



December 18, 2017

School District 68 (Nanaimo-Ladysmith) 395 Wakesiah Road Nanaimo, BC V9R 3K6 ISSUED FOR USE FILE: 704-ENW.VENW03140-01 Via Email: BHackwood@sd68.bc.ca; Chris.Baker@sd68.bc.ca

Attention: Mr. Brian Hackwood, Maintenance Manager

Subject: Domestic Water Testing (Lead) Inventory – Mount Benson Elementary

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained School District 68 Nanaimo-Ladysmith (SD 68) to conduct a domestic water testing inventory at Mount Benson Elementary located in SD 68. Tetra Tech understands that the BC Ministry of Education has issued a directive to protect drinking water. The directive requires that a systematic investigation of public drinking water supplies at select schools in the District be undertaken. The investigation is based on procedures set forth by the Vancouver Island Health Authority (VIHA), modified per Health Canada guidelines, to ascertain risk and mitigation.

Tetra Tech understands that the sampling schedule, collection, testing and reporting of results needs to be completed by December 22, 2017 in order to allow sufficient time for SD 68 to implement mitigation measures prior to its deadline of March 31, 2018.

Carrie McVeigh, of SD 68, provided Tetra Tech with authorization to proceed with the inventory on October 24, 2017.

2.0 METHODOLOGY

Tetra Tech completed the domestic water testing inventory program at Mount Benson Elementary on November 27th, 2017. The 2017 sampling program was conducted as per the protocols established during the 2016 program. The methodologies employed during the field program are detailed in the following subsections.

2.1 Sampling Locations

Tetra Tech reviewed plans for the facility prior to commencing the field work to identify potential sampling locations. The facility was then assessed in the field and sampling locations were selected based on the probability of human consumption at a location. The sampling locations included one point that was closest to the location where the water supply enters the building, one that is the furthest point from where the water supply enters the building and from points where human consumption of water occurred or was reasonably likely to occur. The sampling locations for Mount Benson Elementary are shown on the attached Figure 1.

Drinking fountains and kitchen sinks were all considered to have a high probability of human consumption of water and were always sampled. Sinks with visible evidence of human consumption of water, such as water bottles, cups, or electric kettles were also considered to have a high probability of human consumption of water and were sampled. Although classroom sinks were considered to have a moderate probability of human consumption of water, only



representative samples were collected as per the direction of SD 68 Maintenance Manager, Mr. Brian Hackwood. Classroom laboratory and art room sinks, where present, were considered to have a low probability of human consumption of water so only representative samples were collected. Finally, washrooms and utility sinks, unless there was other evidence of human consumption of water (such as an electric kettle) were considered to be a low probability of human consumption of water and only representative samples were collected.

2.2 Drinking Water Sampling

Sampling was conducted in the early hours of Monday, November 27th, 2017 in order collect water samples representative of an approximate worse-case scenario of water that had remained in contact with the school's plumbing over the course of a weekend. Two samples were collected at each sample location; the first collected immediately prior to any water line flushing (0 second sample); the second collected after thirty seconds of water line flushing (30 second sample).

The process for the sequence of analysis for a sample location is as follows:

- Only the pre-flush (0 second) sample is initially submitted for laboratory analysis;
- If the analytical result exceeds the *Guidelines for Canadian Drinking Water Quality* (GCDWQ) Maximum Allowable Concentration (MAC), the 30 second sample would be submitted for further analysis; and
- If the 30 second sample analytical result exceeds the GCDWQ MAC, additional samples would be collected after flushing with cold water for 2 minutes and 5 minutes at a subsequent sampling event and both samples submitted for analysis.

Water samples were collected directly from the sample point into clean, labeled, new laboratory-supplied containers pre-charged with preservative for total lead. Sampling personnel wore new nitrile gloves prior to collecting each sample. Samples were kept in a cooler with ice after collection until being brought back to Tetra Tech's Nanaimo office, where samples not immediately submitted to the laboratory were stored in refrigerated conditions.

2.3 Analytical Testing

Maxxam is a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory that is qualified to analyze the samples using British Columbia Ministry of Environment (MOE)-approved procedures. All water samples submitted were analyzed for total lead.

2.4 Quality Assurance / Quality Control

During the sampling program, Tetra Tech implemented a Quality Assurance/Quality Control (QA/QC) program to ensure the integrity of the sampling methodology and analytical testing. The QA/QC program adhered to Tetra Tech's in-house Quality Management System (QMS), which was designed to generate representative samples, minimize the potential for cross-contamination between sampling locations and samples, and reduce the potential for systematic bias.

The QA/QC program included the following tasks:

- Recording the results of field activities in the field concurrently with the activities;
- Use of clean, new sampling gloves at each sampling location;
- Placing samples into new, labeled laboratory-supplied containers;





- Transporting samples to Maxxam in chilled coolers using chain-of-custody procedures;
- Using a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory that is qualified to analyze the samples using MOE-approved procedures;
- Independently verifying the sample concentrations flagged by Maxxam as being greater than Health Canada guidelines; and
- Conducting a review of this report by a qualified senior Tetra Tech professional to ensure that the report meets Tetra Tech technical and reporting requirements.

Laboratory Quality Assurance / Quality Control Program

Water samples were submitted to Maxxam, a CALA accredited laboratory. Laboratory testing was conducted using methods outlined in the British Columbia Environmental Laboratory Manual. Laboratory QA/QC reports are attached to the laboratory reports presented in Appendix B. Samples included in the QA/QC reports consist of laboratory batches and will include random samples from the lab report and potentially other projects to complete a batch.

The Laboratories noted any sample deficiencies, such as unacceptable headspace, broken jars or bottles, etc. As well, the laboratory measured the temperature of samples received by the laboratory in Burnaby.

3.0 ASSESSMENT STANDARDS

As per the guidance from the Vancouver Island Health Authority (VIHA), Tetra Tech compared the sample analytical results to the *Guidelines for Canadian Drinking Water Quality* (GCDWQ) published by Health Canada, February 2017. The guidelines list a Maximum Acceptable Concentration (MAC) for lead of 10 µg/L (0.010 mg/L). The MAC for lead is based on chronic effects and is intended to apply to average concentrations in water consumed for extended periods. No immediately toxic concentration for lead is listed, however exposure to lead should nevertheless be kept to a minimum.

4.0 ANALYTICAL RESULTS

Tetra Tech collected water samples from Mount Benson Elementary on November 27th, 2017. A total of 15 sample locations were identified; two samples were collected at each location (i.e., 0 second sample and 30 second sample). Fifteen pre-flush (0 second) samples were submitted for laboratory analysis of total lead.

Ten of the 0 second samples contained concentration of total lead below the GCDWQ MAC and five 0 second samples were greater than the guideline.

Sample MB02 was collected from the boy's water closet across from Classroom 109, MB03 was collected from a sink in Classroom 105, MB11 was collected from the girl's water closet across from Classroom 113, MB14 was collected from a drinking water fountain outside the gym and MB15 was collected from a sink in the boy's change room outside the gym. The 30 second samples for these locations were submitted for laboratory analysis of total lead.

The 30 second samples at all locations contained concentrations of total lead below the GCDWQ MAC.

Sampling locations are shown on Figure 1. Laboratory testing results for Mount Benson Elementary are summarized in the table below. The complete laboratory certificate is provided as Appendix B.





