



Industrial Hygiene • Air Quality • Lead & Asbestos • Training • Health & Safety

**INDUSTRIAL HYGIENE SURVEY REPORT
PARAMOUNT UNIFIED SCHOOL DISTRICT
VARIOUS SITES
PARAMOUNT, CALIFORNIA**

Prepared for:

Mr. Ruben Frutos
Assistant Superintendent of Business Services
Paramount Unified School District
15110 South California Avenue
Paramount, California 90723

Prepared by:

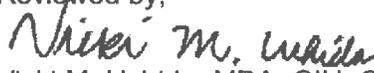
Executive Environmental
310 East Foothill Boulevard, Suite 200
Arcadia, California 91006

Report by,


Daniel H. Ginsborg, MSIH, CIH, CSP
Chief Executive Officer/Principal Industrial Hygienist



Reviewed by,


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Senior Industrial Hygienist




Kay Mills, MSIH, CSP
Senior Industrial Hygienist



September 30, 2017
EE Project # 16-A0007-0237 & -0237.1
ASCIP Project # LC6627

TABLE OF CONTENTS

I.	PURPOSE.....	4
II.	SUMMARY OF FINDINGS.....	4
III.	BACKGROUND AND GENERAL OBSERVATIONS.....	5
	THE SURROUNDING AREA AND PARAMOUNT USD SCHOOLS	5
	The Surrounding Area.....	5
	The Schools.....	6
	FIELD OBSERVATIONS	6
	August 4, 2017.....	6
	August 4-9, 2011	6
IV.	SURVEY PROCEDURES	6
	HEXAVALENT CHROMIUM (CR(VI)).....	6
	CO ₂ , TEMPERATURE, RELATIVE HUMIDITY	7
V.	RESULTS.....	7
	Table I – Ambient Hexavalent Chromium (Cr(VI)) Results.....	9
VI.	CONCLUSION	10
VII.	RECOMMENDATIONS	10
VIII.	DISCLAIMER	11
APPENDICES		
	Appendix A – Laboratory Reports	
	Appendix B – Photograph Log	
	Appendix C – Step-by-Step Sampling Procedure	

**INDUSTRIAL HYGIENE SURVEY REPORT
PARAMOUNT UNIFIED SCHOOL DISTRICT
VARIOUS SITES**

EE Project #: 16-A0007-0237 and -0237.1

ASCIP SRF #: LC6627

Client: Ruben Frutos
Assistant Superintendent of Business Services
Paramount Unified School District
15110 South California Avenue
Paramount, California 90723

Survey Dates: August 4 to 9, 2017

Survey By: Mr. Daniel H. Ginsborg, MSIH, CIH, CSP
Chief Executive Officer/Principal Industrial Hygienist, Executive Environmental (EE) (8/4/17)

Ms. Kay Mills, MSIH, CSP
Senior Industrial Hygienist, EE (August 4, 2017)

Mr. Tim Galeana, CAC, CLP
Senior Project Manager, EE (August 4, 2017)

Mr. Danny Vargas (August 4, 6, 7, 8, 9, 2017)
Industrial Hygienist, EE

Mr. David Hernandez (August 5, 2017)
Industrial Hygienist, EE

Report By: Mr. Daniel H. Ginsborg, MSIH, CIH, CSP
Chief Executive Officer, EE

Reviewed By: Ms. Vicki M. Uchida, MBA, CIH, CSP
Senior Industrial Hygienist, EE

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Senior Industrial Hygienist, EE

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I. PURPOSE

The purpose of this report is two-fold. First, to measure Hexavalent Chromium (Chromium VI, hereafter (Cr(VI))) and standard indoor air quality (IAQ) parameters at various schools in the Paramount Unified School District (hereinafter, the District). Second, to determine if the Cr(VI) as a source of air pollution from local business is being drawn into various classrooms under typical classroom conditions in excess of the California Office of Environmental Health Hazard Assessment's (OEHHA's) No Significant Risk Level (NSRL) of 0.001 microgram per day ($\mu\text{g}/\text{day}$).^A This survey was provided by and partially funded as a benefit of membership in the Alliance of Schools for Cooperative Insurance Programs (ASCIP).

II. SUMMARY OF FINDINGS

The purpose of this study was to measure chromium as hexavalent (Cr(VI)) and standard IAQ parameters at various District sites including: Abraham Lincoln Elementary School (Permanent Room 11, Portable Room 31, and Exterior on the Roof of the Faculty Lounge); Frank J. Zamboni Middle School (Permanent Room C3, Portable Room 9, and Exterior on the Roof of Room 1); Leona Jackson Middle School^B (Permanent Room 8); Major Lynn Mokler Elementary School (Permanent Room 8, Portable Room 21, and Exterior on the Roof of Room 6); and Wesley Gaines Elementary School (Portable Room 23, and Exterior on the Roof of Room 1). The results of the study indicate the following:

