



Engineering +
Environmental

November 22, 2016

Jeremy Miller
Maintenance Manager
Department of Administrative Services
Enterprise Asset Management Division
1225 Ferry Street SE
Salem, Oregon 97301

Via email: Jeremy.W.MILLER@oregon.gov

Regarding: Drinking Water Sampling for Lead
Irwin House
850 D Street
Salem, Oregon 97301
PBS Project # 25103.003 Phase 0014

Dear Mr. Miller:

On October 12, 2016, PBS Engineering and Environmental Inc. (PBS) performed drinking water sampling at Irwin House located at 850 D Street in Salem, Oregon. The testing was requested by State of Oregon Department of Administrative Services in an effort to ensure that concentrations of lead in drinking water remain below the EPA action level.

Sampling methodology and the interpretation of laboratory results were based on the EPA Lead and Copper Rule (LCR). Following LCR sampling guidelines, PBS collected the first 1000 milliliters (mL) of water from each test location (first draw) early in the morning following an overnight stagnation period. The LCR's stagnation period, and sampling protocol specifying the first 1000 mL samples, is designed to maximize the likelihood that the highest concentrations of lead are identified in water used for consumption. At each sample location, immediately following first draw sampling, a flush sample was collected after the water had been allowed to run for 30 seconds.

The water sampling process was supervised by a certified industrial hygienist (CIH) who is also an Oregon Health Authority certified lead risk assessor.

The action level set by the EPA for lead is 15 parts per billion (ppb). If the action level is exceeded in more than 10 percent of taps sampled, then action must be taken to control plumbing-material corrosion.

One first draw and one flush drinking water samples were collected and delivered under chain of custody to BSK Laboratories in Vancouver, Washington for lead analysis. Only the first draw sample was analyzed. If the first draw sample had exceeded the EPA action level for lead, its associated flush sample would have been analyzed.

The lead concentration in the first draw sample was 0.45 ppb, indicating that this drinking water sample contained lead at a concentration below the EPA action level of 15 ppb.

The following table presents the first draw sample location and lead concentration in ppb.

4412 SW Corbett Avenue, Portland, OR 97239
503.248.1939 Main
866.727.0140 Fax
888.248.1939 Toll-Free
www.pbsenv.com

First Draw Drinking Water Sample Locations and Lead Concentrations

Sample Number	Sample Location	Lead Concentration (ppb)
SK-IRH-001-FD	First floor kitchen sink	0.45

ND: None Detected

Please refer to the attached Chain of Custody form and laboratory data for greater details. It should be noted that quality control (QC) sample results are included at the end of laboratory information. The QC samples are both laboratory blanks and spiked samples used internally by the laboratory to assess accuracy.

Please feel free to contact me at 503.417.7602 or derek.may@pbsenv.com with any questions or comments.

Sincerely,
PBS Engineering and Environmental Inc.



Derek May, Principal

Attachments: Laboratory Results
Chain of Custody Form

DM::bmp

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BSK Associates Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)



A6J1884
10/25/2016

Derek May
PBS Environmental
4412 SW Corbett Ave
Portland, OR 97239

RE: Report for A6J1884 Oregon DAS - Lead

Dear Derek May,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/13/2016. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Debra Karlsson, at 559-497-2888.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Debra Karlsson, Project Coordinator



Accredited in Accordance with NELAP
ORELAP #4021

Case Narrative

Project and Report Details **Invoice Details**

Client: PBS Environmental
Report To: Derek May
Project #: Irwin House #25103.003 PH 14
Received: 10/13/2016 - 09:00
Report Due: 10/27/2016

Invoice To: PBS Environmental
Invoice Attn: Accounts Payable
Project PO#: -

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 20.2

Containers Intact
COC/Labels Agree
Received with no thermal preservation.
Sample(s) split after receipt at the laboratory.
Initial receipt at BSK-VAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

None applied

Report Distribution

Recipient(s)	Report Format	CC:
Derek May	FINAL.RPT	



A6J1884

Oregon DAS - Lead
Irwin House #25103.003 PH 14

Certificate of Analysis

Sample ID: A6J1884-01
Sampled By: Client
Sample Description: SK-IRH-001-FD // 1st Floor kitchen sink

Sample Date - Time: 10/12/16 - 00:00
Matrix: Drinking Water
Sample Type: First Draw

BSK Associates Fresno Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Lead	EPA 200.8	0.00045	0.000071	mg/L	0.07	A614372	10/19/16	10/19/16	