Sample ID	Sample Date	MAC	Total Lead (µg/L)
	0 Second	Samples	
MB01-0s	11/27/2017		0.77
MB02-0s	11/27/2017		17.7
MB03-0s	11/27/2017		11.4
MB04-0s	11/27/2017		7.24
MB05-0s	11/27/2017		5.13
MB06-0s	11/27/2017		4.63
MB07-0s	11/27/2017	10 µg/L	1.94
MB08-0s	11/27/2017		8.92
MB09-0s	11/27/2017		6.20
MB10-0s	11/27/2017		0.32
MB11-0s	11/27/2017		18.9
MB12-0s	11/27/2017		7.70
MB13-0s	11/27/2017		0.37
MB14-0s	11/27/2017		32.4
MB15-0s	11/27/2017		13.7
	30 Second	Sample	
MB02-30s	11/27/2017		3.95
MB03-30s	11/27/2017	1	1.41
MB11-30s	11/27/2017	10 µg/L	4.76
MB14-30s	11/27/2017	1	8.78
MB15-30s	11/27/2017		2.58
Notes:	Grey Fill	Exce	eds GCDWQ MAC

Table 1: Laboratory Testing Results

5.0 DISCUSSION AND RECOMMENDATIONS

Tetra Tech's sampling program was based upon guidance from the Ministry of Health, found in the document *Guidance on Controlling Corrosion in Drinking Water Distribution Systems* (2009). The rationale is that for each sampling point, if the pre-flush (0 second) sample (Tier 1) contained elevated lead concentrations, it could indicate that the faucet or fittings are the likely be the source of lead. If a subsequent 30 second flush sample (Tier 2) contained elevated lead concentrations, the source of the lead would likely be the piping (plumbing) leading to the faucet; whereas low lead concentrations in the 30 second sample would further indicate that the source was likely the faucet and fittings. Finally, 2 and 5 minute flush samples (if required) should be drawing water directly from the water supply piping within the building and would indicate if flushing is feasible for lowering the lead concentration in water within the building.

The Health Canada guidance recommend that Tier 2 sampling (30 second samples) take place when Tier 1 sampling identifies more than 10% of sites with lead concentrations above the MAC, and then only at the 10% of sampling sites with the highest lead concentration. Rather, Tetra Tech ran every 30 second sample for locations where the 0 second sample was above the MAC to show that flushing was adequate to lower the lead concentration in the drinking water at each point of concern.



The guidance from the Ministry of Health recommended that samples be collected after the sampling points had been stagnant for a minimum of 8 hours but not longer than 24 hours in order to simulate the worst case daily scenario for lead in drinking water consumption. Based on guidance from VIHA, SD 68 directed Tetra Tech to collect samples Monday mornings prior to any staff or students arriving at the facilities in order to simulate a worst-case scenario for stagnant water. As such, lead concentrations reported represent what could be expected following a weekend and would likely be lower on subsequent weekday mornings.

Ten of the 15 pre-flush (0 second) samples collected at Mount Benson Elementary contained concentrations of lead below the GCDWQ MAC. Lead concentrations at sample locations MB02, MB03, MB11, MB14 and MB15 exceeded the MAC for the 0 second samples but were below the guideline for the 30 second samples.

As previously noted, where lead concentrations are elevated in 0 second samples, the contributing source is likely the fixture (i.e., faucet or fittings). Where the 30 second sample is also elevated the source is likely the plumbing immediately behind the fixture. Since lead concentrations at locations MB02, MB03, MB11, MB14 and MB15 exceeded the MAC for the 0 second sample but not for the 30 second sample, there is potentially a lead source in the fixtures.

Flushing is adequate to lower the lead concentrations at MB02, MB03, MB11, MB14 and MB15. During sample collection, Tetra Tech noted signage throughout the facility stating "Water Quality – First thing in the morning... Run the water for two minutes before drinking. Throughout the day... Let the water run until it is cold before drinking." Tetra Tech recommends that this signage be maintained at each point where drinking water could be consumed and that this procedure continues to be followed as it promotes drinking water safety awareness.

6.0 SUMMARY AND CONCLUSIONS

Ten pre-flush (0 second) samples collected at Mount Benson contained concentrations of total lead below the GCDWQ MAC of $10\mu g/L$ (0.010 mg/L). Five samples (MB02, MB03, MB11, MB14 and MB15) had a concentration of lead exceeding the GCDWQ for the 0 second sample but were below for the 30 second samples.

Tetra Tech recommends that SD 68 continue with its ongoing procedure of conducting a 2 minute flush at each drinking water consumption point each morning; and running taps/faucets until cold prior to consuming water. Tetra Tech noted signage at most drinking water consumption points stating "Water Quality – First thing in the morning... Run the water for two minutes before drinking. Throughout the day... Let the water run until it is cold before drinking."

Tetra Tech recommends that the facility be inspected on a routine basis to ensure that the above noted signage is present and in good condition at each point where drinking water could be consumed. Tetra Tech further recommends that a bulletin be provided to staff summarizing the drinking water quality results at the facility and reminding them of the above procedure. Staff should then instruct students and visitors in the drinking water procedure.





7.0 CLOSURE

This report has been prepared based on the scope of work and for the use of School District 68, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted professional practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

This report was prepared by personnel with professional experience in investigations of this nature and who specifically conducted the investigations at this Site. Reference should be made to the 'Geoenvironmental Report – Limitations on the Use of this Document' attached in Appendix A that forms a part of this report.

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted, Tetra Tech Canada Inc.

Walter

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/dr

Attachments: Figure 1 - Mount Benson Elementary Sample Locations Appendix A - Limitations on the Use of this Document Appendix B - Laboratory Report

