Lead in Drinking Water Sampling Report

District Office and Teacher Education Resource Center
181 Encinal Avenue
Atherton, Ca 94027

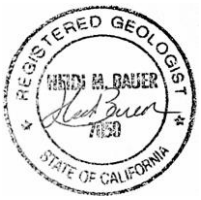
Prepared For:

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

Prepared By:

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

November 2016



Heidi M. Bauer, PG

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

Lead in Drinking Water Sampling Report

District Office and Teacher Education Resource Center

Introduction

The Menlo Park City School District (MPCSD) requested that the potable water at the above facilities used for drinking and cooking by students and staff be tested for the presence of the heavy metal lead. Schools, nor their support facilities, 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 law requires that the public water supply districts test water for lead and that lead levels in the drinking water supply have lead concentrations below the US Environmental Protection Agency (EPA) action level of 15 µg/L. However, the MPCSD recognizes that school facilities, 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 conduct sampling for the presence and/or amount of lead in the drinking water at outlets at these facilities.

Sources of Lead in Drinking Water at Schools

Lead can enter the drinking water at a school or facility 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 may be present. Stagnant water in the school pipes can have extended contact with lead containing materials and components. Due to these 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 Menlo Park must comply with the LCR which sets a 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 Lead and Copper Rule (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 a lead action level of 15 µg/L for one liter samples collected at high-risk residences. If more than 10% 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 that water fountains and/or other

outlets used for consumption be taken out of service 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.

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 identified by a MPCSD representative.
- 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

The District Office and the Teacher Education Resource Center (TERC) are located at 195 Encinal Avenue in Atherton, CA. The exact date of construction for the facilities are unknown and it is unknown if there have been any plumbing improvements, replacements, or modernizations since its original construction.

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 District Office and TERC on October 5, 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 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.

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 if follow-up flush sampling is necessary.

AWS collected a total of four (4) samples total, two each from the DO and TERC. 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) proceeded by the attached laboratory report.

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

The analytical results from the testing are shown on the attached table (Table 1). All of the samples collected from this site were below the EPA's action level of 15 µg/L for lead in public water supply systems, as well as being below the EPA's 20 µg/L recommendation for lead in school drinking water.

Conclusions and Recommendations

As mentioned above, the *EPA's 3T's* guidance document states that the sample results should be below 20 µg/L and that outlets that are found above these levels should be taken out of service until the source can be determined. 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 of 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.

None of the samples collected at the two facilities exceeded the MCL of 15 µg/L, therefore, no additional testing is warranted at this time. It is recommended that periodic monitoring of the outlets 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

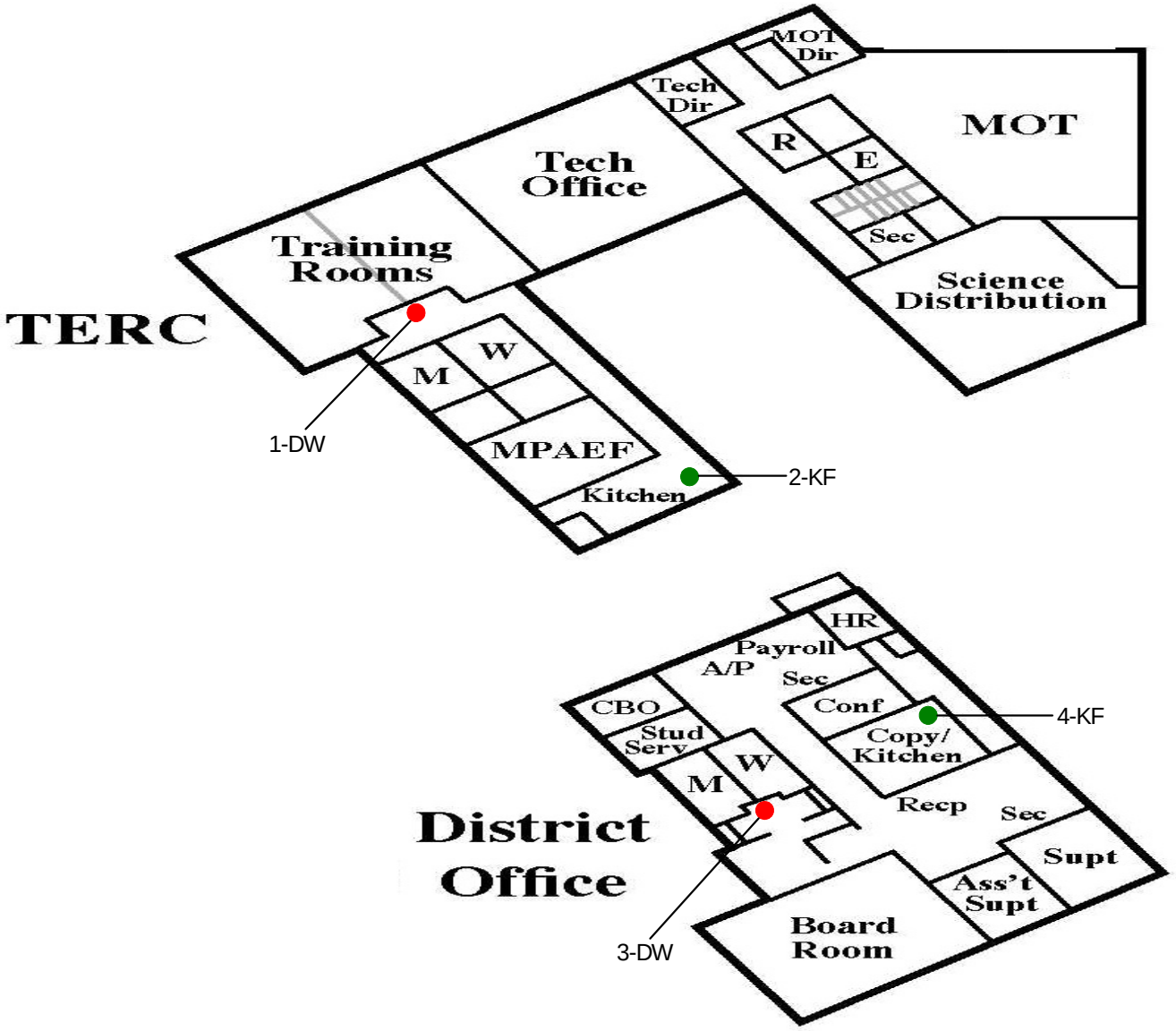
3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance
United States Environmental Protection Agency, October 2006.

