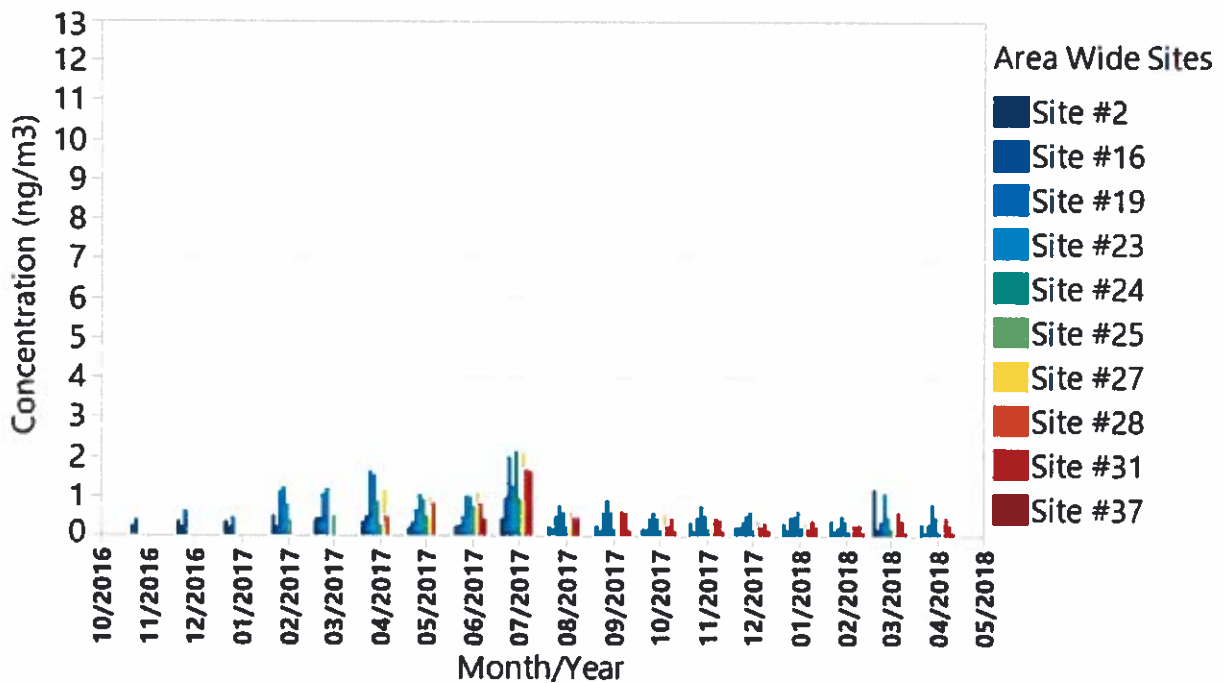


Figure 3. Monthly average levels of hexavalent chromium (Cr6+) at Area Wide sites.



**Table 1. Summary statistics of hexavalent chromium (Cr6+) concentrations at currently-active monitoring sites in the City of Paramount since the beginning of the study. The total number of samples that have been collected and analyzed at each monitoring location is reported in column "N".**

	Site	N	Min (ng/m3)	Max (ng/m3)	Average (ng/m3)	Median (ng/m3)	Target Facility
<b>Compliance Sites</b>	Site #8	179	0.02	26	1.61	0.40	Aerocraft
	Site #11	168	0.05	17	0.92	0.29	Anaplex
	Site #14	170	0.05	18	1.05	0.28	Anaplex
	Site #15	174	0.05	26	1.25	0.35	Anaplex
	Site #29	110	0.05	15.4	0.61	0.20	LubeCo
	Site #38	72	0.05	1.30	0.26	0.17	LubeCo
<b>Area Wide Sites</b>	Site #2	176	0.02	4.07	0.36	0.27	
	Site #16	164	0.03	3.26	0.27	0.15	
	Site #19	156	0.02	5.19	0.69	0.42	
	Site #23	141	0.01	3.38	0.89	0.72	
	Site #24	124	0.07	7.69	0.73	0.61	
	Site #25	137	0.03	4.27	0.34	0.20	
	Site #27	120	0.04	7.66	0.70	0.40	
	Site #28	116	0.04	7.40	0.57	0.33	
	Site #31	98	0.04	3.71	0.51	0.39	
	Site #37	69	0.04	0.59	0.13	0.11	