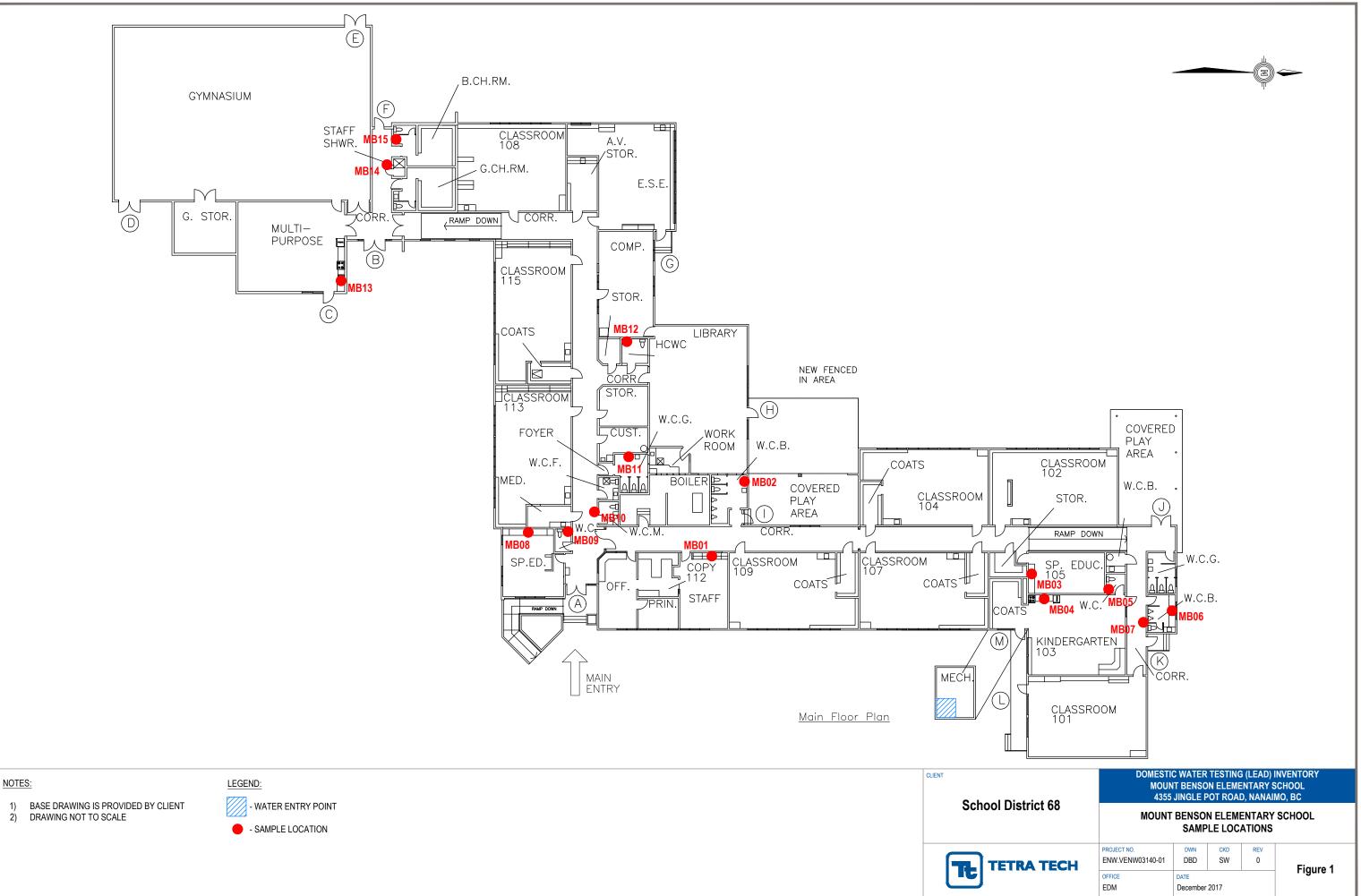




FIGURES

Figure 1 Mount Benson Elementary Sample Locations







APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT



GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

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1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.





APPENDIX B

LABORATORY REPORT



Your Project #: ENW.VENW03140-01

Attention:Shawneen Walker

TETRA TECH CANADA INC. #1 - 4376 BOBAN DRIVE NANAIMO, BC Canada V9T 6A7

Your C.O.C. #: 540796-14-01, 540796-15-01, 540796-16-01

Report Date: 2017/12/08 Report #: R2488836 Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7A8635 Received: 2017/12/07, 08:40

Sample Matrix: Water # Samples Received: 24

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS (total)	19	2017/12/07	2017/12/07	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by CRC ICPMS (total)	5	2017/12/07	2017/12/08	BBY7SOP-00003,	BCLM2005,EPA6020bR2m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: ENW.VENW03140-01

Attention:Shawneen Walker

TETRA TECH CANADA INC. #1 - 4376 BOBAN DRIVE NANAIMO, BC Canada V9T 6A7

Your C.O.C. #: 540796-14-01, 540796-15-01, 540796-16-01

Report Date: 2017/12/08 Report #: R2488836 Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7A8635 Received: 2017/12/07, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Letitia Prefontaine, B.Sc., Senior Project Manager Email: LPrefontaine@maxxam.ca Phone# (604)639-2616 ===== _____ _____