- **No airborne Hexavalent Chromium (Cr(VI)) was detected inside any of the classrooms during the five days of sampling.** Small quantities of Cr(VI) was detected in the ambient outdoors air from air pollution from local manufacturing during the same sampling period that classrooms were monitored.
- Cr(VI) results inside the classrooms was **below** the limit of detection and below the OEHHA NSRL for inhalation of 0.001 $\mu\text{g}/\text{m}^3$. Outdoor levels measured ranged from less than 0.39 to 0.40 $\mu\text{g}/\text{m}^3$. Additionally, these levels are **well below** occupational exposure levels established by California Division of Occupational Safety and Health (DOSH -- better known as Cal/OSHA) as referenced in Table I.
- The current Heating, Ventilation and Air Conditioning (HVAC) Unit filters MERV^C 10 are effective in that there was **no measurable Cr(VI) inside the room even though there were levels measured outside at two locations.**
- Although the rooms were unoccupied, Carbon Dioxide (CO_2) levels were **well within** acceptable limits. Levels inside the building ranged from 508 to 724 ppm, compared to approximately 500 ppm outdoors. CO_2 levels, an indicator of adequacy of fresh, outside air supply, were generally below the 700 ppm plus background guideline level (approximately 1,200 ppm) recommended by the American Society for Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). All levels measured were **well below** the 5,000 ppm Cal/OSHA 8-hour time-weighted average (TWA) Permissible Exposure Limit (PEL).
- Temperature levels were within the acceptable winter comfort guidelines recommended by ASHRAE of 75 to 80.5 degrees Fahrenheit in the summer and 68.5 to 75°F in the winter.^D

^A <https://oehha.ca.gov/chemicals/chromium-hexavalent>

^B The Jackson Middle School and the Gaines Elementary School are one site with two separate schools. For sampling purposes, the two sites were treated as one site.

^C MERV – Minimum efficiency reporting value, commonly known as MERV rating, is a measurement scale designed in 1987 by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to rate the effectiveness of air filters

^D <https://www.cdc.gov/niosh/topics/indoorenv/temperature.html>

- Relative humidity measurements for **all indoor** locations were within the comfort guideline range of 30 to 60 percent recommended by ASHRAE.
- Based on the data collected to date, observations and measurements, in terms of potential exposure to Cr(VI), the classrooms are safe to occupy and for continuous use with the airhandler in operation during all periods of occupancy.

The laboratory report is found in Appendix A. A photograph Log is in Appendix B. The Step-by-Step Sampling Procedure is in Appendix C.

III. BACKGROUND AND GENERAL OBSERVATIONS

Executive Environmental (EE) was first contacted by the District in December 2016. The South Coast Air Quality Management District (hereinafter, SCAQMD) has conducted an ongoing investigation to identify and address sources of Cr(VI) air pollution in the City of Paramount. In conjunction with the California Air Resources Board (CARB), the investigation was conducted at various schools and various sites in Paramount in order to assess whether elevated levels of Cr(VI) (found in some industrial areas) may also be found at local Paramount schools.^E SCAQMD clarified on March 30, 2017:

“It should be noted that the Orders for Abatement for Aerocraft and Anaplex specify a 1.0 ng/m³ threshold as an enforcement level, based on the average across samples from 3 separate days. This 1.0 ng/m³ threshold is specifically for the purpose of enforcing these Orders; in other words, this is a trigger level for these facilities to stop their Cr6[Cr(VI)]-producing (industrial) activities. However, the 1.0 ng/m³ level should not be interpreted as a trigger level for residents or students to modify their personal activities. Importantly, the main concern with Cr6 is with long-term exposure (for example, years to decades). Therefore, reducing your exposures to Cr6 on a single day or even a handful of days would not have much impact on your long-term cancer risk [underlining added for emphasis].”^F

THE SURROUNDING AREA AND PARAMOUNT USD SCHOOLS

The Surrounding Area: The surrounding area of the various school sites includes Carlton Forge Works (7743 Adams St, Paramount, CA 90723), which manufactures forged high-temperature alloy rings for aerospace, gas turbine, industrial, commercial and nuclear industries, using principal alloy metals such as nickel, titanium, aluminum, cobalt, zirconium, niobium, and iron, as well as other high temperature metals with special properties. Carlton Forge Works has been subject to public complaints beginning in 2012-2013, which allege that it serves as the source of a burning metallic odor in the surrounding area. The complaints prompted ongoing investigations and odor surveillance activities in the area according to SCAQMD.^G The area also includes Aerocraft Heat Treating Company, Inc. (15701 Minnesota Avenue, Paramount, CA 90723) and Anaplex Corporation (15547 Garfield Avenue, Paramount, CA 90723), both metal-finishing facilities, which were determined to be the sources of high levels of hexavalent chromium emissions through air testing at the facilities as well as in the surrounding area of Paramount.^H

^E Taken from the SCAQMD Assessment of Hexavalent Chromium Data at Paramount Schools Updated May 3, 2017 available at <http://www.aqmd.gov/docs/default-source/compliance/Paramount/hexchrom-schools-May3-2017.pdf?sfvrsn=6>

^F <https://paramountenvironment.org/aqmd-issues-clarification-on-school-actions-for-hexavalent-chromium/>

^G <http://www.aqmd.gov/home/regulations/compliance/air-monitoring-activities/carlton-forge-works>

^H <http://www.aqmd.gov/docs/default-source/news-archive/2017/aerocraft-march-3-2017.pdf>

The Schools: The schools included in this survey are Abraham Lincoln Elementary School, Frank J. Zamboni Middle School, Leona Jackson Middle¹ School, Major Lynn Mokler Elementary School and Wesley Gaines Elementary School.

