



Lead in Drinking Water Sampling Report

Laurel Elementary School
95 Edge Road
Atherton, CA 94027

Prepared For:

Menlo Park City School District,
181 Encinal Ave, Atherton, CA 94027

Prepared By:

Air & Water SCIENCES
Environmental Consultants
625 Second Street, Suite 210
Petaluma, CA 94952

November 2016



A handwritten signature in black ink that reads "Heidi M. Bauer".

Heidi Bauer, PG



A handwritten signature in black ink that reads "Chip Prokop".

Chip Prokop, PE
DWTO T-1 #33506
WDO D-1 #42258

Lead in Drinking Water Sampling Report

Laurel Elementary School

Introduction

The Menlo Park City School District (MPCSD) requested that the potable water at this school used for drinking and cooking by students and staff 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. Federal regulation requires public water supply districts to test water for lead at select residential customer taps and to take corrective action if lead levels exceed the US Environmental Protection Agency (EPA) action level of 15 µg/L. The MPCSD 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 that were constructed before 1990.

Sources of Lead in Drinking Water at Schools

Lead can enter the drinking water at a school either by being present in the water entering the school from the municipal water source (i.e. public water supply agency) or through the plumbing system within the school where materials containing lead, such as lead pipes, lead solder and fluxes are present. Stagnant water in the school pipes can have extended contact with lead containing materials and components. Due to irregular use patterns elevated concentrations of lead could be present in the drinking water. Other factors such as the pH of the water and the temperature can also affect the rate at which lead is absorbed into the water.

Summary of Regulations to Reduce Lead in Drinking Water

In 1986 the Safe Water Drinking Act (SWDA) required the use of “lead-free” pipe, solder, and flux in the installation or repair of any public water system or any plumbing in a residential or non-residential facility providing water for human consumption. Solders and flux are considered to be lead-free when they contain less than 0.2% lead. Before this ban took effect on June 19, 1986, solders used to join water pipes typically contained about 50% lead. Pipes and pipe fittings were considered “lead-free” under the Lead Ban when they contained less

than 8% lead. In January 2010, California enacted a law which reduced the maximum allowable lead content of pipes, pipe fittings, plumbing fittings and fixtures used to convey water for human consumption, to less than 0.25 % lead of wetted surfaces as determined by a weighted average. On January 4, 2014 the "Reduction of Lead in Drinking Water Act," more commonly known as the Lead Free law, went into effect. This resulted in a national mandate requiring that every pipe, fixture, and fitting used to convey water for potable use contain less than 0.25% of lead by weight.

In 1988, the Lead Contamination Control Act (LCCA) was signed. This required the identification of water coolers that were not lead-free, the removal or repair of water coolers with lead lined tanks, banned the manufacture and sale of water coolers that are not lead-free and required the identification and resolution of lead problems in schools. The LCCA was aimed at secondary and primary schools, kindergartens, daycare centers, water cooler manufacturers and federal, state and local agencies.

In 1991 the Lead and Copper Rule (LCR) was signed into law. The LCR requires public water suppliers to monitor for lead and copper in drinking water at select residential dwellings supplied water by the public agency. If lead or copper are found above the EPA action levels the water supply agency must provide corrosion treatment.

Lead Contaminant Levels in Drinking Water

The State of California and the City of Atherton must comply with the LCR which sets the federal regulatory action level for lead in water at 15 µg/L for public water supply systems. The regulatory action level is the concentration of a contaminant which, when exceeded, triggers treatment or other requirements that a water system must follow.

The lead testing protocol specified by the LCR and used by public water systems is aimed at identifying system-wide problems rather than problems at outlets in individual buildings. The LCR for public water systems established the EPA lead action level of 15 µg/L for one liter samples collected at high-risk residences. If more than 10 percent of the samples at residences exceed 15 µg/L, system-wide corrosion control treatment may be necessary. The 15 µg/L action level for public water systems is the trigger level for treatment.

The EPA guidance document for testing for lead in the potable water supply at schools is entitled "*3Ts for Reducing Lead in Drinking Water in Schools, Revised Technical Guidance, October 2006*" (EPA 3T's). This document recommends reduction or elimination of sources of

lead in water fountains and/or other outlets used for consumption if lead levels exceed 20 µg/L. This is based on the collection of 250 mL first-draw samples (i.e., samples of water that have remained stagnant for 8-18 hours prior to flushing or use occurs). The EPA recommends this first-draw sample combined with the 8-18 hour waiting period in order to maximize the likelihood that the highest concentrations of lead are found in the outlets being tested.

Although EPA recommends using a concentration of 20 µg/L as the trigger level to conduct additional testing to determine the source, AWS has recommended, with the school district's concurrence, to 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 of lead.