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





Success Through Science®

Maxxam Job #: B7A8635 Report Date: 2017/12/08

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

			SQ1646	SQ1647	SQ1648	SQ1649	SQ1650	SQ1651		
Sampling Date			2017/11/27	2017/11/27		2017/11/27	2017/11/27	2017/11/27		
COC Number		ļ	540796-14-01	540796-14-0					1	
	UNITS		QW11-30S	SD06-30S	SD07-30S	SD08-30S	SD09-30S	SD10-30S	RDI	QC Batcl
Total Metals by ICPMS			•							1.
, Total Lead (Pb)	ug/L	10	3.07	3.67	18.9	4.89	3.22	2.97	0.20	8855544
No Fill	No Excee									
Grey	Exceeds 1	criteria	policy/level							
Black			eria/levels							
RDL = Reportable Detecti			,							
Maxxam ID			SQ1652	SQ1653	SQ1654	SQ1655	SQ1656	SQ1657		
Sampling Date			2017/11/27	2017/11/27	2017/11/27	2017/11/27	2017/11/27	2017/11/27		
COC Number		ļ	540796-14-01	540796-14-0	1 540796-14-01	540796-14-01	540796-15-01	540796-15-02	L	
	UNITS	MAC	SD11-30S	SDDUP-30S	WS02-30S	WS03-30S	WS07-30S	WS23-30S	RDI	QC Batch
Total Metals by ICPMS										
Total Lead (Pb)	ug/L	10	1.91	6.35	2.51	1.42	6.94	49.5	0.20	8855544
No Fill	No Exceed	dance							-	
Grey	Exceeds 1	criteria	policy/level							
Black	Exceeds b	oth crit	eria/levels							
RDL = Reportable Detecti	on Limit									
Maxxam ID			SQ1658	SQ1659	SQ1660	SQ1661	SQ1662	SQ1663		
Complian Data						-	-			
Sampling Date			2017/11/27	2017/11/27	2017/11/27	2017/11/27	2017/11/27	2017/11/27		
Sampling Date COC Number		!	2017/11/27 540796-15-01	2017/11/27 540796-15-0		2017/11/27 540796-15-01	2017/11/27 540796-15-01	2017/11/27 540796-15-02	1	
	UNITS								-	. QC Batcl
COC Number	UNITS		540796-15-01	540796-15-0	1 540796-15-01	540796-15-01	540796-15-01	540796-15-02	-	QC Batch
		MAC	540796-15-01 MB02-30S	540796-15-0 MB03-30S	1 540796-15-01 MB11-30S	. 540796-15-01 MB14-30S	540796-15-01 MB15-30S	540796-15-02 DB12-30S	RDI	QC Batch
COC Number Total Metals by ICPMS Total Lead (Pb)	ug/L	MAC 10	540796-15-01	540796-15-0	1 540796-15-01	540796-15-01	540796-15-01	540796-15-02	RDI	1
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill	ug/L No Exceed	MAC 10 dance	540796-15-01 MB02-30S 3.95	540796-15-0 MB03-30S	1 540796-15-01 MB11-30S	. 540796-15-01 MB14-30S	540796-15-01 MB15-30S	540796-15-02 DB12-30S	RDI	1
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey	ug/L No Exceed Exceeds 1	MAC 10 dance criteria	540796-15-01 MB02-30S 3.95 policy/level	540796-15-0 MB03-30S	1 540796-15-01 MB11-30S	. 540796-15-01 MB14-30S	540796-15-01 MB15-30S	540796-15-02 DB12-30S	RDI	1
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black	ug/L No Exceed Exceeds 1 Exceeds b	MAC 10 dance criteria	540796-15-01 MB02-30S 3.95	540796-15-0 MB03-30S	1 540796-15-01 MB11-30S	. 540796-15-01 MB14-30S	540796-15-01 MB15-30S	540796-15-02 DB12-30S	RDI	1
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COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black	ug/L No Exceed Exceeds 1 Exceeds b	MAC 10 dance criteria	540796-15-01 MB02-30S 3.95 policy/level	540796-15-0 MB03-30S	1 540796-15-01 MB11-30S	. 540796-15-01 MB14-30S	540796-15-01 MB15-30S	540796-15-02 DB12-30S	RDI	1
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COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black RDL = Reportable Detecti Maxxam ID	ug/L No Exceed Exceeds 1 Exceeds b	MAC 10 dance criteria	540796-15-01 MB02-30S 3.95 policy/level eria/levels SQ1664	540796-15-0 MB03-30S 1.41 7	1 540796-15-01 MB11-30S 4.76 5Q1665 2017/11/27	\$Q1671 2017/11/27	540796-15-01 MB15-30S 2.58 SQ1672 2017/11/27	540796-15-02 DB12-30S 3.74 SQ1673	RDI	QC Batch
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black RDL = Reportable Detecti Maxxam ID Sampling Date	ug/L No Exceed Exceeds 1 Exceeds b on Limit	MAC 10 dance criteria	540796-15-01 MB02-30S 3.95 policy/level eria/levels SQ1664 2017/11/2 540796-15-0	540796-15-0 MB03-30S 1.41 7 7 1.41 7 1.41 1.41	1 540796-15-01 MB11-30S 4.76 5Q1665 2017/11/27	\$Q1671 2017/11/27	540796-15-01 MB15-30S 2.58 SQ1672 2017/11/27	SQ1673 2017/11/27 540796-15-02 DB12-30S	0.20	1
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black RDL = Reportable Detecti Maxxam ID Sampling Date	ug/L No Exceeds Exceeds 1 Exceeds b on Limit	10 10 dance criteria oth crit	540796-15-01 MB02-30S 3.95 policy/level eria/levels SQ1664 2017/11/2 540796-15-0	540796-15-0 MB03-30S 1.41 7 7 1.41 7 1.41 1.41	1 540796-15-01 MB11-30S 4.76 SQ1665 2017/11/27 540796-15-01	SQ1671 2017/11/27 540796-15-01 MB14-30S 8.78 8.78	SQ1672 2017/11/27 540796-15-01	SQ1673 2017/11/27 540796-15-02 DB12-30S	0.20	8855544
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black RDL = Reportable Detecti Maxxam ID Sampling Date COC Number	ug/L No Exceeds Exceeds 1 Exceeds b on Limit	MAC 10 dance criteria oth crit TS MAC	540796-15-01 MB02-30S 3.95 policy/level eria/levels SQ1664 2017/11/2 540796-15-0	540796-15-0 MB03-30S 1.41 7 7 1.41 7 1.41 1.41	1 540796-15-01 MB11-30S 4.76 SQ1665 2017/11/27 540796-15-01	SQ1671 2017/11/27 540796-15-01 MB14-30S 8.78 8.78	SQ1672 2017/11/27 540796-15-01	540796-15-02 DB12-30S 3.74 \$Q1673 2017/11/27 540796-16-01 \$D12-OS	0.20	8855544
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black RDL = Reportable Detecti Maxxam ID Sampling Date COC Number Total Metals by ICPMS	ug/L No Exceed Exceeds 1 Exceeds b on Limit UNIT	MAC 10 dance criteria oth crit TS MAC L 10	540796-15-01 MB02-30S 3.95 policy/level eria/levels SQ1664 2017/11/2 540796-15-0 DB13-30S	540796-15-0 MB03-30S 1.41 7 7 91 QC Batch	1 540796-15-01 MB11-30S 4.76 SQ1665 2017/11/27 540796-15-01 DB14-30S	SQ1671 2017/11/27 540796-15-01 MB14-30S 8.78 SQ1671 2017/11/27 540796-16-01 5 DB15-30S	540796-15-01 MB15-30S 2.58 2.58 SQ1672 2017/11/27 540796-16-01 DB16-30S	540796-15-02 DB12-30S 3.74 \$Q1673 2017/11/27 540796-16-01 \$D12-OS	0.20) 8855544 QC Batch
COC Number Total Metals by ICPMS Total Lead (Pb) No Fill Grey Black RDL = Reportable Detecti Maxxam ID Sampling Date COC Number Total Metals by ICPMS Total Lead (Pb)	ug/L No Exceeds 1 Exceeds b on Limit UNIT	MAC 10 dance criteria oth crit TS MAC L 10 edance	540796-15-01 MB02-30S 3.95 policy/level eria/levels SQ1664 2017/11/2 540796-15-0 DB13-30S	540796-15-0 MB03-30S 1.41 7 7 91 QC Batch	1 540796-15-01 MB11-30S 4.76 SQ1665 2017/11/27 540796-15-01 DB14-30S	SQ1671 2017/11/27 540796-15-01 MB14-30S 8.78 SQ1671 2017/11/27 540796-16-01 5 DB15-30S	540796-15-01 MB15-30S 2.58 2.58 SQ1672 2017/11/27 540796-16-01 DB16-30S	540796-15-02 DB12-30S 3.74 \$Q1673 2017/11/27 540796-16-01 \$D12-OS	0.20) 8855544 QC Batch

RDL = Reportable Detection Limit



Maxxam Job #: B/A8635 Report Date: 2017/12/08

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID				SQ1674		
Sampling Da	ite			2017/11/27		
COC Numbe	r			540796-16-01		
		UNITS	MAC	SD12-30S	RDL	QC Batch
Total Metals	by ICPMS					
Total Lead (F	vb)	ug/L	10	5.99	0.20	8855729
No Fill	No Exceedance	è				
Grey	Exceeds 1 crite	ria polic	xy/leve	I		
Black	Exceeds both c	riteria/l	evels			
RDL = Repor	table Detection L	imit				



Maxxam Job #: B7A8635

Report Date: 2017/12/08

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01

GENERAL COMMENTS

Each te	mperature is the a	verage of up to th	ree cooler temperatures taken at receipt
[Package 1	6.7°C]
•		•	Custody. Sampling times not provided. d in this report have been taken from the Canadian Drinking Water Quality Summary Table, February 2017.
	C		
		•	tion (MAC) / Criteria B = Aesthetic Objectives (AO) / Criteria C = Operational Guidance Values (OG) es when interpreting your data since there are non-numerical guidelines that are not included on this
Turbidit	y Guidelines:		
1. Chem at any ti	•	ition: less than or o	equal to 0.3 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 1.0 NTU
	sand / diatomaceo 3.0 NTU at any time		less than or equal to 1.0 NTU in 95% of the measurements or 95% of the time each month. Shall not
			0.1 NTU in 99% of the measurements made or at least 99% of the time each calendar month. Shall not
exceed	0.3 NTU at any time	e.	
Results	relate only to the	items tested.	



Maxxam Job #: B7A8635

Report Date: 2017/12/08

QUALITY ASSURANCE REPORT

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01

			Matrix	Spike	Spiked	Blank	Method E	Blank	RPI	D	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	
8855544	Total Lead (Pb)	2017/12/07	96	80 - 120	94	80 - 120	<0.20	ug/L	3.5	20	
8855729	Total Lead (Pb)	2017/12/08	105	80 - 120	103	80 - 120	<0.20	ug/L	2.0	20	
Duplicate: Pa	Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.										
Martin Callery					مەربىيە : : :						

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.