**Table 2. Summary of the recommended actions for the currently-active monitoring sites in Paramount.**

<b>Site</b>	<b>Recommended action</b>	<b>Recommended sampling frequency</b>
#2	Continue Sampling*	1-in-6 day
#8	Continue Sampling#	1-in-3 day
#11	Continue Sampling#	1-in-3 day
#14	Continue Sampling#	1-in-3 day
#15	Continue Sampling#	1-in-3 day
#16	Continue Sampling#	1-in-3 day
#19	Continue Sampling*	1-in-6 day
#23	Continue Sampling*	1-in-6 day
#24	Remove	-
#25	Continue Sampling*	1-in-6 day
#27	Remove	-
#28	Remove	-
#29	Continue Sampling#	1-in-3 day
#31	Remove	-
#37	Remove	-
#38	Continue Sampling#	1-in-3 day

*\*Sampling will continue at the specified frequency until the City of Paramount has a strategy/contract in place for their monitoring effort*

*\*Sampling will continue at the specified frequency until the Orders of Abatement for the facilities closest to these sites have been lifted. Then the monitoring will continue with a 1-in-6 day sampling frequency for a few weeks to ensure that Cr6+ levels remain low after the Orders of Abatement have been lifted.*



Recordkeeping and Reporting	• Clarifications and additions for inspection records	• Required inspection documents. <sup>5</sup> • Required regular monitoring and reporting of hexavalent chromium emissions. <sup>6</sup>
Exemptions	Removes exemption for certain process tanks and suspension of requirements during periods of equipment breakdown.	
Conditional Requirements for Permanent Total Enclosure	Introduces conditional requirements and permitting for permanent total enclosure installation.	Refer to "Add-On Air Pollution Control Devices and Emission Standards" section.

<sup>5</sup> "Chemical Safety Report for Chromium Trioxide," Hoegherson Court Real Surface Technologies V O F. Et. Al. <https://www.regulations.gov/document/161621/161621.pdf>



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December 21, 2018

TO: Each Supervisor

FROM: Barbara Ferrer, Ph.D., M.P.H., M.Ed.  
Director

SUBJECT: **UPDATE ON PROGRESS TO ABATE ELEVATED HEXAVALENT CHROMIUM LEVELS IN THE CITY OF PARAMOUNT**

On December 20, 2016, your Board instructed the Department of Public Health (DPH) to report back on the progress to abate the endangerment posed by elevated hexavalent chromium (“Chromium-6”) emissions in the City of Paramount. DPH has reported to the Board on this issue since January 2017, with the last quarterly report dated September 24, 2018. This quarterly report provides information on four key elements of the interagency response: air quality monitoring, enforcement, communication and engagement, and rulemaking activity. Throughout 2018, DPH has focused its attention on addressing potential health risks posed by Chromium-6 across the County.

### **Air Quality Monitoring**

The Southern California Air Quality Monitoring District (SCAQMD) continues to monitor for hexavalent chromium at 11 locations. This network is focused on compliance monitoring points outside of facilities currently under Orders for Abatement for Chromium-6 (Anaplex, Aerocraft and LubeCo). When Chromium-6 concentrations (measured over a 24-hour period) at the compliance monitoring points exceed 1 nanogram per meter cubed ( $\text{ng}/\text{m}^3$ ), the SCAQMD requires shut-down of all chromium-emitting processes. In the last quarter, two shut downs at Anaplex have been triggered on August 9 and October 4, 2018.

Air monitoring data are available for the months of July-October 2018. Monthly averages of Chromium-6 concentrations for July through October 2018 ranged from 0.29 to 0.65  $\text{ng}/\text{m}^3$  for industrial areas, and 0.23 to 0.84  $\text{ng}/\text{m}^3$  for residential and school areas (see attachment). The monthly averages are above the significant long-term health risk level of 0.2  $\text{ng}/\text{m}^3$  and

ambient levels in other areas of the region (0.04-0.1 ng/m<sup>3</sup>). Higher Chromium-6 concentrations in the month of July are most likely due to Fourth of July fireworks; however, the concentrations of Chromium-6 recorded during other months this quarter are also higher than previous months. While the cause of these increases has not yet been identified, DPH is working closely with regulatory partners to investigate and determine where additional efforts can be directed to bring concentrations below the long-term health risk level.