Purpose and Scope of Work

The scope of work is to determine if the drinking water in the school contains elevated levels of the heavy metal lead (Pb). The scope of work includes:

- Collect drinking water samples from representative priority outlets.
- Compare water sampling results to EPA MCL of 15 µg/L for lead.
- Provide recommendations for additional sampling, if needed.

This sampling strategy, procedures and analytical tests were based on guidance provided by the *EPA 3T's* guidance document.

Site Background

Laurel Elementary School (LES) is located at 95 Edge Road in Atherton, CA. The school is an elementary school and serves children from kindergarten to 2nd grade. The exact date of original construction is not known but according to facilities personnel major construction was performed in 1991 on the campus.

Drinking Water Outlet Selection Procedure

Water samples were collected from high priority drinking water outlets identified by MPCSD and AWS. High priority outlets are defined as those that are used regularly for cooking and drinking. These include: drinking fountains (all types), classroom combination sinks with drinking fountains, sinks in teachers' lounges, nurses' offices, and special education rooms, and

kitchen faucets used for drinking, cooking or washing food including home economic faucets. Water samples representative of the service connection and municipal water supply main were also collected during the testing.

Water Sampling Procedures

Drinking water samples were collected at the LES on October 4, 2016 with follow-up samples collected on November 3, 2016. The water samples were collected by an AWS environmental scientist in accordance with the *EPA's 3T's* guidance document.

AWS collected a first-draw water sample from each selected outlet, with the exception of the service connection samples, between the hours of 6:00am-9:00am. A first-draw sample of water is the first to come out of the tap after a period of inactivity. This water was stagnant; meaning that the outlet was not used for at least eight hours prior to sampling. Since the selected outlets were taped off after the end of the previous school day the outlets had remained stagnant for a period between 8 and 18 hours.

The three (3) samples representative of the water service connection were collected from the cold water outlet that was assumed to be closest to the service connection. Following the *EPA's 3T's* sampling guidelines these samples were not first-draw. The first sample was collected approximately 30 seconds after running the water and the second sample was collected after running the water for approximately three minutes. These samples should be representative of the water quality entering the facility from the service connection and the municipal water supply main, respectively. A duplicate sample was also collected from this outlet as a Quality Assurance/Quality Control (QA/QC) sample.

Samples were collected in a 250 milliliters (ml) laboratory provided container. The sample size is representative of a smaller section of plumbing primarily associated with the fixture providing the water, and therefore, more effective in identifying the source if elevated lead levels are identified. A smaller sample is also more representative of the water serving size consumed by a child.

Samples were each given a unique sampling identification number. The sample location, date and time of collection, and the type of outlet were recorded and are shown on the attached chain-of-custody (COC) preceded by the attached laboratory report.

Initial Sampling

AWS collected a total of thirty six (36) water samples from selected high-priority faucets and drinking water fountains from LES on October 4, 2016. These included three (3) flush samples: one (1) 30-second flush sample, one (1) 3-minute flush sample and one (1) field duplicate of the 3-minute flush sample for QA/QC. High priority faucets typically include drinking fountains (all types), kitchen sinks, classroom combination sinks with drinking fountains, and sinks in teachers' lounges, nurse's offices, and special education and/or home economics classrooms. The sample locations and types of samples collected are shown on the attached table (Table 1) and the attached figure (Figures 1).

Follow-Up Sampling

One high-priority drinking water outlet at LES was recommended for follow-up sampling. The outlet was a drinking water fountain in a fountain/faucet combination sink (DWS) located in Room A-25. Follow-up sampling was performed since the initial sample showed a concentration over the EPA action level of 15 µg/L (refer to analytical results below). The follow-up consisted of collecting a first-draw sample followed by a 30-second flush sample. The samples were collected in order to determine if the source was the fixture itself, or the pipes supplying water to the fixture. The follow-up samples were collected on November 3, 2016 and are shown on Table 2.

The results of these samples indicated that the second first-draw sample was 15 µg/L and the 30-second flush sample was below the detection limit for lead. These results are further discussed below.

Analytical Methods

Samples were delivered by courier to Alpha Analytical Laboratories in Ukiah, California under standard chain-of-custody procedures. 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 (Pb) by EPA Method 200.8 which is the determination of trace elements in waters and wastes by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS). The reporting limit as determined by the laboratory is 4 µg/L.

Analytical Results

Initial Sampling Results

The analytical results from the initial testing are shown on Table 1. All of the samples collected from this site were below both the EPA's action level of 15 µg/L for lead in public water supply systems and the EPA's 20 µg/L recommendation for lead in school drinking water with the exception of one sample; sample LES-17-DWS-P from Room A25 which had a lead concentration of 48 µg/L. The sample location is shown on the attached figure (Figure 1).

Follow-Up Sampling Results

As mentioned above, one sample at LES, LES-17-DWS-P, exceeded the action level of 15 µg/L, and therefore the outlet was designated for resampling. For the follow-up sampling a first-draw plus a 30-second flush sample were collected from this outlet. The analytical results from the follow-up sampling are shown on Table 2.

The second first-draw sample collected from Room A-25 (LES-17-DWS-P2) had a lead concentration of 15 µg/L. The follow-up 30-second flush sample (LES-17-DWS-F) did not have lead above the laboratory detection limit. These results indicate that the fixture itself is the source of the lead and not the service piping.

Based on the sampling results MPCSD indicated to AWS that they have taken this fixture out of service and replaced it with a new one.

Summary and Conclusions

As mentioned above, the EPA's 3T's guidance document recommends that the sample results should be below 20 µg/L in all outlets that provide drinking or cooking water and that remedial measures be implemented to reduce or eliminate lead sources in outlets that exceed 20 µg/L. 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. AWS recommends using an exceedance 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.

Thirty-six (35) of the thirty-six (36) samples collected from outlets during the initial sampling event were below both the EPA action level of 15 µg/L for lead in public water supply systems and the EPA's 20 µg/L recommendation for lead in school drinking water. One sample, collected from Room A-25, exceeded the 15 µg/L level. The follow-up samples showed a level of 15 µg/L in the first-draw and no detectable levels of lead in the flush sample indicating a

problem in the fixture itself, not the service piping. Based on these results, MPCSD indicated that they have taken the outlet out of service and that it was replaced with a new one.

In summary, all of the outlets initially tested at LES, with the exception of one, had lead levels below the EPA's action level and the outlet that had elevated levels was removed and replaced with a new one.

Recommendations

As stated above, MPCSD replaced the fixture in Room A-25 with a new one. According to California state law this new fixture must meet CA Health & Safety Code 116875 (AB1953) which states that the weighted average content of all internal wetted surface components not exceed 0.25% lead content. These fixtures are marked by a NSF 362 or NSF 61-2101a Annex G stamp. Due to the fact that these fixtures may still contain some level of lead it is recommended that they be properly flushed and tested for lead prior to being put into service.

It is also recommended that periodic monitoring of the high priority outlets regularly used for drinking and cooking be performed at all of the schools built before 1990 to ensure that the older suspected lead containing fixtures and solders do not leach into the drinking water supply in the future.

In addition, the presence of aerators may contribute to lead in the water if lead-bearing solids have accumulated over time on the aerator; therefore, it is also recommended that all aerators in the school be put on a regular maintenance schedule which includes the removal and cleaning of the aerator and that aerators be replaced if needed.

Limitations

The conclusions and results contained herein are based solely on the information presented in this report. Additional information or contamination that was hidden, undiscovered, inaccessible, or are not a part of the finding presented herein, would result in the modification of the conclusions and recommendations of this report. Any remediation guidelines are minimum general guidelines based solely on the findings contained herein and are not to be considered a complete or detailed set of remediation specifications. AWS is not responsible for the accuracy of information provided by others, or for conditions or consequences arising from relevant facts that were withheld, concealed, undiscovered or not fully disclosed.

The scope of services provided by AWS was limited to the sampling of drinking water outlets identified in this report. Drinking water outlets, hazardous materials or controlled substances not specifically mentioned in this report were not evaluated. AWS is not qualified to present medical advice. If any present or future health issues are in question, it is recommended that the findings in this report be presented to a qualified medical professional for evaluation. AWS is not a law firm and, therefore, makes no representations regarding any potential liability of any person or entity for site conditions.

References

3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance

United States Environmental Protection Agency, October 2006.

Drinking Water Best Management Practices, United States Environmental Protection Agency,

April 2013

Table 1
Analytical Results
Lead (Pb) in Drinking Water
Laurel Elementary School

Sample ID Number	Sample collection date	Type of Outlet	Sample Location	Type of Sample	Lead (Pb) (µg/L)
LES-25-KF-P	10/04/2016	Faucet	Staff room	Initial	ND
LES-1S-KF-F	10/04/2016	Faucet	Staff room	Flush (30 sec)	ND
LES-1M-KF-F	10/04/2016	Faucet	Staff room	Flush (3 min)	ND
LES-1MQ-KF-F	10/04/2016	Faucet	Staff room	Flush (3 min) Field QA/QC	ND
LES-24-TL-P	10/04/2016	Faucet	Teacher's work room	Initial	ND
LES-23-OF-P	10/04/2016	Faucet	Nurse's station	Initial	ND
LES-17-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room A25	Initial	48
LES-16-TL-P	10/04/2016	Faucet	Room A27	Initial	ND
LES-19-DW-P	10/04/2016	Drinking Water Fountain	Outside room A27	Initial	4.0
LES-10-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room G4	Initial	ND
LES-15-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room G1	Initial	ND
LES-14-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room G2	Initial	ND
LES-12-DW-P	10/04/2016	Drinking Water Fountain	Outside Rm G5	Initial	ND
LES-9-DWS-P	10/04/2016	Drinking Water Fountain	Preschool	Initial	ND
LES-7-KF-P	10/04/2016	Faucet	Preschool	Initial	ND
LES-6-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Preschool	Initial	ND
LES-8-DW-P	10/04/2016	Drinking Water Fountain with Sink	Outside preschool	Initial	ND
LES-3-DW-P	10/04/2016	Drinking Water Fountain	Outside kitchen	Initial	ND
LES-4-KF-P	10/04/2016	Faucet	Kitchen	Initial	ND
LES-1-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room E2	Initial	ND
LES-5-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room E3	Initial	ND
LES-46-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room D1	Initial	4.3
LES-43-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room D4	Initial	ND
LES-41-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room D2	Initial	ND
LES-45-DW-P	10/04/2016	Drinking Water Fountain	Outside D3	Initial	ND
LES-37-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room C3	Initial	ND
LES-33-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room C5	Initial	ND
LES-38-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room C2	Initial	ND
LES-36-DW-P	10/04/2016	Drinking Water Fountain	Outside C3	Initial	ND
LES-40-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room F1	Initial	ND
LES-38-CF-P	10/04/2016	Faucet	Room C2	Initial	ND
LES-30-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room B5	Initial	ND

Notes:

- 1) Primary= sampled at first draw. Flush= sampled after water running for time indicated.
- 2) EPA Action Level is 15 ug/L
- 3) ND = None detected
- 4) Samples analyzed by EPA Method 200.8. Reporting limit is 4 ug/L

Table 1
Analytical Results
Lead (Pb) in Drinking Water
Laurel Elementary School

Sample ID Number	Sample collection date	Type of Outlet	Sample Location	Type of Sample	Lead (Pb) (µg/L)
LES-31-DW-P	10/04/2016	Drinking Water Fountain	Outside B4	Initial	ND
LES-28-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room B3	Initial	ND
LES-26-DWS-P	10/04/2016	Drinking Water Fountain with Sink	Room B1	Initial	ND
LES-21-DW-P	10/04/2016	Drinking Water Fountain	Outside Multi	Initial	ND

Notes:

- 1) Primary= sampled at first draw. Flush= sampled after water running for time indicated.
- 2) EPA Action Level is 15 µg/L
- 3) ND = None detected
- 4) Samples analyzed by EPA Method 200.8. Reporting limit is 4 µg/L

Table 2
Follow-Up Sampling -Analytical Results
Lead (Pb) in Drinking Water
Laurel Elementary School

Initial Sampling Date	Sample ID (location)	Result (Initial Draw) ug/L	Actions taken	Elevated Outlets Resampled (Date: Sample ID)	Result: Follow-Up Initial Draw and /or Flush (ug/L)	Recommendation	Actions Taken
10/6/2016	LES-17-DWS-P (Room A25)	48	Follow-up sampling	9/23/2016: LES-17-DWS-P2	15 ug/l: Initial-draw	Replace	Fixture to be replaced
				11/3/16: LES-17-DWS-F	ND (<4 ug/l): 30-second flush		

Notes:

- 1) Primary= sampled at first draw. Flush= sampled after water running for time indicated.
- 2) EPA Action Level is 15 ug/L
- 3) ND = None detected
- 4) Samples analyzed by EPA Method 200.8. Reporting limit is 4 ug/L



Alpha

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Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309

Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

17 October 2016

Air & Water Sciences

Attn: Heidi Bauer

625 2nd Street, Suite 210

Petaluma, CA 94952

RE: Lead Monitoring Project

Work Order: 16J0353

Enclosed are the results of analyses for samples received by the laboratory on 10/04/16 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For Robbie C. Phillips