Maxxam Job #: B7A8635 Report Date: 2017/12/08 Success Through Science®

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, B.Sc., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

	1	Maxxem Analyt	lics International (Comoration of a la	Aavvam Anolidie					-	5 - 1 - X					(}
Max			Vey, Burnaby, Bri				76 Toll-free 800	-563-62	66 Fiax (604) 731 2386	3 www.maxxam.c	8				-				Page of 3
		INVOICE TO:			1	0.01.000	Report In	formatio	n					Project Ini	formation			REFERENCES		
Company Name	#1433 TETR	A TECH CANAD	A INC.	2	Company Na	ne					S. 1939	Quotation #		B60578					W. 1 & 1	ottle Order #:
Contact Name	Shawneen W	alker	_	5.24	Contact Name	Shawnee	n Walker					P.O.#								N I COMPANY
Address	#1 - 4376 BO	and the state of t			Address	Cale Information					and the set	Project #		ENW.VE	W03140-01		D	A8635_COC		540796
	NANAIMO BO	and the second se										Project Name	É.	7		(roject Manager
Phone	(250) 756-225		(250) 756		Phone	<u></u>			Fax			Site #								Letitia Prefontaine
Email	Shawneen.W	alker@tetratech.c	com; EBA.Lat	odata@tetra	Email	Shawnee	n.Walker@	tetrate	ch.con	n; EBA.Lab	data@tetrat	Sampled By			C			C#540796-14-01		Lenna Preidvitane
Regulatory Cr	teria:				Specia	Instructions			_		ANALYSIS F	REQUESTED	PLEASE I	IE SPECIFIC)				Turnaround Tin	ne (TAT) Requir	ed:
CSR								11				1.00						Please provide advance	ce notice for rush p	vojects
																	Regular (Standard) TAT:		
COME																2	(will be ap	plied if Rush TAT is not specifie	ed).	
₩	Contractor and the							2									Standard	TAT = 5-7 Working days for mo	at losts.	¹
A BC Wate	er Quality			1				N/A) &	0								Please no	le: Standard TAT for certain tes	sts such as BOD a	nd Dioxins/Furans are > 5
Other				- E				2	G	1 1							days - con	tact your Project Manager for o	letails.	
			_					ered	ry r								Job Spec	ific Rush TAT (if applies to e	ntire submission	
								Ē	-								1 DAY	2 Day 3 Day	Date Required	·
								lek.	R								Rush Cor	firmation Number.		
SAI	APLES MUST BE K	EPT COOL (< 10"C) I	FROM TIME OF S	SAMPLING UNTI	IL DELIVERY T	O MAXXAM		als -	F											ib for #)
Sample	Barcode Label	Sample (Loca	tion) Identification	n Date	e Sampled	Time Sampled	Matrix	Met	Toto							1	t of Bottles		Comments	
1		OINIL-	2/2	17	(11/27		Intato		V				-				1			
		SOAL	20		1421		Water	+	<u>~</u>		-	-				-	-		-	
2		2000-	SOS																	
3		5007-	-205																	
4		SMR-	2nc																	
		Suc	205					+ +	+			-				-	+		-	
5	1.22	SD04-	ans	0.00					1											
5		SD10-	305																	
7		SUI-	200			S.S			1			1				-				
1000		2011-	00	-	-		++-	+ +	-		_	-				-	_			
8		Som	<u> 202 - C</u>																	
9		WSOA	- 300																	
10		WE03	- 200				1	++	1						-		1			100000
	UISHED BY: (Signat		y y	Date: (YY/MM/DD) Time		PECE	UED BY	(Signatu	in the last	_			-	# jars used and		v			
Shaw		allow		11/2/00		n	RESE	VED BT:	Laignatu	rearing		Date: (YY/N	W/001	Time	not submitted	Time Sensit	ve	Lab Use O		Intact on Cooler?
JUNA	7711	000		theta	april	4		_									Ten	perature (°C) on Receipt	Yes	-
* UNLESS OTH	ERWISE AGREED TO	IN WRITING, WORK SI	UBMITTED ON TH	S CHAIN OF CUS	TODY IS SUB #	CT TO MAXXAM"	STANDARD TR	RMS AN	D COND	TIONS SKINI	NO OF THIS CHA	N OF CUSTOD	Y DOCUM	INT IS ACKNO	ALEDGMENT AND A	CCEPTANC	OFOUR	TERMS WHICH ARE AVAILABLE	- Internal Internal	
FOR VIEWING	AT WWW.MAXXAM	CAITERMS												and to maniful	The prometry prop A	and make	or our	TENES HINGH AND AVAILABLE		
IT IS THE RES	PONSIBILITY OF THE	ERELINQUISHER TO E	NSURE THE ACCU	IRACY OF THE C	HAIN OF CUSTO	DY RECORD. AN	NCOMPLETE C	HAIN OF	CUSTOD	Y MAY RESUL	T IN ANALYTICA	L TAT DELAYS	2							

		INVOICE TO:				Report In			31 2386 www.maxxam.o	1		Project In	formation				SAIR BUR MUNI	Pag2or3
Company Name	#1433 TETR/	A TECH CANADA IN	C.	Company Na	ame				1.2.1	Quotation #	1	B60578						ottle Order #:
Contact Name	Shawneen Wa	lker		Contact Nan	Charles	en Walker				P.O.#	+							
Address	#1 - 4376 BOB			Address	100		2			Project #		ENW.VE	W03140-01		Б	7A8635_COC		540796
	NANAIMO BC	and the second se			1000					Project Name					6			oject Manager
Phone	(250) 756-225		(250) 756-2686	Contraction of the second s				Fax		Sile #	1		10					Letitia Prefontaine
Email		lker@tetratech.com;	EBA Labdata@		and the second s	en.Walker@	tetrated	ch.com; EB	A.Labdata@tetrat	Sampled By			- 65		_	C#540796-15-01		/2.89/2804/28/40/2010/
Regulatory Cri	teria		_	Speci	al Instructions		4 1-		ANALYSIS	REQUESTED (PL	EASE BE	E SPECIFIC)				11 - 114.0427/1511511.541	me (TAT) Require	2453712
CSR											- 1					Please provide advan	ice notice for rush p	rojects
7 ann										1 1			0		10.5000	(Standard) TAT:		
X COME															1000033334	applied if Rush TAT is not specifi		X
X BC Wate	er Quality		1				2.			1 1						d TAT = 5-7 Working days for me		
Other							NIA) L Da	bhh								tote: Standard TAT for certain te ontact your Project Manager for (Id Likokinsin-urans are > :
L Outer							De C	¥							Job Sp	ecific Rush TAT (if applies to a	entire submission)	,
							1 B	-			1		1		1 DAY	2 Day 3 Day	Date Required	E
1000			contra francesco e e co				8 (3		1 1	- 1				Rush C	onfirmation Number:		
SAN	IPLES MUST BE KE	PT COOL (< 10°C) FROM	TIME OF SAMPLIN	IG UNTIL DELIVERY	MAXXAM		L Sie	20								-	(call la	ab for #)
Sample	Barcode Label	Sample (Location) I	dentification	Date Sampled	Time Sampled	Matrix	Met								N of Bott	les	Comments	
1		WS07-3	02	17/11/27		Mator		X							1			
2		WS23-	200	1		Ances		1				-			1			
3		11602 -	200			11-		++		1 1 2 2 2	-			7		-		
4		11602-1	200				++	++	_		-	-	-		-	-		
<u></u>		10005-	<u>5</u>			-	++		_									
5		MBI- 50	5		_			1										
6		MB14-3	OS															
7		MB19-27	K			1												
5		DA12 2	ic .				++	\mathbf{t}				-	_					
		000-0	12				++											
9		0613-30	12	Ve		11												
10		DB14-3	20	v		0		V							V			
	UISHED BY: (Signatu	re(Print)	Date: (YY			RECEI	VED BY:	Signature/Prin	nt)	Date: (YY/MM/	DD)	Time	# jars used and		1	Lab Use (
Shaw	neenv	valuer	11/2	1001.0	D								not submitted	Time Sets	tive T	emperature (*C) on Receipt	Custody Sea	il Intact on Cooler?
					_												Yes	No