Overall, the air monitoring results indicate the need for further emission controls and continued monitoring at chromium-emitting facilities in Paramount. There is also a need to increase outreach with agencies and the public to draw more attention to this ongoing problem. To this end, DPH is actively engaged in activities to reduce and control Chromium-6 emissions by working with regulatory partners, commenting on proposed State-level regulations, developing articles and policy briefs, and engaging with industry stakeholders.

#### *Indoor School Sampling*

In June 2018, the Paramount Unified School District (PUSD) agreed for DPH to serve in an oversight capacity for air testing inside PUSD classrooms to be conducted by a PUSD contractor at the beginning of the school year. A Memorandum of Understanding to formalize this agreement was signed on September 26, 2018. Sampling was conducted by Executive Environmental, a contractor for PUSD, on September 26 and 27, 2018. Gaines and Lincoln elementary schools were selected for sampling, because of their proximity to the metal finishing facilities and higher Chromium-6 levels in outdoor air. DPH staff members were present to oversee the sampling process and provide technical assistance as needed. Sampling results show that Chromium-6 was not detected above laboratory reporting limits in indoor air or in wipe samples at either Gaines or Lincoln elementary schools. These results confirm that Chromium-6 in outdoor air is the primary public health concern in the area. DPH recommended to PUSD that it perform regular preventive cleanings, maintenance of building controls, and periodic monitoring. A full report of the test results is expected by the end of December 2018 from Executive Environmental.

#### **Enforcement**

Currently, SCAQMD has three Orders of Abatement for Chromium-6 air emissions at Anaplex, Aerocraft, and LubeCo. Additionally, there is one order pertaining to odors at Carlton Forge Works. As part of the Orders of Abatement, Anaplex and Aerocraft were required to develop health risk assessments and risk reduction plans. These plans will allow SCAQMD to enforce pollution control measures, including, but not limited to, curtailments. After December 2018, the SCAQMD enforcement mechanism will transition from the temporary Orders of Abatement to more permanent risk reduction plans. Public meetings were held on December 1, 2018 to answer questions about health concerns and what is being done to reduce emissions. DPH staff attended both public meetings and is providing input to SCAQMD on the risk reduction plans.

#### **Communication and Engagement**

DPH continues to provide information and health education materials to Paramount residents by email, phone, in-person meetings, and through online resources. Online resources include a frequently asked questions document that is updated periodically to reflect current issues, relevant directives and orders, and information on air monitoring efforts.



### *Metal Finishing Technology Symposium*

DPH and the City of Los Angeles Department of Sanitation & Environment are convening a Metal Finishing Symposium on January 23, 2019 at the Los Angeles Trade Tech College. The target audience is composed of metal finishing companies and their clients. The Symposium will provide information on advanced technologies for reducing environmental impacts from metal finishing processes, and include success stories from leading businesses, examples of innovation technology for manufacturing, and information on green incentives and loans.

### **Rulemaking Activity**

DPH continues to be involved in reviewing the development and implementation of SCAQMD rules to prevent exposure to hexavalent chromium across the County, as well as other statewide efforts.

### *SCAQMD Rule 1430*

SCAQMD Rule 1430, adopted in March 2017, aims to reduce particulate matter emissions, in addition to odors, from metal grinding and cutting operations at metal forging facilities. This rule incorporates point of emission controls, HEPA filtration, periodic testing, general housekeeping, total enclosures with negative air, and housekeeping measures. Of the four metal forging facilities in the City of Paramount, all four require and have installed total enclosures. All four have submitted grinding and control equipment applications. Three facilities (Press Forge, Carlton Forge Works, and Mattco Forge, Inc.) have received control equipment construction permits with a six-month completion timeline; one facility (Weber Metals) is pending City approval.