Project Manager



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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LES-25-KF-P	16J0353-01	Water	10/04/16 05:50	10/04/16 16:10
LES-1S-KF-F	16J0353-02	Water	10/04/16 05:53	10/04/16 16:10
LES-1M-KF-F	16J0353-03	Water	10/04/16 05:56	10/04/16 16:10
LES-1MQ-KF-F	16J0353-04	Water	10/04/16 05:56	10/04/16 16:10
LES-24-TL-P	16J0353-05	Water	10/04/16 06:00	10/04/16 16:10
LES-23-OF-P	16J0353-06	Water	10/04/16 06:04	10/04/16 16:10
LES-17-DWS-P	16J0353-07	Water	10/04/16 06:08	10/04/16 16:10
LES-16-TL-P	16J0353-08	Water	10/04/16 06:12	10/04/16 16:10
LES-19-DW-P	16J0353-09	Water	10/04/16 06:15	10/04/16 16:10
LES-10-DWS-P	16J0353-10	Water	10/04/16 06:21	10/04/16 16:10
LES-15-DWS-P	16J0353-11	Water	10/04/16 06:23	10/04/16 16:10
LES-14-DWS-P	16J0353-12	Water	10/04/16 06:25	10/04/16 16:10
LES-12-DW-P	16J0353-13	Water	10/04/16 06:29	10/04/16 16:10
LES-9-DWS-P	16J0353-14	Water	10/04/16 06:33	10/04/16 16:10
LES-7-KF-P	16J0353-15	Water	10/04/16 06:36	10/04/16 16:10
LES-6-DWS-P	16J0353-16	Water	10/04/16 06:37	10/04/16 16:10
LES-8-DW-P	16J0353-17	Water	10/04/16 06:38	10/04/16 16:10
LES-3-DW-P	16J0353-18	Water	10/04/16 06:43	10/04/16 16:10
LES-4-KF-P	16J0353-19	Water	10/04/16 06:47	10/04/16 16:10
LES-1-DWS-P	16J0353-20	Water	10/04/16 06:51	10/04/16 16:10
LES-5-DWS-P	16J0353-21	Water	10/04/16 06:54	10/04/16 16:10
LES-46-DWS-P	16J0353-22	Water	10/04/16 06:58	10/04/16 16:10
LES-43-DWS-P	16J0353-23	Water	10/04/16 07:00	10/04/16 16:10
LES-41-DWS-P	16J0353-24	Water	10/04/16 07:01	10/04/16 16:10
LES-45-DW-P	16J0353-25	Water	10/04/16 07:06	10/04/16 16:10
LES-37-DWS-P	16J0353-26	Water	10/04/16 07:09	10/04/16 16:10
LES-33-DWS-P	16J0353-27	Water	10/04/16 07:11	10/04/16 16:10
LES-38-DWS-P	16J0353-28	Water	10/04/16 07:12	10/04/16 16:10

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Project Manager: Heidi Bauer
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Reported:
10/17/16 14:09

LES-36-DW-P	16J0353-29	Water	10/04/16 07:16	10/04/16 16:10
LES-40-DWS-P	16J0353-30	Water	10/04/16 07:19	10/04/16 16:10
LES-38-CF-P	16J0353-31	Water	10/04/16 07:20	10/04/16 16:10
LES-30-DWS-P	16J0353-32	Water	10/04/16 07:25	10/04/16 16:10
LES-31-DW-P	16J0353-33	Water	10/04/16 07:28	10/04/16 16:10
LES-28-DWS-P	16J0353-34	Water	10/04/16 07:31	10/04/16 16:10
LES-26-DWS-P	16J0353-35	Water	10/04/16 07:32	10/04/16 16:10
LES-21-DW-P	16J0353-36	Water	10/04/16 07:36	10/04/16 16:10



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Project Manager: Heidi Bauer
Project: Lead Monitoring Project
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Reported:
10/17/16 14:09

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
LES-25-KF-P (16J0353-01)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 20:35	EPA 200.8	
LES-1S-KF-F (16J0353-02)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 21:10	EPA 200.8	
LES-1M-KF-F (16J0353-03)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 21:15	EPA 200.8	
LES-1MQ-KF-F (16J0353-04)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 21:19	EPA 200.8	
LES-24-TL-P (16J0353-05)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 21:24	EPA 200.8	
LES-23-OF-P (16J0353-06)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/11/16 10:31	EPA 200.8	
LES-17-DWS-P (16J0353-07)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	48 ug/L	5.0	4	AJ63295	10/07/16 14:40	10/11/16 14:08	EPA 200.8	C-04
LES-16-TL-P (16J0353-08)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/11/16 10:36	EPA 200.8	
LES-19-DW-P (16J0353-09)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	4.0 ug/L	4.0	1	AJ63288	10/06/16 10:32	10/11/16 10:41	EPA 200.8	
LES-10-DWS-P (16J0353-10)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/11/16 10:46	EPA 200.8	
LES-15-DWS-P (16J0353-11)								

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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
LES-15-DWS-P (16J0353-11)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/11/16 10:51	EPA 200.8	
LES-14-DWS-P (16J0353-12)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/11/16 10:56	EPA 200.8	
LES-12-DW-P (16J0353-13)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:23	EPA 200.8	
LES-9-DWS-P (16J0353-14)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:28	EPA 200.8	
LES-7-KF-P (16J0353-15)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:33	EPA 200.8	
LES-6-DWS-P (16J0353-16)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:38	EPA 200.8	
LES-8-DW-P (16J0353-17)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:43	EPA 200.8	
LES-3-DW-P (16J0353-18)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:48	EPA 200.8	
LES-4-KF-P (16J0353-19)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:53	EPA 200.8	
LES-1-DWS-P (16J0353-20)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 22:58	EPA 200.8	
LES-5-DWS-P (16J0353-21)								

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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
LES-5-DWS-P (16J0353-21)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63288	10/06/16 10:32	10/10/16 20:40	EPA 200.8	
LES-46-DWS-P (16J0353-22)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	4.3 ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 16:09	EPA 200.8	
LES-43-DWS-P (16J0353-23)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 16:48	EPA 200.8	
LES-41-DWS-P (16J0353-24)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 16:53	EPA 200.8	
LES-45-DW-P (16J0353-25)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 16:58	EPA 200.8	
LES-37-DWS-P (16J0353-26)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 17:03	EPA 200.8	
LES-33-DWS-P (16J0353-27)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 17:08	EPA 200.8	
LES-38-DWS-P (16J0353-28)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 17:13	EPA 200.8	
LES-36-DW-P (16J0353-29)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 17:18	EPA 200.8	
LES-40-DWS-P (16J0353-30)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 17:23	EPA 200.8	
LES-38-CF-P (16J0353-31)								

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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
LES-38-CF-P (16J0353-31)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 17:27	EPA 200.8	
LES-30-DWS-P (16J0353-32)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 18:02	EPA 200.8	
LES-31-DW-P (16J0353-33)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 18:06	EPA 200.8	
LES-28-DWS-P (16J0353-34)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 18:11	EPA 200.8	
LES-26-DWS-P (16J0353-35)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 18:16	EPA 200.8	
LES-21-DW-P (16J0353-36)								
Metals by EPA Method 200.8 ICP/MS								P-02
Lead	ND ug/L	4.0	1	AJ63289	10/06/16 10:35	10/11/16 18:21	EPA 200.8	



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Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AJ63288 - EPA 200 Series										
Blank (AJ63288-BLK1)				Prepared: 10/06/16 Analyzed: 10/10/16						
Lead	ND	4.0	ug/L							
LCS (AJ63288-BS1)				Prepared: 10/06/16 Analyzed: 10/10/16						
Lead	20.8	4.0	ug/L	20.0		104	85-115			
Duplicate (AJ63288-DUP1)				Source: 16J0353-01 Prepared: 10/06/16 Analyzed: 10/10/16						
Lead	ND	4.0	ug/L		ND			0.858	20	
Matrix Spike (AJ63288-MS1)				Source: 16J0353-01 Prepared: 10/06/16 Analyzed: 10/10/16						
Lead	104	4.0	ug/L	100	ND	102	70-130			
Matrix Spike (AJ63288-MS2)				Source: 16J0353-21 Prepared: 10/06/16 Analyzed: 10/10/16						
Lead	103	4.0	ug/L	100	ND	102	70-130			
Matrix Spike Dup (AJ63288-MSD1)				Source: 16J0353-01 Prepared: 10/06/16 Analyzed: 10/10/16						
Lead	103	4.0	ug/L	100	ND	101	70-130	1.33	20	
Batch AJ63289 - EPA 200 Series										
Blank (AJ63289-BLK1)				Prepared: 10/06/16 Analyzed: 10/11/16						
Lead	ND	4.0	ug/L							
LCS (AJ63289-BS1)				Prepared: 10/06/16 Analyzed: 10/11/16						
Lead	21.4	4.0	ug/L	20.0		107	85-115			
Duplicate (AJ63289-DUP1)				Source: 16J0353-22 Prepared: 10/06/16 Analyzed: 10/11/16						
Lead	4.35	4.0	ug/L		4.33			0.493	20	