Drinking Water Best Management Practices, United States Environmental Protection Agency, April 2013

N

LEGEND

- DW - Drinking Water Fountain
- DWS - Drinking Fountain in Sink
- KF - Kitchen Faucet
- NS - Nurse's Office Sink
- TL - Teacher/Staff Lounge Sink
- CF - Classroom Faucet
- EC - Home Economics Sink
- WC - Water Cooler Fountain
- SC - Sevice Connection
- * New Faucet



Air & Water SCIENCES
Environmental Consultants

DISTRICT OFFICE/TERC
181 Encinal Ave.
Atherton, CA 94027

BASEMAP: MENLO PARK CITY SCHOOL DISTRICT

SAMPLING LOCATION MAP

PROJECT NO. 1753

Table 1
Analytical Results
Lead (Pb) in Drinking Water
District Office and TERC

Sample ID Number	Sample collection date	Type of Outlet	Sample Location	Type of Sample	Lead (Pb) (µg/L)
DOTERC-1-DW-P	10/05/2016	Fountain	TERC-outside of training rm	Initial	ND
DOTERC-2-KF-P	10/05/2016	Faucet	TERC Kitchen	Initial	ND
DOTERC-3-DW-P	10/05/2016	Fountain	District Office-outside of bathrooms	Initial	ND
DOTERC-4-KF-P	10/05/2016	Faucet	District Office-Kitchen	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

Air&WaterSciences

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

ELAP Certificates 1551, 2728, and 2922

24 October 2016

Air & Water Sciences
Attn: Aniko Molnar
625 2nd Street, Suite 210
Petaluma, CA 94952
RE: Lead Monitoring Project
Work Order: 16J0443

Enclosed are the results of analyses for samples received by the laboratory on 10/05/16 15:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cheryl Watson For Robbie C. Phillips
Project Manager

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	Project Manager: Aniko Molnar	
625 2nd Street, Suite 210	Project: Lead Monitoring Project	Reported:
Petaluma, CA 94952	Project Number: DOTERC-District Office/TERC	10/24/16 09:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DOTERC-1-DW-P	16J0443-01	Water	10/05/16 06:00	10/05/16 15:40
DOTERC-2-KF-P	16J0443-02	Water	10/05/16 06:01	10/05/16 15:40
DOTERC-3-DW-P	16J0443-03	Water	10/05/16 06:03	10/05/16 15:40
DOTERC-4-KF-P	16J0443-04	Water	10/05/16 06:04	10/05/16 15:40

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	Project Manager: Aniko Molnar	
625 2nd Street, Suite 210	Project: Lead Monitoring Project	Reported:
Petaluma, CA 94952	Project Number: DOTERC-District Office/TERC	10/24/16 09:34