### *SCAQMD Rule 1469*

SCAQMD has continued stakeholder working group meetings to revise its Rule 1469, which will include requirements for hexavalent chromium-containing tanks in electroplating or chromic acid anodizing operations. These requirements include building enclosures, enhanced housekeeping and best management practices, periodic source testing, and permanent total enclosures for facility areas where chromium-containing tanks are located. This rule does not require the more stringent mitigation control of Rule 1430, which is the total enclosure with negative air. DPH has provided input on this rule, and is also pursuing other opportunities to achieve more protective pollution control measures through engagement in State-level rule development and with industry stakeholders to encourage adoption of technologies to reduce environmental impacts.

### *California Air Resources Board (CARB)*

CARB has announced that it will be amending its Hexavalent Chromium Airborne Toxic Control Measure for Chrome Plating and Chromic Acid Anodizing Operations (Chrome Plating ATCM) in order to minimize community exposure to hexavalent chromium and other compounds used in plating operations. DPH will engage in discussions with CARB and provide input as this amendment is developed to ensure community health is protected. Suggestions include, but are not limited to, the use of less toxic trivalent chromium, enhanced engineering control measures, and possible alternatives to chemical fume suppressants. CARB sent a survey to chrome plating and anodizing facilities in early October 2018 to collect information on technologies, costs, and operational practices to inform the amendments to the Chrome Plating ATCM.

Each Supervisor  
December 21, 2018  
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DPH will continue to work closely with SCAQMD, CARB, the Fire Department, and County Counsel to report quarterly on progress to protect the public's health in the City of Paramount.

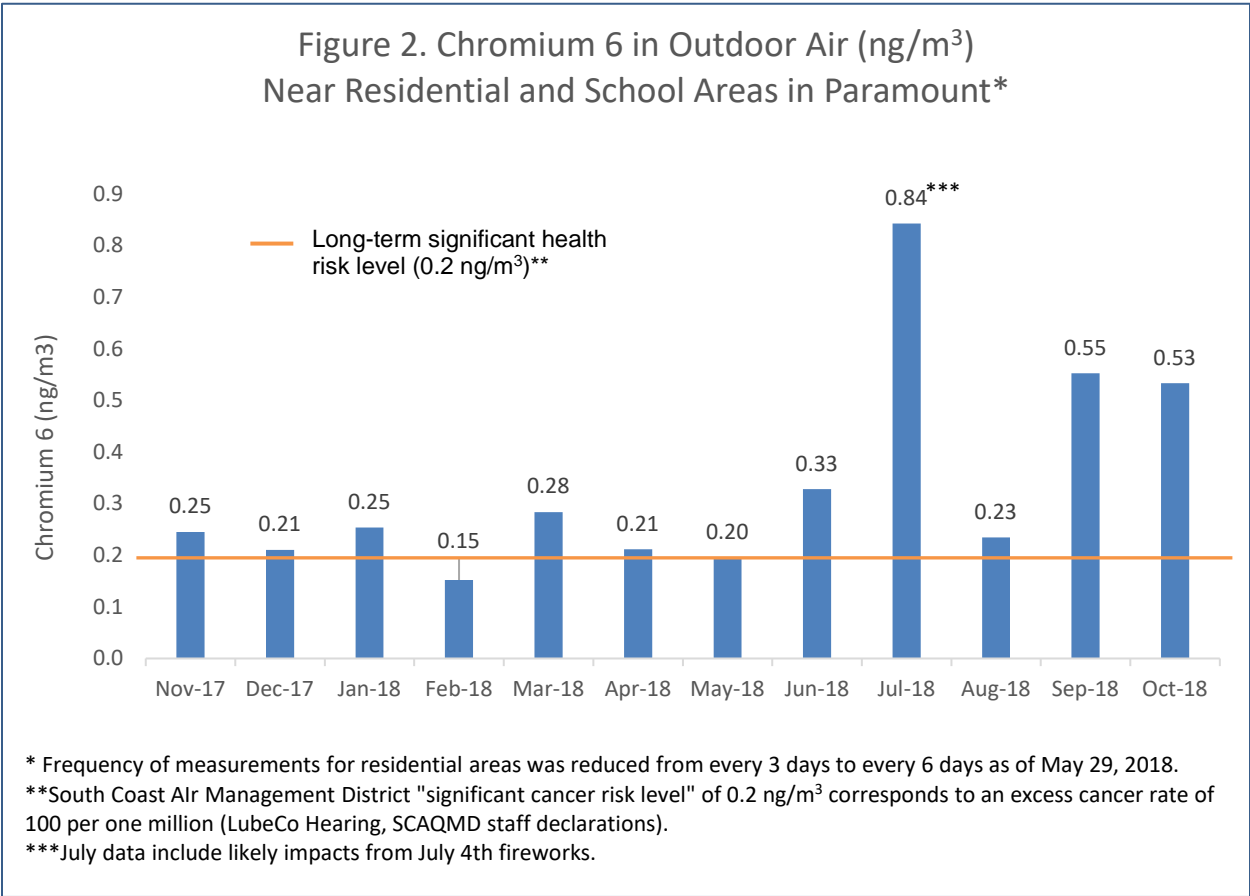
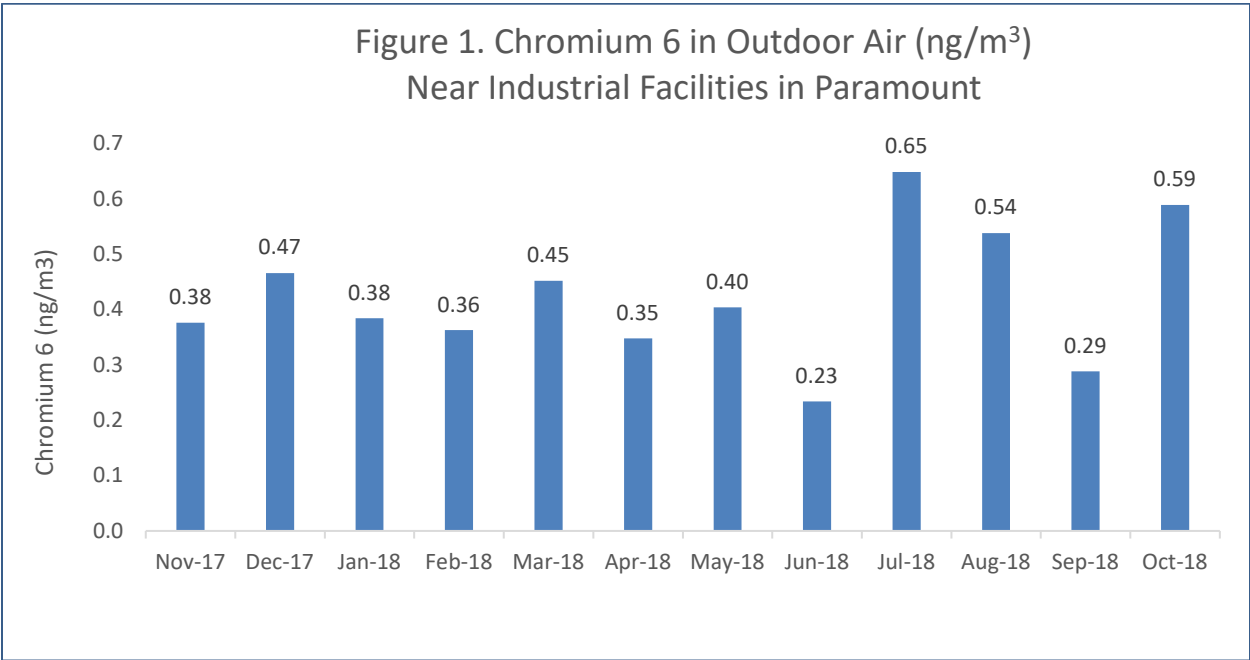
If you have questions or need additional information, please let me know.

BF:ab

Attachment

c: Chief Executive Officer  
County Counsel  
Executive Officer, Board of Supervisors

**Chromium-6 Graphs for Industrial and Residential Areas in Paramount**



\* Frequency of measurements for residential areas was reduced from every 3 days to every 6 days as of May 29, 2018.  
 \*\*South Coast Air Management District "significant cancer risk level" of 0.2 ng/m<sup>3</sup> corresponds to an excess cancer rate of 100 per one million (LubeCo Hearing, SCAQMD staff declarations).  
 \*\*\*July data include likely impacts from July 4th fireworks.