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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AJ63289 - EPA 200 Series										
Matrix Spike (AJ63289-MS1) Source: 16J0353-22 Prepared: 10/06/16 Analyzed: 10/11/16										
Lead	108	4.0	ug/L	100	4.33	103	70-130			
Matrix Spike (AJ63289-MS2) Source: 16J0427-01 Prepared: 10/06/16 Analyzed: 10/11/16										
Lead	104	4.0	ug/L	100	ND	104	70-130			
Matrix Spike Dup (AJ63289-MSD1) Source: 16J0353-22 Prepared: 10/06/16 Analyzed: 10/11/16										
Lead	107	4.0	ug/L	100	4.33	103	70-130	0.198	20	
Batch AJ63295 - EPA 200.8										
Blank (AJ63295-BLK1) Prepared: 10/07/16 Analyzed: 10/11/16										
Lead	ND	5.0	ug/L							
LCS (AJ63295-BS1) Prepared: 10/07/16 Analyzed: 10/11/16										
Lead	22.3	5.0	ug/L	20.0		112	85-115			
Duplicate (AJ63295-DUP1) Source: 16J0501-01 Prepared: 10/07/16 Analyzed: 10/11/16										
Lead	ND	5.0	ug/L		ND			3.95	20	
Matrix Spike (AJ63295-MS1) Source: 16J0501-01 Prepared: 10/07/16 Analyzed: 10/11/16										
Lead	21.7	5.0	ug/L	20.0	ND	108	70-130			
Matrix Spike Dup (AJ63295-MSD1) Source: 16J0501-01 Prepared: 10/07/16 Analyzed: 10/11/16										
Lead	21.6	5.0	ug/L	20.0	ND	107	70-130	0.383	20	

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Project Manager: Heidi Bauer
Project: Lead Monitoring Project
Project Number: MPCSD - Laurel Elementary School

Reported:
10/17/16 14:09

Notes and Definitions

- C-04 Result confirmed by re-analysis
- P-02 Sample was received with insufficient preservative. Sample was preserved and allowed to sit 24 hours before further processing.
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- REC Recovery
- RPD Relative Percent Difference



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916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Please also email EDF report

Lab No 16J0353 Pg 3 of 3

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Signature below authorizes work under terms stated on reverse side.

Report to		Company: Air and Water Sciences Attn: Heidi Bauer, Aniko Molnar, Chip Prokop and Becky Shellink Address: 625 2nd Street, ste 210 Petaluma, CA 94952 Phone: 707-769-2289 Email Addresses for Reports: heidi@awsciences.com, amolnar@awsciences.com, cprokop@awsciences.com, becky@awsciences.com		Contact: Aniko Molnar/Heidi Bauer INVOICE TO: lesley@awsciences.com Attn: Lesley Hunter Ph: 707-769-2289		Phone: 707-769-2289		Project ID: MPCSD		Project No: 1753		PROJECT NAME: MPCSD-Laurel Elementary School		Signature below authorizes work under terms stated on reverse side.			
Field Sampler - Printed Name & Signature: Bryn Kirk Bryn Kirk		Container		Preservative		Matrix		Total Number of Containers per Sample ID Lead (200.8)		Analysis Request		TAT Standard 10 days RUSH: 5 days 48 hours Other: Lab preapproval required		Temp upon Receipt Ukiah temp: Dublin temp:			
Sample Identification		Sampling		250 ml poly		NONE		Water		DDW Source Numbers:		Sample Notes or					
		Date		Time													
LES-45-DW-P		10/4/16		7:06		X		X		X		1		X		lower	
LES-37-DWS-P		}		7:09		}		}		}		}		}			
LES-33-DWS-P		}		7:11		}		}		}		}		}			
LES-38-DWS-P		}		7:12		}		}		}		}		}			
LES-36-DW-P		}		7:16		}		}		}		}		}		upper, lower no work	
LES-40-DWS-P		}		7:19		}		}		}		}		}			
LES-38-DWS-P		}		7:20		}		}		}		}		}			
LES-30-DWS-P		}		7:25		}		}		}		}		}			
LES-31-DW-P		}		7:28		}		}		}		}		}		lower	
LES-28-DWS-P		}		7:31		}		}		}		}		}			
LES-26-DWS-P		}		7:32		}		}		}		}		}		LES-26 per Bryn.	
LES-21-DW-P		}		7:36		}		}		}		}		}		right	
Relinquished by Bryn Kirk		Received by		Date		Time		DDW Write On EDT Transmission?		State System Number:		Travel and Site Time:		Mileage:		Misc. Supplies:	
				10/4/16		0350		<input type="radio"/> Yes									
				10/9/16		1610				If "Y" please enter the Source Number(s) in the column above							



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ELAP Certificates 1551, 2728, and 2922

09 November 2016

Air & Water Sciences

Attn: Aniko Molnar

625 2nd Street, Suite 210

Petaluma, CA 94952

RE: Lead Monitoring Project

Work Order: 16K0593

Enclosed are the results of analyses for samples received by the laboratory on 11/04/16 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For Robbie C. Phillips

Project Manager



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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Aniko Molnar
Project: Lead Monitoring Project
Project Number: Laurel School (LES)

Reported:
11/09/16 14:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LES-17-DWS-P2	16K0593-01	Water	11/03/16 08:40	11/04/16 17:00
LES-17-DWS-F	16K0593-02	Water	11/03/16 08:41	11/04/16 17:00



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Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Aniko Molnar
Project: Lead Monitoring Project
Project Number: Laurel School (LES)

Reported:
11/09/16 14:50

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
LES-17-DWS-P2 (16K0593-01)								
Metals by EPA Method 200.8 ICP/MS								
Lead	15 ug/L	4.0	1	AK63258	11/07/16 14:43	11/08/16 09:25	EPA 200.8	C-04
LES-17-DWS-F (16K0593-02)								
Metals by EPA Method 200.8 ICP/MS								
Lead	ND ug/L	4.0	1	AK63258	11/07/16 14:43	11/08/16 09:32	EPA 200.8	



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Petaluma, CA 94952

Project Manager: Aniko Molnar
Project: Lead Monitoring Project
Project Number: Laurel School (LES)

Reported:
11/09/16 14:50

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AK63258 - EPA 200 Series										
Blank (AK63258-BLK1)				Prepared & Analyzed: 11/07/16						
Lead	ND	4.0	ug/L							
LCS (AK63258-BS1)				Prepared & Analyzed: 11/07/16						
Lead	21.8	4.0	ug/L	20.0		109	85-115			
Duplicate (AK63258-DUP1)				Source: 16K0536-36 Prepared & Analyzed: 11/07/16						
Lead	ND	4.0	ug/L		ND			0.524	20	
Matrix Spike (AK63258-MS1)				Source: 16K0536-36 Prepared & Analyzed: 11/07/16						
Lead	107	4.0	ug/L	100	ND	105	70-130			
Matrix Spike (AK63258-MS2)				Source: 16K0536-40 Prepared & Analyzed: 11/07/16						
Lead	108	4.0	ug/L	100	ND	105	70-130			
Matrix Spike Dup (AK63258-MSD1)				Source: 16K0536-36 Prepared & Analyzed: 11/07/16						
Lead	106	4.0	ug/L	100	ND	104	70-130	0.953	20	



Alpha Analytical Laboratories Inc.

e-mail: clientservices@alpha-labs.com

Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267

Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309

Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

Air & Water Sciences
625 2nd Street, Suite 210
Petaluma, CA 94952

Project Manager: Aniko Molnar
Project: Lead Monitoring Project
Project Number: Laurel School (LES)

Reported:
11/09/16 14:50

Notes and Definitions

- C-04 Result confirmed by re-analysis
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- REC Recovery
- RPD Relative Percent Difference



Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
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ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2822

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Central Valley Laboratory
9090 Union Park Way #113, Elk Grove CA 95624
916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Please also email EDF report

Lab No 16K0593 Pg _____ of _____

Signature below authorizes work under terms stated on reverse side.

Report to		Company: Air and Water Sciences		Contact: Aniko Molnar/Heidi Bauer		Phone: 707-769-2289		Analysis Request										TAT		Temp upon Receipt	
Attn: Heidi Bauer, Aniko Molnar, Chip Prokop and Becky Shellink		Invoice TO: lesley@awsciences.com		Project ID: MPCSD		Project No: 1753												Standard 10 days <input type="radio"/>		Ukiah temp: 7.6	
Address: 625 2nd Street, ste 210 Petaluma, CA 94952		Attn: Lesley Hunter		PROJECT NAME: Laurel School (LES)		RUSH: 5 days <input type="radio"/> 48 hours <input type="radio"/> 3 DAY Other: <input checked="" type="radio"/>		Dublin temp:		Lab preapproval required		Sample Notes or DDW Source Numbers:									
Phone: 707-769-2289		Email Addresses for Reports: heidi@awsciences.com, amolnar@awsciences.com, cprokop@awsciences.com, becky@awsciences.com		Field Sampler - Printed Name & Signature: Trent Williams		Container		Preservative		Matrix		Total Number of Containers per Sample ID Lead (EPA 800.8)									
Sample Identification		Sampling		250 ml poly		NONE		Water													
		Date		Time																	
Les-17-DWS-P2		11/3/16		12:40		X		X		X		X									
Les-17-DWS-F		11/3/16		8:41		X		X		X		X									
Relinquished by		Received by		Date		Time		DDW Write On EDT Transmission? <input type="radio"/> Yes		State System Number:		If "Y" please enter the Source Number(s) in the column above		Travel and Site Time:		Misc. Supplies:					
<i>[Signature]</i>		<i>[Signature]</i>		11/3/16		1315															
<i>[Signature]</i>		<i>[Signature]</i>		11-4-16		1700															