		INVOICE TO:				Report Info	rmation	-				Project In	formation	-				Page 3/
company Name	#1433 TET	RA TECH CANADA IN	С.	Company Nam	0					Quotation #		B60578	1.					ottle Order #:
Contact Name	Shawneen W	/alker		Contact Name	Shawneen	Walker		26 1 P 1 4		P.O.#		-	1.00		B	7A8635_COC		HINDREAD
ddress	#1 - 4376 BC			Address			- <u>19</u> 6			Project #		ENW.VE	NW03140-01	1.11	1			540796
	NANAIMO B				2 1-0					Project Name	é.	<u>.</u>		1.00		Chain or Costoby Record		Project Manager
hone	(250) 756-22	56 x Fax (250) 756-2686 x	Phone			Fa			Sile#								Letitia Prefontaine
mail	Shawneen.W	/alker@tetratech.com;	EBA.Labdata@tel	ra Email	Shawneen	.Walker@te	tratech.	com; EBA.L	.abdata@tetrat	Sampled By		-				C#540796-16-01	A77.6	Lectra Presidente
Regulatory Cr	iteria:			Special	Instructions				ANALYSIS	EQUESTED (PLEASE E	BE SPECIFIC)				Turnaround Time (AT) Required	t.
CSR																Please provide advance no	tice for rush pro	jects
	er Quality						LOCI LOCI								(will be ap Standard Please no	Standard) TAT: splied if Rush TAT is not specified); TAT = 5-7 Working days for most te ke: Standard TAT for certain tests su nact your Project Manager for detail	ich as BOD and	DioxinsuFurans are
	MPLES MUST BE P	(EPT COOL (< 10°C) FROM Sample (Location) Id	1.10		MAXXAM Time Sampled		Hotol Co								1 DAY	nfirmation Number:	submission) late Required: (call lab) comments	for #)
1.1		DB15-30	1 20	7/11/22		Nater	- ÍV											
		DB16-3	20	11		11	1	-							N			
						1												
		5012-0	21	N		11	11								1			
		5012-3	305	11		h	1								1			
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							1							-				
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					5		-											
	QUISHED BY: (Signa	itura(Print)	Date: (YY/MM			RECEIVE	D BY: (Sig	nature/Print)		Date: (YY/M	M/DD)	Time	# jars used and not submitted			Lab Use Only		

Your Project #: ENW.VENW03140-01

Attention:Shawneen Walker

TETRA TECH CANADA INC. #1 - 4376 BOBAN DRIVE NANAIMO, BC Canada V9T 6A7

Your C.O.C. #: 540796-06-01, 540796-07-01, 540796-08-01, 540796-09-01, 540796-10-01, 540796-11-01, 540796-12-01

Report Date: 2017/12/05 Report #: R2486758 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7A6034 Received: 2017/11/28, 08:55

Sample Matrix: DRINKING WATER # Samples Received: 56

		Date	Date		
Analyses	Quantity	y Extracted	Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS (total)	34	N/A	2017/12/02	2 BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by CRC ICPMS (total)	22	N/A	2017/12/04	4 BBY7SOP-00003,	BCLM2005,EPA6020bR2m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: ENW.VENW03140-01

Attention:Shawneen Walker

TETRA TECH CANADA INC. #1 - 4376 BOBAN DRIVE NANAIMO, BC Canada V9T 6A7

Your C.O.C. #: 540796-06-01, 540796-07-01, 540796-08-01, 540796-09-

Report Date: 2017/12/05 Report #: R2486758 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7A6034 Received: 2017/11/28, 08:55

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Letitia Prefontaine, B.Sc., Senior Project Manager Email: LPrefontaine@maxxam.ca Phone# (604)639-2616 _____

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



01, 540796-10-01, 540796-11-01, 540796-12-01



TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

Maxxam ID				SO7002		SO7003	SO7004	SO7005		
Sampling Date				2017/11/27		2017/11/27	2017/11/27	2017/11/27		
COC Number				540796-06-01		540796-06-01	540796-06-01	540796-06-01		
		UNITS	MAC	WS01-OS	QC Batch	WS02-OS	WS03-OS	WS04-OS	RDL	QC Batch
Total Metals by ICPMS	5									
Total Lead (Pb)		ug/L	10	0.79	8848411	13.0	17.1	9.66	0.20	8848362
No Fill	No Ex	ceedan	ce							
Grey	Excee	ds 1 cri	teria p	olicy/level						
Black Exceeds both criteria/levels										
RDL = Reportable Detection Limit										

Maxxam ID			SO7006	SO7007	SO7008	SO7009		SO7010		
Sampling Date			2017/11/27	2017/11/27	2017/11/27	2017/11/27		2017/11/27		
COC Number			540796-06-01	540796-06-01	540796-06-01	540796-06-01		540796-06-01		
	UNITS	MAC	WS05-OS	WS06-OS	WS07-OS	WS08-OS	QC Batch	WS09-OS	RDL	QC Batch
Total Metals by ICPMS										
Total Lead (Pb)	ug/L	10	9.07	3.66	22.1	0.26	8848333	3.60	0.20	8848362
No Fill	No Exceed	lance								
Grey	Exceeds 1	criteri	a policy/level							
Black	Exceeds b	oth cri	teria/levels							
RDL = Reportable Detecti	on Limit									

Maxxam ID			SO7011	SO7016	SO7017	SO7018		SO7019		
Sampling Date			2017/11/27	2017/11/27	2017/11/27	2017/11/27		2017/11/27		
COC Number			540796-06-01	540796-07-01	540796-07-01	540796-07-01		540796-07-01		
	UNI	S MAC	WS10-OS	WS11-OS	WS12-OS	WS13-OS	QC Batch	WS14-OS	RDL	QC Batch
Total Metals by ICPMS										
Total Lead (Pb)	ug/	. 10	3.42	1.93	0.47	0.22	8848411	1.73	0.20	8848362
No Fill	No Exce	edance								
Grey	Exceeds	1 criter	ia policy/level							
Black	Exceeds	both cr	iteria/levels							
RDL = Reportable Detect	ion Limit									

Maxxam ID				SO7020		SO7029	SO7030		SO7031		
Sampling Date				2017/11/27		2017/11/27	2017/11/27		2017/11/27		
COC Number				540796-07-01		540796-08-01	540796-08-01		540796-08-01		
	U	JNITS	MAC	WS15-OS	QC Batch	WS22-OS	WS23-OS	QC Batch	WS24-OS	RDL	QC Batch
Total Metals by ICPMS											
Total Lead (Pb)	I	ug/L	10	0.74	8848362	3.56	20.8	8848333	1.25	0.20	8848362
No Fill	ince										
Grey	Excee	eds 1 c	riteria	policy/level							
GreyExceeds 1 criteria policy/levelBlackExceeds both criteria/levels											
RDL = Reportable Detec	tion Lim	nit									



TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

Maxxam ID			SO7032		SO7033		SO7034	SO7035		
Sampling Date			2017/11/27		2017/11/27		2017/11/27	2017/11/27		
COC Number			540796-08-01		540796-08-01		540796-08-01	540796-08-01		
	UNI	rs M	C WS25-OS	QC Batch	WS26-OS	QC Batch	WS27-OS	MB01-OS	RDL	QC Batch
Total Metals by ICPMS										
Total Lead (Pb)	ug,	L 1	2.12	8848411	3.70	8848362	0.92	0.77	0.20	8848411
No Fill	No Exce	edance								
			ria policy/level							
GreyExceeds 1 criteria policiBlackExceeds both criteria/le			riteria/levels							
RDL = Reportable Detect	tion Limit									





TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

Maxxam ID				SO7036	SO7	037			SO7042		SO704	3	SO7044			
Sampling Date			2	2017/11/27	2017/	'11/27		2	2017/11/2	27	2017/11,	'27	2017/11/2	7		
COC Number			54	10796-08-0	1 540796	5-08-02	1	54	40796-09	-01 5	40796-0	9-01 5	40796-09-0)1		
	UN	IITS M	AC	MB02-OS	MB0	3-OS	QC Batc	h	MB04-0	S	MB05-0)S	MB06-OS	RD	DL Q	C Bato
Total Metals by ICPM	S															
Total Lead (Pb)	ug	g/L 10	0	17.7	11	L .4	8848362	2	7.24		5.13		4.63	0.2	20 88	84833
No Fill	No Exc	eedanc	e													
Grey	Exceed	ds 1 crit	eria p	olicy/level												
Black	Exceed	ls both	criteri	ia/levels												
RDL = Reportable Det	ection Limit															
		1 1		1		1			i				1	_		i
ixxam ID				07045			07046			SO704			S0704			
npling Date				7/11/27			7/11/27)17/11	-		2017/11			
C Number				96-09-01			96-09-01			0796-0			540796-0			
	UNITS	MAC	M	307-OS	QC Batch	MB	808-OS	QC B	Batch I	VB09-	OS Q	C Batch	MB10-	OS	RDL	QC E
tal Metals by ICPMS																
tal Lead (Pb)	ug/L	10		1.94	8848362	5	8.92	8848	8333	6.20	88	848362	0.32		0.20	884
lo Fill	No Excee															
Brey	Exceeds															
Black	Exceeds	both cr	iteria/	levels												
L = Reportable Detect	ion Limit															
Maxxam ID				SO7049)		SO7050)	SO70	51			\$07052			
Sampling Date				2017/11/	27		2017/11/	27	2017/1	1/27		20	17/11/27			
COC Number				540796-09	-01		540796-09	-01	540796-	09-01		540	796-10-01			
	l	JNITS	МАС	MB11-0	S QC E	Batch	MB12-0	S	MB13	-OS	QC Bate	h N	/B14-OS	RDL	QC B	Batch
Total Metals by ICF	PMS										•					
Total Lead (Pb)		ug/L	10	18.9	884	8411	7.70		0.3	7	884836	2	32.4	0.20	8848	8333
No Fill	No E	xceedar	nce													
Grey	Exce	eds 1 cr	iteria	policy/leve	1											
Black	Exce	eds botl	h crite	eria/levels												
RDL = Reportable D																
											1			1	1	
Maxxam ID				SO7053			SO7054		SO70				SO7056			
Sampling Date				2017/11/			2017/11/		2017/1				17/11/27			
COC Number				540796-10			540796-10		540796-				796-10-01			
		JNITS	MAC	MB15-0	S QC E	Batch	DB01-0	S	DB02-	-OS	QC Bate	h C	0B03-OS	RDL	QC B	Batch
Total Metals by ICF								r			1					
Total Lead (Pb)		ug/L	10	13.7	884	8333	3.23		8.49	9	884836	2	4.75	0.20	8848	8411
No Fill	No E	xceedar	nce													
Grey	Exce	eds 1 cr	iteria	policy/leve	I											
Grey Black				policy/leve eria/levels	I											





TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

Maxxam ID				SO7057	SO7058		SO7059		SO7060		
Sampling Date				2017/11/27	2017/11/27		2017/11/27		2017/11/27		
COC Number				540796-10-01	540796-10-01		540796-10-01		540796-10-01		
	L	UNITS	MAC	DB04-OS	DB05-OS	QC Batch	DB06-OS	QC Batch	DB07-OS	RDL	QC Batch
Total Metals by ICPMS											
Total Lead (Pb)		ug/L	10	1.55	1.20	8848362	3.92	8848333	3.65	0.20	8848411
No Fill	No Ex	xceeda	ince								
Grey	eds 1 c	riteria	policy/level								
GreyExceeds 1 criteria policy/leveBlackExceeds both criteria/levels											
RDL = Reportable Detect	tion Lin	nit									





TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

Maxxam ID				SO7061		SO7062	SO7063		SO7064		
Sampling Date				2017/11/27		2017/11/27	2017/11/27		2017/11/27		
COC Number				540796-10-01		540796-11-01	540796-11-01		540796-11-01		
		UNITS	MAC	DB08-OS	QC Batch	DB09-OS	DB10-OS	QC Batch	DB11-OS	RDL	QC Batch
Total Metals by ICPMS											
Total Lead (Pb)		ug/L	10	4.72	8848362	0.81	1.19	8848411	3.08	0.20	8848944
No Fill	No E	xceeda	ince								
Grey	Exce	eds 1 c	riteria	policy/level							
Black	Exce	eds bo	th crite	eria/levels							
RDL = Reportable Detect	tion Lir	mit									
Maxxam ID				SO7065	SO7066		SO7067		SO7068	<u> </u>	
axxam ID Impling Date										\vdash	
Sampling Date				2017/11/27	2017/11/2		2017/11/27		2017/11/27 540796-11-01		
COC Number				540796-11-01	540796-11	-	540796-11-01	OC Datab			OC Datab
		UNITS	IVIAC	DB12-OS	DB13-09	S QC Batch	DB14-OS	QC Batch	DB15-OS	KDL	QC Batch
Total Metals by ICPMS								-			_
Total Lead (Pb)		ug/L	10	125	41.2	8848944	35.9	8848411	18.2	0.20	8848944
No Fill No Exceedance			ince								
Grey	Exce	eds 1 c	riteria	policy/level							
Black	Exce	eds bo	th crite	eria/levels							
RDL = Reportable Detect	tion Lir	mit									

Maxxam ID				SO7069	SO7070		SO7071	SO7072		
Sampling Date				2017/11/27	2017/11/27		2017/11/27	2017/11/27		
COC Number				540796-11-01	540796-11-01		540796-11-01	540796-12-01		
		UNITS	MAC	DB16-OS	DB17-OS	QC Batch	DB18-OS	WS28-OS	RDL	QC Batch
Total Metals by ICPM	S									
Total Lead (Pb)		ug/L	10	19.1	7.95	8848944	0.83	9.57	0.20	8850025
No Fill	No Exc	ceedan	ce							
Grey	Exceed	ds 1 cri	teria p	olicy/level						
Black	Exceed	ds both	criter	ia/levels						
RDL = Reportable Dete	ection Lir	nit								

Maxxam ID				SO7073		
Sampling Da	te			2017/11/27		
COC Numbe	r			540796-12-01		
		UNITS	MAC	WS29-OS	RDL	QC Batch
Total Metals	by ICPMS					
Total Lead (P	b)	ug/L	10	8.73	0.20	8848944
No Fill	No Exceedance	9				
Grey	Exceeds 1 crite	ria polic	xy/leve	I		
Black	Exceeds both c	riteria/l	evels			
RDL = Report	table Detection L	imit				



Maxxam Job #: B7A6034 Report Date: 2017/12/05

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.7°C
Package 2	10.3°C

Samples in one of the two coolers received were over temperature (past 10 degree average).

Samples received with incomplete Chain of Custody. Sampling times not provided.

All Chain of Custodies except 540796-06-01 were received with no relinquished date, time or signature.

MAC: The guidelines that have been included in this report have been taken from the Canadian Drinking Water Quality Summary Table, February 2017.

Criteria A = Maximum Acceptable Concentration (MAC) / Criteria B = Aesthetic Objectives (AO) / Criteria C = Operational Guidance Values (OG) It is recommended to consult these guidelines when interpreting your data since there are non-numerical guidelines that are not included on this report.

Turbidity Guidelines:

1. Chemically assisted filtration: less than or equal to 0.3 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 1.0 NTU at any time.

2. Slow sand / diatomaceous earth filtration: less than or equal to 1.0 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 3.0 NTU at any time.

3. Membrane filtration: less than or equal to 0.1 NTU in 99% of the measurements made or at least 99% of the time each calendar month. Shall not exceed 0.3 NTU at any time.

Results relate only to the items tested.



Maxxam Job #: B7A6034

Report Date: 2017/12/05

QUALITY ASSURANCE REPORT

TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

			Matrix	Spike	Spiked	Blank	Method E	Blank	RPI	D
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8848333	Total Lead (Pb)	2017/12/04	100	80 - 120	99	80 - 120	<0.20	ug/L	2.0	20
8848362	Total Lead (Pb)	2017/12/02	93	80 - 120	98	80 - 120	<0.20	ug/L	0.22	20
8848411	Total Lead (Pb)	2017/12/02	98	80 - 120	100	80 - 120	<0.20	ug/L	0.76	20
8848944	Total Lead (Pb)	2017/12/04	NC	80 - 120	98	80 - 120	<0.20	ug/L	3.2	20
8850025	Total Lead (Pb)	2017/12/04	99	80 - 120	98	80 - 120	<0.20	ug/L	1.6	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)



Success Through Science®

Maxxam Job #: B7A6034 Report Date: 2017/12/05 TETRA TECH CANADA INC. Client Project #: ENW.VENW03140-01 Sampler Initials: BB

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

prely Æ

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

•2.3 ·		INVOICE TO:				the part of the second		1000 million (1995)					Project Info	rmation				-	- Page - C
mpany Name	#1433 TETRA	TECH CANADA INC.		Company Nam	NU .			0.115		1.2	Quotation #	-	B60578					P97,815,8111	ottle Order #
A STREET LANDINGS	Source training Contrology INVOICE TO: INVOICE TO: Shawneen Walker #1433 TETRA TRACK CANADA INC, Shawneen Walker #1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7 (250) 756-2256 x (250) 756-2256 x Fax: (250) 7 Shawneen.Walker@tetratech.com; EBA.L Day Criteria: SR Sample Coulity her			Contact Name	Shawnee	n Walker			1.1		1000000								THE REPORT OF BUT
wiego .	and the second se	Contraction of the second s		Address							Project #		ENW.VEN	W03140-01		B7	A6034 COC		540796
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tail 2	Shawneen.vval	ker@tetratech.com; EBA.Labd	ata@tetra	Email	Shawnee	n.Walker	Detrat	ech.com	EBA Labdat	a@tetrat	Sampled By		<u>B</u> B		_				Leoner recently
Regulatory Criter	iac			Special	Instructions					ANALYSIS F	EQUESTED (PL	LEASE B	BE SPECIFIC)	_			Turnaround T	ime (TAT) Requir	red
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BC Water C	Juality						N)									10.0000			•
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SAMPL	LES MUST BE KEP	T COOL (< 10°C) FROM TIME OF SA	MPLING UNT	L DELIVERY TO	MAXXAM		il si	la			1 1					Hush Con	semation Number:	(call).	ab for #)
Sample Ba	Model Standard General Way, Burnaby, British Columbia Canada VSG 1KS Tat(604) 734 7276 Toll free 800-663-8266 Fax(E0- NOCICE TO: Report Information #1433 TETRA TECH CANADA INC. Company Name Shawmeen Walker #1-4376 BOBAN DRIVE Address Shawmeen Walker NAAIMO BC V97 6A7 Fax Company Name (250) 756-2256 x Fax (250) 756-2265 x Shawmeen.Walker@tetratech.com; EBA.Labdata@tetra Phone Fax Email Shawmeen.Walker@tetratech.com; IBA.Labdata@tetra Shawmeen.Walker@tetratech.com; I Iter Quality Sample (Location) Identification Date Sampled Time Sampled MPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM V V WSO 1 ~ O 5 Z7 Mou-17 Wake+ V WSO 2 ~ O 5 V V V W SO 2 ~ O 5 V V V W SO 2 ~ O 5 V V V V W SO 2 ~ O 5 V V V V W SO 2 ~ O 5 V V V V W SO 3 ~ O 5 V <	_							W of Bottles		Comments								
	_	WS01-05	27	Nou-17		Wak	•	~											
		W502-05		1		1		V											
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		W504-05						V								1			
		W505-04	3					V											
		W506-05						V											
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· RELINQUIS	SHED BY: (Signature	(Print) Dat		Time	1	RECI	EIVED BY	r: (Signature	(Print)	1	Date: (YY/MM/	1001	Time	# jars used and		<u> </u>	Lab Use	Only	
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10, 10, 11 (ICE N/A)

		Report Inf	formatio	on				0.00	Project la	nformation						11	Page 2				
pany Name	#1433 TETRA	TECH CANADA INC.		Company /	lame				- 15.7	411 41	Quotation #		B60578	-	-					Bottl	e Order #
act Name	Shawneen Walk			Contact Na	me Shawneer	Walker			100	1000	P.O.#								17/10/00 11/1	1000	
55	#1 - 4376 BOBA	and the second se		Address				100	1	A STATE OF A STATE	Project #		ENW.VE	NW0314	40-01		B7A	6034_COC			40795
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•		x Fax (250) 7 ker@tetratech.com; EBA L		Phone Fa Email	Shawnoor	Malkar®t	atrata	Fax:	EBALat	data@tetrat	Site #			BB						Letitia	Prefont
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Other							92(The second second	act your Project Manager M	1925-022-022		erene
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ntact Name	Shawneen Wa	and the second se		Contact Name	Shawneen	Walker	1			100	0.#		-					
tress	#1 - 4376 BOE			Address			1.1			Pr	roject #		ENW.VE	NW03140-01		DIE	A6034_COC	540796
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ail	and the second se	alker@tetratech.com; EBA.		Phone Emeil	Shawneen	Walker@t	etrot	_ Fax	3A.Labdata@tet		ite #			11	-	_		Letitia Prefontair
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Maxxam Analytics International Corporation o/a Maxxam Analytics

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