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
DOTERC-1-DW-P (16J0443-01)		**Sample Type: Water**				**Sampled: 10/05/16 06:00**		
Metals by EPA Method 200.8 ICP/MS								**P-02**
Lead	ND ug/L	4.0	1	AJ63434	10/11/16 09:55	10/12/16 15:16	EPA 200.8	
DOTERC-2-KF-P (16J0443-02)		**Sample Type: Water**				**Sampled: 10/05/16 06:01**		
Metals by EPA Method 200.8 ICP/MS								**P-02**
Lead	ND ug/L	4.0	1	AJ63434	10/11/16 09:55	10/12/16 16:00	EPA 200.8	
DOTERC-3-DW-P (16J0443-03)		**Sample Type: Water**				**Sampled: 10/05/16 06:03**		
Metals by EPA Method 200.8 ICP/MS								**P-02**
Lead	ND ug/L	4.0	1	AJ63434	10/11/16 09:55	10/12/16 16:04	EPA 200.8	
DOTERC-4-KF-P (16J0443-04)		**Sample Type: Water**				**Sampled: 10/05/16 06:04**		
Metals by EPA Method 200.8 ICP/MS								**P-02**
Lead	ND ug/L	4.0	1	AJ63434	10/11/16 09:55	10/12/16 16:09	EPA 200.8	

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	Project Manager: Aniko Molnar	
625 2nd Street, Suite 210	Project: Lead Monitoring Project	Reported:
Petaluma, CA 94952	Project Number: DOTERC-District Office/TERC	10/24/16 09:34

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 AJ63434 - EPA 200 Series										
Blank (AJ63434-BLK1)				Prepared: 10/11/16 Analyzed: 10/12/16						
Lead	ND	4.0	ug/L							
LCS (AJ63434-BS1)				Prepared: 10/11/16 Analyzed: 10/12/16						
Lead	21.0	4.0	ug/L	20.0		105	85-115			
Duplicate (AJ63434-DUP1)		**Source: 16J0443-01**		Prepared: 10/11/16 Analyzed: 10/12/16						
Lead	ND	4.0	ug/L		ND			3.81	20	
Matrix Spike (AJ63434-MS1)		**Source: 16J0443-01**		Prepared: 10/11/16 Analyzed: 10/12/16						
Lead	107	4.0	ug/L	100	ND	106	70-130			
Matrix Spike (AJ63434-MS2)		**Source: 16J0584-14**		Prepared: 10/11/16 Analyzed: 10/12/16						
Lead	106	4.0	ug/L	100	ND	106	70-130			
Matrix Spike Dup (AJ63434-MSD1)		**Source: 16J0443-01**		Prepared: 10/11/16 Analyzed: 10/12/16						
Lead	107	4.0	ug/L	100	ND	105	70-130	0.529	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	Project Manager: Aniko Molnar	
625 2nd Street, Suite 210	Project: Lead Monitoring Project	Reported:
Petaluma, CA 94952	Project Number: DOTERC-District Office/TERC	10/24/16 09:34

Notes and Definitions

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

Alpha Analytical Laboratories Inc.
www.alpha-labs.com
WATERS, SEDIMENTS, SOLIDS

Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
email: clientservices@alpha-labs.com

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Bay Area Laboratory
6398 Dougherty Rd #35, Dublin CA 94568
925-828-6226 F) 925-828-6309

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 16J0443 Pg 1 of 1

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
Attn: Heidi Bauer, Aniko Molnar, Chip Prokop and Becky Shellink	**INVOICE TO:** lesley@awsciences.com Attn: Lesley Hunter	**Project ID:** MPCSD
Address: 625 2nd Street, ste 210 Petaluma, CA 94952	Ph: 707-769-2289	**Project No:** 1753
Phone: 707-769-2289	**PROJECT NAME:** DOTERC - District Office/TERC	

Email Addresses for Reports: heidi@awsciences.com, amolnar@awsciences.com, cprokop@awsciences.com, becky@awsciences.com

Field Sampler - Printed Name & Signature: Bryn Kirk Bryn Kirk

Sample Identification	Sampling Date	Sampling Time	Container: 250 ml poly	Preservative: NONE	Matrix: Water	Total Number of Containers per Sample ID	Analysis Request: Lead (200.8)
DOTERC-1-DW-P	10/5/16	6:00	X	X	X	1	X
DOTERC-2-KF-P	"	6:01	"	"	"	1	"
DOTERC-3-DW-P	"	6:03	"	"	"	1	"
DOTERC-4-KF-P	"	6:04	"	"	"	1	"

TAT
Standard 10 days ●
RUSH: 5 days ○ 48 hours ○ Other: ○
Lab preapproval required

Temp upon Receipt
Ukiah temp: 19
Dublin temp:

Sample Notes or DDW Source Numbers:

Relinquished by	Received by	Date	Time
Bryn Kirk	Daval Pena	10.5.16	12:10
Daval Pena	Lesley Hunter	10.5.16	15:40

DDW Write On EDT Transmission? ○ Yes

State System Number: _____

If "Y" please enter the Source Number(s) in the column above

Travel and Site Time:	Mileage:	Misc. Supplies: