



May 2, 2017

AWS 1778

Mr. Keith Kadera  
Director of Facilities  
Redwood City School District

**RE: Summary of Lead in Drinking Water Sampling  
Redwood City School District**

Dear Mr. Kadera:

**Air & Water SCIENCES** (AWS) has completed the lead in drinking water sampling program requested and approved by the Redwood City School District (RCSD). The RCSD requested that water used for drinking and cooking by students and staff at the schools within the district be tested for the presence of the heavy metal lead. Schools are not required under federal or state law to test potable water sources for lead if their water is supplied by a public water supply system; however, the RCSD recognizes that schools, particularly older facilities (pre-1990), may contain sources of lead in the plumbing pipes and fixtures which could contribute to lead levels in school drinking water. The presence of lead in drinking water can lead to adverse health effects in people, especially children. Therefore, AWS was requested to prepare a sampling plan to quantitatively assess the presence and/or amount of lead in the drinking water at schools within the district.

The sampling program was conducted at the sixteen (16) schools in the RCSD per your request. The initial samples were collected in December 2016 and January 2017 with follow-up samples collected from January through April 2016. AWS submitted separate reports for each school to RCSD in March and April 2017. The reports include documentation of sampling and analytical procedures, sample locations, a summary of the analytical results, as well as all analytical data from the laboratory and conclusions and recommendations. This letter summarizes the scope of work performed by AWS to complete the testing and the results of the testing in the RCSD. AWS recommends reading the full text of the individual reports to fully understand the results and the actions taken by RCSD.



### Sampling Program

Samples for lead in drinking water were initially collected from representative high priority outlets at sixteen (16) schools located in the district in December 2016 and January 2017. The goal of the initial sampling effort was to identify whether any of the drinking water sources sampled contained elevated lead levels. The sampling strategy and protocols followed the guidance provided by the US Environmental Protection Agency (EPA) in the document entitled "*3Ts for Reducing Lead in Drinking Water in Schools, Revised Technical Guidance*" (October 2006) (EPA 3Ts).

The initial samples collected from the schools were first-draw samples from representative high priority outlets. High priority outlets are defined as those that are used regularly for cooking and drinking. These include: drinking fountains (all types), kitchen sinks, classroom combination sinks with drinking fountains, and sinks in teachers' lounges, nurses' offices, and special education and/or home economics classrooms. Generally AWS did not sample medium and low priority outlets such as classroom sinks (without drinking fountains), bathroom faucets, and utility sinks during the initial sampling, unless the faucets appeared to be used for drinking or cooking (i.e. cups or mugs nearby). When representative samples were collected approximately one sample was collected per two or three outlets. These outlets were selected by grouping identical outlets in proximate locations. This strategy was applied for three cases: 1) in classroom wings or quads where all classroom sink combination drinking fountains are identical, 2) drinking water fountain pairs located immediately adjacent to each other, and 3) in kitchens with multiple identical faucets.

The initial first-draw samples are of water that is the first to come out of the tap after a period of inactivity. These samples were collected from the first flow of water after the line had been stagnant for a minimum of eight (8) hours and a maximum of eighteen (18) hours in accordance with EPA guidance. The purpose of the initial samples is to identify whether elevated levels of lead, if found, are due to either the fixture or an upstream source. The initial sampling also included two (2) water samples from a tap located closest to the water service connection at each site to determine lead levels entering the school property. These samples were collected after water was flushed per EPA guidance.

In the event that elevated levels of lead were identified in any of the outlets sampled, a follow-up sample was collected to identify the source of lead in the water at the specific outlet. Follow-up samples were collected from February through April 2017. The purpose of additional follow-up testing was to evaluate how any problems encountered with the water quality during the initial sampling effort could be fixed.

### Lead Contaminant Levels in Drinking Water

The EPA 3Ts guidance document recommends that the sample results not exceed 20 µg/L in any outlets in schools that provide drinking or cooking water and that remedial measures be implemented to reduce or eliminate lead sources in outlets that exceed that level. The EPA's action level for lead in public water supply systems is 15 µg/L and is used as a trigger to determine when system-wide corrosion control treatment may be necessary. The RCSD opted for a conservative approach and use exceedances of 15 µg/L lead in drinking water in the schools as the trigger point to take an outlet out of service and to perform additional testing to determine the source.

### Sampling Results

The initial samples were collected in December 2016 and January 2017. All samples were collected by a trained environmental technician. The samples were analyzed by Alpha Analytical Laboratories in Ukiah, CA. This laboratory is certified by the State of California as part of the Environmental Laboratory Accreditation Program (ELAP# 1551). Water samples were analyzed for lead by EPA Method 200.8.

All of the representative initial drinking water samples collected at the following six (6) schools had lead levels equal to or less than 15 µg/L and, therefore, no further action was recommended:

- Henry Ford Elementary School
- Hoover Elementary School
- McKinley Middle School
- Roosevelt Elementary School
- Roy Cloud Elementary School
- Taft Elementary School

The remaining ten (10) schools each had one (1) to three (3) outlets that exceeded 15 µg/L during the initial sampling. The RCSD shut-off these outlets and AWS conducted follow-up testing in all locations. The purpose of additional follow-up testing was to evaluate whether the fixtures or the piping were responsible for the exceedances in order to provide RCSD with recommended actions to reduce the lead levels.

Based on the results of the follow-up sampling the RCSD replaced all the outlets that had lead levels exceeding 15 µg/L during the initial sampling with new fixtures. AWS collected additional samples from the newly installed fixtures and final water sampling of the new fixtures indicate

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that all had lead levels of less than 15 µg/L; therefore, none of the school's water outlets that were tested exceed EPA's action level of 15 µg/L for lead in drinking water at this time.

AWS appreciates the opportunity to perform these services for you and we look forward to working with the RCSD again in the future. Please contact us at (707) 769-2289 if you have questions.

Respectfully submitted,

**Air & Water SCIENCES**



Chip Prokop, PE

DWTO T-1 #33506, WDO D-1 #42258

Principal