BSK Associates Fresno
Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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EPA 200.8 - Quality Control

Batch: A614372

Prepared: 10/19/2016

Prep Method: EPA 200.2

Analyst: GNG

Blank (A614372-BLK1)

Lead	ND	0.0010	mg/L							10/19/16	
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Blank Spike (A614372-BS1)

Lead	0.11	0.0010	mg/L	0.10		107	85-115			10/19/16	
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Blank Spike Dup (A614372-BSD1)

Lead	0.11	0.0010	mg/L	0.10		107	85-115	1	20	10/19/16	
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Matrix Spike (A614372-MS1), Source: A6J1873-05

Lead	0.20	0.0020	mg/L	0.20	ND	101	70-130			10/19/16	
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Matrix Spike (A614372-MS2), Source: A6J1873-25

Lead	0.20	0.0020	mg/L	0.20	ND	102	70-130			10/19/16	
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Matrix Spike Dup (A614372-MSD1), Source: A6J1873-05

Lead	0.20	0.0020	mg/L	0.20	ND	102	70-130	1	20	10/19/16	
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Matrix Spike Dup (A614372-MSD2), Source: A6J1873-25

Lead	0.21	0.0020	mg/L	0.20	ND	103	70-130	1	20	10/19/16	
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Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

****NA****

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-16

Sacramento

State of California - ELAP	2435
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San Bernardino

State of California - ELAP	2993	State of Oregon - NELAP	4119-001
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Vancouver

State of Oregon - NELAP	WA100008-008	State of Washington	C824-16
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Sample Integrity



BSK Bottles: Yes No Page 1 of 1

COC Info	Was temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 10^{\circ}\text{C}$	Yes	No	<u>NA</u>	Were correct containers and preservatives received for the tests requested?	<u>Yes</u>	No	NA
	If samples were taken today, is there evidence that chilling has begun?	Yes	No	<u>NA</u>	Were there bubbles in the VOA vials? (Volatiles Only)	Yes	No	<u>NA</u>
	Did all bottles arrive unbroken and intact?	<u>Yes</u>	No		Was a sufficient amount of sample received?	<u>Yes</u>	No	<u>NO</u>
	Did all bottle labels agree with COC?	<u>Yes</u>	No		Do samples have a hold time <72 hours?	Yes	<u>No</u>	
	Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes	No	<u>NA</u>	Was PM notified of discrepancies? PM: _____ By/Time: _____	Yes	No	<u>NA</u>

Bottles Received	250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?						
	Bacti $\text{Na}_2\text{S}_2\text{O}_3$	—	—						
	None (P) White Cap	—	—						
	Cr6 (P) Lt. Green Label/Blue Cap $\text{NH}_4\text{OH}(\text{NH}_4)_2\text{SO}_4$ DW	Cl, pH > 8	Y N						
	Cr6 (P) Pink Label/Blue Cap $\text{NH}_4\text{OH}(\text{NH}_4)_2\text{SO}_4$ WW	pH 9.3-9.7	Y N						
	Cr6 (P) Black Label/Blue Cap $\text{NH}_4\text{OH}(\text{NH}_4)_2\text{SO}_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	Y N						
	HNO₃ (P) Red Cap HCl (P) Purple Cap/Lt. Blue Label	—	—						
	H ₂ SO ₄ (P) or (AG) Yellow Cap/Label	pH < 2	Y N						
	NaOH (P) Green Cap	Cl, pH > 10	Y N						
	NaOH + ZnAc (P)	pH > 9	Y N						
	Dissolved Oxygen 300ml (g)	—	—						
	None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—						
	HCl (AG) Lt. Blue Label O&G, Diesel	—	—						
	Ascorbic, EDTA, KH ₂ Cl (AG) Pink Label 525	—	—						
	Na ₂ O ₃ S 250mL (AG) Neon Green Label 515	—	—						
	Na ₂ S ₂ O ₃ 1 Liter (Brown P) 549	—	—						
	Na ₂ S ₂ O ₃ (AG) Blue Label 548, THM, 524	—	—						
	Na ₂ S ₂ O ₃ (CG) Blue Label 504, 505, 547	—	—						
	Na ₂ S ₂ O ₃ + MCAA (CG) Orange Label 531	pH < 3	Y N						
	NH ₄ Cl (AG) Purple Label 552	—	—						
	EDA (AG) Brown Label DBPs	—	—						
	HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624	—	—						
	Buffer pH 4 (CG)	—	—						
	H ₃ PO ₄ (CG) Salmon Label	—	—						
	Other:								
	Asbestos 1Liter Plastic w/ Foil	—	—						
	Low Level Hg / Metals Double Baggie	—	—						
	Bottled Water	—	—						
	Clear Glass 250mL / 500mL / 1 Liter	—	—						
	Soil Tube Brass / Steel / Plastic	—	—						
	Tedlar Bag / Plastic Bag	—	—						

Split	Container			Preservative			Date/Time/Initials		
	S	P		S	P		S	P	
	<u>S</u>	<u>P</u>	<u>250*</u>						
	S	P					S	P	

Comments: * Odd numbers only. RLR



A6J1884



10172016

PBSEN1939

Turnaround: Standard

Due Date: 10/27/2016



PBS Environmental



Printed: 10/19/2016 10:55:09AM

Page 1 of 1

Page 8 of 9

Sample Integrity

BSK Bottles: Yes No *PKR* Page 1 of 1



COC Info		Yes	No	NA	Were correct containers and preservatives received for the tests requested?		Yes	No	NA
Was temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 10^{\circ}\text{C}$				<input checked="" type="radio"/>	Were there bubbles in the VOA vials? (Volatiles Only)		<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
If samples were taken today, is there evidence that chilling has begun?		<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Was a sufficient amount of sample received?		<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Did all bottles arrive unbroken and intact?		<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Do samples have a hold time <72 hours?		<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Did all bottle labels agree with COC?		<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Was PM notified of discrepancies? PM: _____ By/Time: _____		<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?		<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>					
250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)		Checks	Passed?						
Bacti $\text{Na}_2\text{S}_2\text{O}_3$		—	—						
None (P) White Cap		—	—						
Cr6 (P) Lt. Green Label/Blue Cap $\text{NH}_4\text{OH}(\text{NH}_4)_2\text{SO}_4$ DW		Cl, pH > 8	Y N						
Cr6 (P) Pink Label/Blue Cap $\text{NH}_4\text{OH}(\text{NH}_4)_2\text{SO}_4$ WW		pH 9.3-9.7	Y N						
Cr6 (P) Black Label/Blue Cap: $\text{NH}_4\text{OH}(\text{NH}_4)_2\text{SO}_4$ 7199 ***24 HOUR HOLD TIME***		pH 9.0-9.5	Y N						
HNO ₃ (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label		—	—						
H ₂ SO ₄ (P) or (AG) Yellow Cap/Label		pH ≤ 2	Y N						
NaOH (P) Green Cap		Cl, pH > 10	Y N						
NaOH + ZnAc (P)		pH > 9	Y N						
Dissolved Oxygen 300ml (g)		—	—						
None (AG) 608/808/18082, 625, 632/8921, 8151, 8270		—	—						
HCl (AG) Lt. Blue Label O&G Diesel		—	—						
Ascorbic, EDTA, KH ₂ Cl (AG) Pink Label 525		—	—						
Na ₂ O ₃ S 250mL (AG) Neon Green Label 515		—	—						
Na ₂ S ₂ O ₃ 1 Liter (Brown P) 549		—	—						
Na ₂ S ₂ O ₃ (AG) Blue Label 548, THM, 524		—	—						
Na ₂ S ₂ O ₃ (CG) Blue Label 504, 505, 547		—	—						
Na ₂ S ₂ O ₃ + MCAA (CG) Orange Label 531		pH < 3	Y N						
NH ₄ Cl (AG) Purple Label 552		—	—						
EDA (AG) Brown Label DBPs		—	—						
HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624		—	—						
Buffer pH 4 (CG)		—	—						
H ₃ PO ₄ (CG) Salmon Label		—	—						
Other:									
Asbestos 1Liter Plastic w/ Foil		—	—						
Low Level Hg / Metals Double Baggie		—	—						
Bottled Water		—	—						
Clear Glass 250mL / 500mL / 1 Liter		—	—						
Soil Tube Brass / Steel / Plastic		—	—						
Tedlar Bag / Plastic Bag		—	—						
Split	Container	Preservative	Date/Time/Initials	Container	Preservative	Date/Time/Initials			
	<input checked="" type="radio"/> S <input type="radio"/> P 250*			<input type="radio"/> S <input type="radio"/> P					
Comments									
	* Odd numbers only. PKR all samples received 10/13/16								