FIELD OBSERVATIONS

August 4, 2017: Mr. Daniel H. Ginsborg, MSIH, CIH, CSP, EE Chief Executive Officer, Ms. Kay Mills, MSIH, CSP, Senior Industrial Hygienist with EE and Mr. Tim Galeana, Senior Project Manager with EE met with District Security Officers Mr. Manuel Perez and Mr. Jerome Thomas. During the site visit, the following observations were made in rooms selected for Cr(VI) ambient air testing :

- All rooms were unoccupied, clean, and had recently been deep-cleaned as is typical for beginning of the Academic year. All rooms appeared in a well-maintained condition.
- There was no odor in any of the rooms.
- There was no observed water damage, accumulation of dust on either high or low surfaces, and no suspect mold growth.
- All rooms had the furniture in place and for most part was configured for classroom inspection.
- All air handling systems were operational and programmed to replicate a typical school day with full occupancy during the period from 7:30 AM to 3:30 PM.

August 4-9, 2017: Mr. Danny Vargas, Industrial Hygienist with EE and Mr. David Hernandez, Industrial Hygienist with EE visited the 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, to set up the sampling equipment on August 4, 2017 and then to check on the equipment and pump calibration on subsequent days. Field observations were unchanged from the conditions observed on August 4, 2017, mentioned above.

The following District Security Personnel provided access to the selected rooms and roofs as follows:

- Mr. Jerome Thomas on August 4, 7, 8, & 9, 2017; and
- Mr. Vanra Doeun on August 5 and 6, 2017.

In addition, to providing access to the rooms and roofs, District Security Personnel were required to open the doors to the classrooms for a five to ten minute period each hour to simulate student activities of going in and out of the rooms selected for Cr(VI) ambient air monitoring.

IV. SURVEY PROCEDURES

HEXAVALENT CHROMIUM (Cr(VI))

As detailed in Appendix C, area samples were placed in various locations inside and outside and were collected for approximately one hundred and twenty (120) hours during the period from August 4 through August 9, 2017. Rooms were not in use during the sampling period, with the exception of 3 faculty/staff members who were found in Jackson Middle School Room 8 when EE's Industrial Hygienist Danny Vargas went to the room to remove the sample and equipment on August 9, 2017.

¹ The Jackson Middle School and the Gaines Elementary School are one site with two separate schools. For sampling purposes, the two sites were treated as one site.

When he arrived, the pump was running and the staff volunteered that they did not touch the equipment.

Samples were collected on 37-millimeter Polyvinyl Chloride (PVC) filters. Samples were analyzed by an Ion Chromatograph equipped with an ultraviolet detection according to modified OSHA Method 215 for Cr(VI). Samples were collected at 10.6 Liters per minute (Lpm).

Gast 1532 High Volume Sampling Pumps were calibrated before, and after the survey using a calibrated rotameter. Sampling pumps and rotameters were provided by SGS Galson Laboratories (hereafter, Galson). Additionally, all pumps had the flow rate measured at least once a day and there was no drift, flow rate remained at 10.6 Lpm. The rotameters were pre-calibrated by AIH Laboratory against a primary standard traceable to the National Institute of Science and Technology (NIST). All samples were analyzed by Galson in Syracuse, New York. Both Galson and AIH Laboratory are independently accredited by the American Industrial Hygiene Association (AIHA) Industrial Hygiene Laboratory Accreditation Program (IHLAP), #100324 (expires October 1, 2018) and # 203769 (Expires May 1, 2018), respectively.

Two field blank samples were submitted for quality control purposes to verify that no contamination occurred during field activities or shipping and handling. Analytical results include any necessary corrections for recovery to calculate the concentration of the airborne contaminants.

CO₂, TEMPERATURE, RELATIVE HUMIDITY

Indoor air quality (IAQ) was assessed through ambient air monitoring for carbon dioxide (CO₂), temperature, and relative humidity. One TSI Q-Trak monitor (EE-owned and annually calibrated; serial number 30579) was used. The unit is a direct-reading instrument used to evaluate CO₂, temperature, and relative humidity. Samples were collected at approximately five feet above ground to simulate the breathing zone.

V. RESULTS

Sampling Results: The sampling results indicate that exposures to all measured parameters, in all areas, were **below** the Cal/OSHA PELs, OEHHA RELs, OEHHA NSRL, ACGIH TLVs, NIOSH RELs, and ASHRAE recommendations.

Results of this study are compared to:

- The California Occupational Safety and Health Administration (Cal/OSHA) Permissible Exposure Limits (PELs), California Code of Regulations, Title 8, Section 5155 (abbreviated as 8 CCR 5155)
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) (2016 Edition)
- National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Levels (RELs) (September 2007 Edition)
- American Industrial Hygiene Association Workplace Environmental Exposure Levels (2011 Values)^J
- California Office of Environmental Health Hazard Assessment Acute (1-hour) Reference Exposure Level (REL), Chronic REL (2008)^K, and No Significant Risk Level (NSRL)^L.

^J <http://www.aiha.org/insideaiha/GuidelineDevelopment/weel/Documents/2011%20WEEL%20Values.pdf>

- The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standards (ASHRAE 62-1989 Ventilation for Acceptable Indoor Air Quality and ASHRAE 55-1992 Thermal Environmental Conditions)

The California Occupational Safety and Health Administration uses Cal/OSHA PELs as a governmental regulation. The PELs are intended for industry applications and may not be directly comparable to an indoor environment. The California Occupational Safety and Health Administration has not yet developed standards for IAQ. The ACGIH TLVs, AIHA WEELs, NIOSH RELs, and ASHRAE standards are not government regulations but represent the most current health hazard opinion and can be cited under the Cal/OSHA general duty clause. Further, the TLVs are reviewed annually. The OSHA PELs, ACGIH TLVs, AIHA WEELs, NIOSH RELs, and ASHRAE standards were considered in forming conclusions.

In addition, information from the California Office of Environmental Health Hazard Assessment (OEHHA) Reference Exposure Levels (REL) is included in the tables. "The mission of the Office of Environmental Health Hazard Assessment (OEHHA) is to protect and enhance public health and the environment by scientific evaluation of risks posed by hazardous substances [underlining added for emphasis]."^M OEHHA provides detailed hazard information about low level exposures to carcinogens and toxic chemicals to the public. These are generally industrial chemicals that are emitted into the atmosphere and are monitored by state regulators. The state uses this information in assessing non-occupational exposure risk assessment. OEHHA also evaluates health effects of chemicals commonly found in indoor air, including developing Reference Exposure Levels for use with indoor air exposure scenarios. OEHHA participates in a number of inter-Agency activities designed to evaluate indoor air quality health issues and to move California toward safer indoor air quality.^N

The faculty and staff work at the site approximately 8 hours a day, Monday through Friday. They typically do not work weekends; consequently, Cal/OSHA Regulations would apply to the potential occupational exposures, if any. Students typically attend academic instruction from approximately 8:30 AM to 2:30 PM (approximately 6.5 hours).

Monitoring results are listed in Table I starting on the following page.
The remainder of the page is blank.

^K <http://oehha.ca.gov/air/allrels.html>

^L <https://oehha.ca.gov/chemicals/chromium-hexavalent>

^M <https://oehha.ca.gov/>

^N <http://www.oehha.ca.gov/air.html>; website accessed September 22, 2011.

**Table I – Ambient Hexavalent Chromium (Cr(VI)) Results
Paramount Unified School District, Various Sites -- August 4-9, 2017**

Sample Number	Location	Hexavalent Chromium Concentration ($\mu\text{g}/\text{m}^3$)
17080409-0237.1-LIN-01A	Lincoln ES, Inside Permanent Room 11	<0.00039
17080409-0237.1-LIN-01B	Lincoln ES, Inside Portable Room 31	<0.00037
17080409-0237.1-LIN-01C	Lincoln ES, Exterior on the Roof of the Staff Lounge	0.00040
17080409-0237.1-MOK-01A	Mokler ES, Inside Permanent Room 8	<0.00038
17080409-0237.1-MOK-01B	Mokler ES, Inside Portable Room 21	<0.00038
17080409-0237.1-MOK-01C	Mokler ES, Exterior on the Roof of Room 6	<0.00038
17080409-0237.1-ZAM-01A	Zamboni MS, Inside Portable Room 9	<0.00038
17080409-0237.1-ZAM-01B	Zamboni MS, Inside Permanent Room C3	<0.00039
17080409-0237.1-ZAM-01C	Zamboni MS, Exterior on the Roof of Room 1	0.00039
17080409-0237.1-JAC-01A	Jackson ^P MS, Inside Permanent Room 8	<0.00038
17080409-0237.1-GAI-01B	Gaines ES, Inside Portable Room 23	<0.00038
17080409-0237.1-GIA-01C	Gaines ES, Exterior on the Roof of Room 1	<0.00038
17080409-0237.BK-01	Blank	<0.03 micrograms
17080409-0237.1-BK-02	Blank	<0.03 micrograms
California Occupational Safety and Health Administration (Cal/OSHA) Permissible Exposure Limit (PEL) Ceiling		5 100
American Conference of Governmental Industrial Hygienists (ACGIH) TWA		10
California Office of Environmental Health Hazard Assessment (OEHHA) ^o Acute (1 hour) Reference Exposure Level (REL)		Not listed
Acute (8-hour) REL		Not listed
Chronic REL		0.2
Proposition 65 Safe Harbor No Significant Risk Level (NSRL)		0.001 (per day)
National Institutes of Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL)		0.2

Summary of SGS Galson Laboratories Reports #415212, dated August 18, 2017 and, #415216 dated August 18, 2017.

^o $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

^P The Jackson Middle School and the Gaines Elementary School are one site with two separate schools. For sampling purposes, the two sites were treated as one site.

^o OEHHA further states, "Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact [underlining added for emphasis]." From <https://oehha.ca.gov/media/downloads/cmr/acuterel.pdf>

VI. CONCLUSION

In summary, **no** airborne Hexavalent Chromium (Cr(VI)) was detected inside any of the classrooms during the five days of sampling. Furthermore, the current Heating, Ventilation and Air Conditioning (HVAC) Unit filters MERV 10 are effective in that there was **no** measurable Cr(VI) inside the room even though there were levels measured outside at two locations.

The air sampling results for hexavalent chromium were below both the OEHHA No Significant Risk Level (NSRL) for inhalation and the OEHHA Proposition 65 Safe Harbor NSRL for inhalation as well as below the Cal/OSHA PELs, ACGIH TLVs and NIOSH RELs. Indoor air quality (IAQ) parameters, carbon dioxide, temperature, and relative humidity were well within acceptable levels, indicating that the room was sampled within typical HVAC unit operational conditions.

Based on Executive Environmental (EE) 's review of the data summarized in this report, and in terms of potential exposure to Hexavalent Chromium (Cr(VI)) inside the classroom, EE does not believe that any of the indoor environment (including classrooms, offices, libraries, etc) at Abraham Lincoln Elementary School, Frank J. Zamboni Middle School, Leona Jackson Middle School, Major Lynn Mokler Elementary School and Wesley Gaines Elementary School, would cause a hazard or create a health concern.

The District implemented the following steps several years ago:

- ✓ The District currently uses vacuums that are equipped with High Efficiency Particulate Air (HEPA) filters as compared with residential units that typically do not contain HEPA filters;
- ✓ The District's on-going routine maintenance of the Heating, Ventilation and Air Conditioning (HVAC) System, as compared to the infrequent maintenance of residential HVAC Systems commonly seen or the absence of residential HVAC Systems,
- ✓ The District's current filters that are used are a MERV 10, as compared with the typical school use of a MERV 8, as compared to residential units, which typically use MERV 4.

The District is not only doing all that they can to prevent a potential exposure to students, faculty and staff but have gone above and beyond with their maintenance of the HVAC System, deployment of HEPA equipped vacuums, increase in the filters' MERV rating from an 8 to 10, and proactively collecting air samples in the representative rooms.

VII. RECOMMENDATIONS

17-09-A. In a preponderance of caution, continue to review exterior hexavalent chromium air pollution and potential methodology to determine if there is a need to collect additional samples in representative rooms at representative sites during School Recess.

1. Review the method identified by LACDPH to determine if sampling can be limited to a typical school day with a duration of approximately 6.5 Hours and if a local laboratory can be found for the analysis that has third party accreditation by the AIHA IHLAP.

17-09-B. Heating, Ventilation and Air Conditioning (HVAC)

1. Continue with the existing maintenance schedule.
2. Continue with the existing filters that are MERV10. In a preponderance of caution, evaluate other MERV filter, if existing equipment will not be damaged by their use.
3. Ensure that the economizer/fresh air dampers are open and that they supply sufficient fresh outside air in accordance with ASHRAE Standards and guidelines. As a rule-of-

thumb, this should be 15 to 20% fresh outside air, regardless of the need for heating or cooling.

4. Verify and ensure that the air handling system in all rooms operate in accordance with ASHRAE Standards and Guidelines; that is, the fan comes on (lead-time) one hour before occupancy (two hours before occupancy following a closure of two or more days such as a weekend) and continues (lag-time) for one hour after the conclusion of occupancy.

17-09-C. Provide employees represented by this study with access to this report, per 8 CCR 3204(e)^R.

VIII. DISCLAIMER

All reports and recommendations are based on conditions and practices observed and information made available to Executive Environmental (EE) by the client and the designated sites/facilities on the days sampling was conducted. This report does not purport to set forth all hazards nor to indicate that other hazards do not exist. No responsibility is assumed by EE for the control or correction of conditions or practices existing at the facilities, or at any other premises, surveyed by EE for and on the behalf of the client. Services provided by EE shall be governed by the standard of practice for professional services measured at the time those services are rendered.

Consulting services and/or other products or recommendations provided as a part of this engagement, which may be provided all or in part by an ASCIP contractor (Executive Environmental) as a benefit of JPA membership, do not and are not intended to assume, take the place of, or relieve any other insurance program or responsible party of any duty, obligation, or responsibility to respond to or provide benefits on behalf of its client. Where a client has insurance coverage other than ASCIP, or where a responsible party is identified at the time such services, products, or recommendations are desired, the client should first contact that insurer or responsible party to request such assistance and to provide them with an opportunity to respond in an appropriate manner.

This Report continues on the next Page with Appendix A.
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^R See the Access to Employee Exposure and Medical Records standard at www.dir.ca.gov/title8/3204.html.

Appendix A

Laboratory Reports



GALSON

**Mr. Daniel Ginsborg
Executive Environmental
310 East Foothill Blvd.
Suite 200
Arcadia, CA 91006**

August 18, 2017

**DOH ELAP #11626
AIHA-LAP #100324**

Account# 13730

Login# L415212

Dear Mr. Ginsborg:

Enclosed are the analytical results for the samples received by our laboratory on August 11, 2017. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. When possible, non-IOM samples will be retained for 14 days following the date of this report (unless an extension is specifically requested). IOM samples are retained for 7 days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Pamela Weaver at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using SGS Galson Laboratories.

Sincerely,

SGS Galson Laboratories

**Lisa Swab
Laboratory Director**

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client : Executive Environmental
 Site : NS
 Project No. : 16-A0007-0237.1
 Date Sampled : NS
 Date Received : 11-AUG-17

Account No.: 13730
 Login No. : L415212
 Date Analyzed : 16-AUG-17
 Report ID : 1013321

Hexavalent Chromium

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> <u>liter</u>	<u>Total</u> <u>ug</u>	<u>Conc</u> <u>ug/m3</u>
LIN-01C	L415212-1	79765	0.032	0.00040
MOK-01C	L415212-2	78980.6	<0.030	<0.00038
ZAM-01C	L415212-3	78302.2	0.031	0.00039
GIA-01C	L415212-4	78185.6	<0.030	<0.00038

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.030 ug	Submitted by: KLS	
Analytical Method : mod. OSHA ID-215 (version 2); IC/UV	Approved by : NKP	
OSHA PEL : 5 ug/m3 (TWA)	Date : 17-AUG-17	NYS DOH # : 11626
Collection Media : PVC UW 37mm	Supervisor: MWJ	QC by: KSB

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million



GALSON

LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client Name : Executive Environmental
 Site :
 Project No. : 16-A0007-0237.1

Date Sampled :
 Date Received: 11-AUG-17
 Date Analyzed: 16-AUG-17

Account No.: 13730
 Login No. : L415212

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Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client's direction). The laboratory does not have control over the sampling process. The findings herein constitute no warranty of the samples' representativeness of any sampled environment and strictly relate to the samples as they were presented to the laboratory.

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L415212 (Report ID: 1013321):

SOPs: IC-SOP-15(18)
 Total ug corrected for a desorption efficiency of 100%.
 SGS Galson Laboratories pretests all media lots distributed for Hexavalent Chromium analysis and can provide data confirming that no significant background is present. We may not be able to verify lot background levels for media obtained through alternate vendors.

L415212 (Report ID: 1013321):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated accuracy applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process. The accuracy is based solely on spike recovery data from internal quality control samples. Where N/A appears below, insufficient data is available to provide statistical accuracy and mean recovery values for the associated analyte.

Parameter	Accuracy	Mean Recovery
Hexavalent Chromium	+/-12.7%	96.3%

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms ppm -Parts per Million
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ND -Not Detected NA -Not Applicable



GALSON

Mr. Daniel Ginsborg
Executive Environmental
310 East Foothill Blvd.
Suite 200
Arcadia, CA 91006

August 18, 2017

DOH ELAP #11626
AIHA-LAP #100324

Account# 13730

Login# L415216

Dear Mr. Ginsborg:

Enclosed are the analytical results for the samples received by our laboratory on August 11, 2017. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. When possible, non-IOM samples will be retained for 14 days following the date of this report (unless an extension is specifically requested). IOM samples are retained for 7 days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Pamela Weaver at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using SGS Galson Laboratories.

Sincerely,

SGS Galson Laboratories

Lisa Swab
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client : Executive Environmental
 Site : NS
 Project No. : 16-A0007-0237.1
 Date Sampled : 04-AUG-17
 Date Received : 11-AUG-17

Account No.: 13730
 Login No. : L415216
 Date Analyzed : 17-AUG-17
 Report ID : 1013494

Hexavalent Chromium

Sample ID	Lab ID	Air Vol liter	Total ug	Conc ug/m3
LIN-01A	L415216-1	76320	<0.030	<0.00039
LIN-01B	L415216-2	80030	<0.030	<0.00037
MOK-01A	L415216-3	78874.6	<0.030	<0.00038
MOK-01B	L415216-4	78980.6	<0.030	<0.00038
ZAM-01A	L415216-5	78323.4	<0.030	<0.00038
ZAM-01B	L415216-6	77888.8	<0.030	<0.00039
JAC-01A	L415216-7	78026.6	<0.030	<0.00038
GAI-01B	L415216-8	78069	<0.030	<0.00038
BK-01	L415216-9	NA	<0.030	NA
BK-02	L415216-10	NA	<0.030	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.030 ug	Submitted by: MCM	
Analytical Method : mod. OSHA ID-215 (version 2); IC/UV	Approved by : MWJ	
OSHA PEL : 5 ug/m3 (TWA)	Date : 18-AUG-17	NYS DOH # : 11626
Collection Media : PVC UW 37mm	Supervisor: MWJ	QC by: KSB

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million



GALSON

LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client Name : Executive Environmental
 Site :
 Project No. : 16-A0007-0237.1

Date Sampled : 04-AUG-17
 Date Received: 11-AUG-17
 Date Analyzed: 17-AUG-17

Account No.: 13730
 Login No. : L415216

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Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client's direction). The laboratory does not have control over the sampling process. The findings herein constitute no warranty of the samples' representativeness of any sampled environment and strictly relate to the samples as they were presented to the laboratory.

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L415216 (Report ID: 1013494):

SOPs: IC-SOP-15(18)
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L415216 (Report ID: 1013494):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated accuracy applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process. The accuracy is based solely on spike recovery data from internal quality control samples. Where N/A appears below, insufficient data is available to provide statistical accuracy and mean recovery values for the associated analyte.

Parameter	Accuracy	Mean Recovery
Hexavalent Chromium	+/-12.7%	96.3%

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 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ND -Not Detected NA -Not Applicable

Appendix B

Photograph Log



Photo 1 – Mokler ES, Permanent Room 8.



Photo 2 – Mokler ES, Permanent Room 8 thermostat.



Photo 3 – Mokler ES, Portable Room 21.

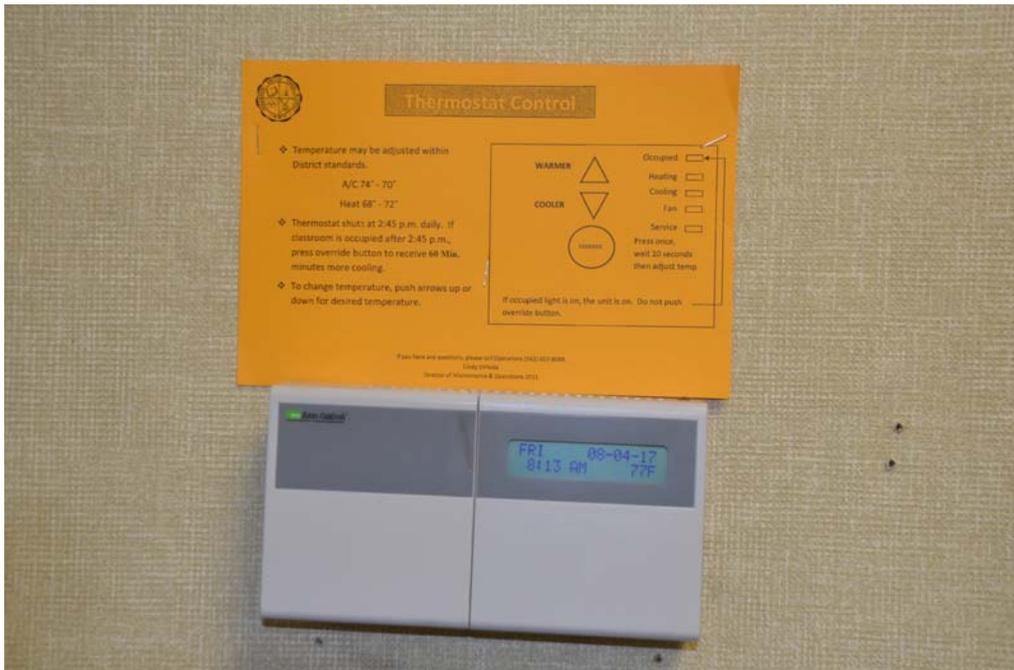


Photo 4 – Mokler ES, Portable Room 21 thermostat.



Photo 5 – Lincoln ES, Portable Room 31.



Photo 6 – Lincoln ES, Portable Room 31 thermostat.



Photo 7 – Zamboni ES, Permanent Room C3.



Photo 8 – Zamboni ES, Portable Room 9.



Photo 9 – Gaines ES, Portable Room 23.



Photo 10 – Jackson ES, Permanent Room 8.

Appendix C

Expanded Step-by-Step Sampling Procedure

Air Sampling

Two indoor samples and one outdoor air sample will be collected from each of the selected sites. The first indoor air samples will be collected from the center of a classroom in a permanent building. The second indoor air samples will be collected from the center of a classroom in a portable building. The outdoors sample will be collected on the roof of a site building that has a 120 volt electrical plug. All samples will be collected in the breathing zone at an approximate height of 4 to 5 feet above the floor/roof surface. Outdoor air samples will be collected from a location that is protected from possible water sources and at an approximate height of 10 to 15 feet above the ground surface.

Each sample will be collected with a Gast 1532 High Volumes Sampling Pump for a minimum period of 120 hours or more. The hexavalent chromium (hereafter, Cr(VI)) will be collected on a laboratory-supplied 37-mm polyvinyl chloride (PVC) filter loaded in an SKC styrene cartridge, and the pump will be calibrated to a rate of 10.6 Liters per minute (L/min). The steps to collect the samples include the following:

1. Verify that the pumps can run a sample for 120 hours without over heating or faulting out with a filter in-line. Test the sampling pumps with cassettes 6 to 7 days prior to field sampling.
2. Verify that all pumps are functional 24 to 36 hours before deployment.
3. Verify that District Security Personnel are available for the duration of the project 2 to 3 days before the commencement of field monitoring.
4. The District will provide Security Personnel to:
 - 4.1. To provide access for Executive Environmental (EE) Personnel to place samplers; retrieve samplers after 120 plus hour samples; and to provide random daily site visits to verify daily calibration and flow rate of samples as well as collection of Carbon Dioxide, Temperature and Relative Humidity.
 - 4.2. To open each of the selected room for 5 to 10 minutes every 60 to 90 Minutes during the period of 7:30 AM to 3:30 PM to simulate faculty, staff and student activities, i.e. entering and exiting rooms, etc.
 - 4.2.1. District Security Personnel will add the time of their visit and their name to the Table on the White board in each room.
5. Deploy pumps at selected indoor and outdoor locations.
 - 5.1. Calibrate each pump with using a representative in-line media/cassette to the appropriate volume per minute.
 - 5.2. Set the pump on a stable flat surface in the center of the select location and plug into an electrical outlet.
 - 5.3. Label the cartridge with the sample ID and record on the sampling form.
 - 5.4. Wearing a pair of clean disposable nitrile gloves, remove the protective caps from the inlet and outlet of the cartridge.

- 5.5. Connect the cartridge to the pump via flexible tubing. The connecting lines between the filter assembly and the sampling pump should be kept as short as possible.
 - 5.6. The side of the cartridge marked "outlet" should be connected to the tubing and the side marked "inlet" should be facing outward.
 - 5.7. A tripod will be used to place the cartridge at an approximate height of to 4 to 5 feet above the ground.
 - 5.8. Start the pump and record the start time and flow rate.
 - 5.9. Remove the gloves and dispose at the EE Office.
 - 5.10. Collect Carbon Dioxide, Temperature and Relative Humidity measurement on the sampling form.
 - 5.11. Repeat steps 5.1 to 5.10 at the next sample location.
6. Approximately every 24 hours at random intervals between 7:30 AM and 3:30 PM, return to the site:
 - 6.1. Wear a pair of clean, new, disposable nitrile gloves, while connecting and disconnecting the rotometer.
 - 6.2. Turn off the pump and connect the rotometer to the sample, turn the pump on and record the flow rate.
 - 6.2.1. Adjust the flow if there is a drift of less than 0.5 Lpm.
 - 6.2.2. Contact Daniel H. Ginsborg, MSIH, CIH, CSP if flow rate drift is greater than 0.5 Lpm.
 - 6.2.3. Only if there is flow drift, record the end time and flow rate.
 - 6.2.4. Only if there is flow drift, record the start time and flow rate.
 - 6.3. Turn off the pump and disconnect the rotometer from the sample cassette.
 - 6.4. Turn the pump on.
 - 6.5. Remove the gloves and dispose at the EE Office.
 - 6.6. Collect Carbon Dioxide, Temperature and Relative Humidity measurements and record on the sampling form.
 - 6.7. Repeat steps 6.1 to 6.6 at the next sample location.
7. At the end of 120 plus hours of sample collection, return to the site:
 - 7.1. Wear a pair of clean, new, disposable nitrile gloves.
 - 7.2. Turn off the pump and connect the rotometer to the sample, turn the pump on and record the flow rate.
 - 7.3. Turn the pump off.
 - 7.4. Remove the rotometer.
 - 7.5. Remove the sample cartridge from the pump and replace the protective caps over the inlet and outlet of the cartridge.
 - 7.6. Verify the label on the cartridge with the sample ID and the sampling form.
 - 7.7. Place the cartridge in a protective bag, such as a Ziploc™.
 - 7.8. Remove the gloves and dispose at the EE office.
 - 7.9. Collect Carbon Dioxide, Temperature and Relative Humidity measurements and record on the sampling form.
 - 7.10. Repeat steps 7.1 to 7.9 at the next sample location.

8. Return to the office:
 - 8.1. Verify that all samples have been returned to the office.
 - 8.2. Return all field equipment to the EE Office.
 - 8.3. From the field sampling sheets calculate the total volume of air collected.
 - 8.4. Prepare the Chain of Custody (COC) with regular turn-a-round (TAT) time of 10 business days.
 - 8.5. Review the COC with Mr. Ginsborg.
 - 8.6. After approval of the COC by Mr. Ginsborg, take the samples and the COC to Federal Express, sign the COC and supervise the packaging of the samples and the COC.
 - 8.6.1. Send the sample next day morning delivery, signature required.
 - 8.6.2. Send the sample and COC SGS Galson receiving in Syracuse, New York.

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