433 – 2300 Mansfield Drive, Courtenay, BC, Canada V9N 3S3 • Tel: 604-789-5932

Enterprise Geoscience Services Ltd.

October 22, 2021

Ponderosa Heights
9411 Portage Road
D'Arcy, BC
V0N 1L0

Attention: Adam Cook

RE: Assessment of Arsenic Concentration in Domestic Well (Well 4)
For Proposed Eight Lot Subdivision, Devine, BC

1.0 Background

We understand Ponderosa Heights has applied to create an eight lot subdivision in Devine, BC. The community of Devine is located off of Pemberton Portage Road between Pemberton and Lillooet and approximately five km south of D'Arcy, BC.

The proposed subdivision consists of eight lots ranging in size from 1.0 to 1.53 ha. The legal description of the lot to be subdivided is Lot A, District Lot 5024, Lillooet District, Plan KAP 92970. A subdivision layout plan is included as Attachment A.

Potable water will be sourced from drilled wells on each lot. Wastewater will be disposed of to ground by on-site septic fields.

Following drilling, Ponderosa Heights' personnel conducted pumping tests and water sampling for each of the eight wells. These tests were conducted in June and July, 2021. This information was submitted for comment to Vancouver Coastal Health (VCH) in support of the subdivision application. It is understood that each of the wells were pumped for 24 hours and then water samples were collected and submitted for potability analysis to ALS Laboratory in Burnaby, BC. Arsenic concentrations were reported as follows:

Table 1: Arsenic Concentrations in Well Water (June-July, 2021)

Well No	Total Arsenic (ug/l)
Well 1	0.13
Well 2	0.52
Well 3	1.04
Well 4	14.3
Well 5	2.16

Well 6	3.79
Well 7	5.88
Well 8	1.04
Minimum	0.13
Maximum	14.3
Arithmetic Mean	3.61

VCH has published guidelines for rural subdivisions including requirements for wells that have arsenic concentrations. For arsenic levels between 5 and 25 ug/l, an assessment by a qualified geoscientist, engineer or well driller is required. The assessment is to include additional sampling to provide reasonable assurance to the VCH Drinking Water Officer that arsenic concentrations will not exceed 25 ug/l in future and the yield will be sustainable for the intended purpose. Based on the result from Well 4 (14.3 ug/l), VCH requires an arsenic assessment for this well (Plate No. 53901).

The wells were drilled in overburden to depths ranging from 49 to 70 m below ground surface (m-bgs). All wells with the exception of one encountered sand and gravel from surface to the total depth. Well 6 encountered silt at the base of the well (52 m-bgs). Relatively high yields (20 to 40 USgpm) were reported by the well driller. Static water levels measured by the driller were relatively deep ranging from about 37 to 52 m-bgs which likely reflects the well-drained nature of the aquifer profile.

2.0 Assessment Methods

Well 4 was tested over three pumping/rest cycles between October 6 and 11, 2021. The testing and sampling was undertaken by Ponderosa Heights personnel based on instructions from Enterprise Geoscience. Methods and procedures were as follows:

- An electric submersible pump purchased by Ponderosa Heights was set in Well 4. The pump and drop pipe were disinfected with a dilute bleach solution during installation;
- The outlet of the discharge pipe was fitted with a ball valve to regulate a constant discharge rate;
- An electric water level tape was used to measure static level, drawdown and recovery;
- A 20 litre pail and stopwatch were used to measure discharge rate;
- Well 4 was tested over three cycles involving 24 hours of pumping followed by 24 hours of non-pumping/recovery to simulate operating conditions;
- Water samples, including one duplicate were collected at the end of each pumping cycle; and,
- Water samples were stored in a cooler with ice packs and delivered to ALS Laboratory following the testing program. Samples were submitted for total and dissolved metals scans. Samples were within required holding times and the cooler temperature was 3 ^{o}C upon arrival at the lab.

3.0 Results

Well Yield

Well 4 is completed with a 1.2 m long section of 10 slot stainless steel screen from 56.7 to 57.9 m-bgs. The static level measured following drilling was 39.3 m-bgs. Allowing for 3 m of pump submergence above the top of the screen, the available drawdown in the well is about 14 m.

During the first cycle of pumping and recovery, water levels and discharge rates were measured. The well was pumped for 24 hours at a constant rate of 0.67 l/s (10 USgpm) measured using a 20 l pail and stopwatch. Drawdown stabilized at 1.18 m (approx. 8 % of available drawdown) after about 5 min of pumping and remained stable over the duration of the pumping cycle. When the pumping phase was stopped, the well recovered to within 0.02 m of the static level after 5 min.

Arsenic Concentrations

A copy of the ALS lab report is included as Attachment B. All results met the laboratory data quality objectives with the exception of dissolved manganese that was greater than the permitted value for analysis of a method blank. This does not influence the measured values for arsenic. The relative percent difference for total arsenic between the first sample and duplicate (13.6 and 13.5 ug/l) was 0.7 %. Based on these results, the laboratory results for arsenic are considered reliable.

Results for total and dissolved arsenic concentrations were as follows:

Table 2: Arsenic Concentrations in Well 4 For Stability Tests (October, 2021)

Date	Total Arsenic (ug/l)	Dissolved Arsenic (ug/l)
Oct 7, 2021	13.6	13.2
Oct 7, 2021 (duplicate)	13.5	13.0
Oct 9, 2021	13.8	14.0
Oct 11, 2021	13.9	14.3

Results for total and dissolved arsenic are similar and this is consistent with the low turbidity measured in the original test of Well 4 (< 0.1 NTU). Results are also less than or equal to the original test conducted in July, 2021 (14.3 ug/l, Table 1).

Arsenic concentrations in the subdivision wells vary by about two orders of magnitude ranging from 0.13 to 14.3 ug/l (Table 1). These variations likely reflect localized differences in the concentration of arsenic in the aquifer sediments and variations in geochemical conditions (e.g. pH). Because all of the subdivision wells are completed in the same aquifer, concentrations in lots contiguous to Lot 4 would represent a bound to concentrations in Well 4. As shown in Attachment A, Lots 3 and 5 share a common property line, while Lots 6 and 7 are located south of

Lot 4 across a roadway. Total arsenic concentrations in these four wells range from 1.04 to 5.88 ug/l suggesting that under extended pumping conditions, groundwater from adjacent lots, which could mix with groundwater from Lot 4, would be lower in concentration than Well 4. This indicates arsenic concentrations in the Lot 4 well would be unlikely to increase in future.

4.0 Conclusions

Based on the results of this assessment, the following conclusions are made:

1) The yield of Well 4 is adequate for its intended use as a domestic water source.

2) Based on the results of arsenic tests in Well 4, and in surrounding wells completed in the same aquifer, it is probable that the concentrations will remain stable in future once the well is in operation and will remain below 25 ug/l.

5.0 Closure

We trust that this report is adequate for your present requirements. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Enterprise Geoscience Services Ltd.

John Balfour, M.Sc., P.Eng.
Hydrogeologist

Permit to Practice 1001779

Attachment A – Subdivision Plan
Attachment B – Analytical Report

Attachment A

Subdivision PLan

PROPOSED BARELAND STRATA PLAN OF LOT A, DISTRICT LOT 5024, LILLOOET DISTRICT, PLAN KAP92970.

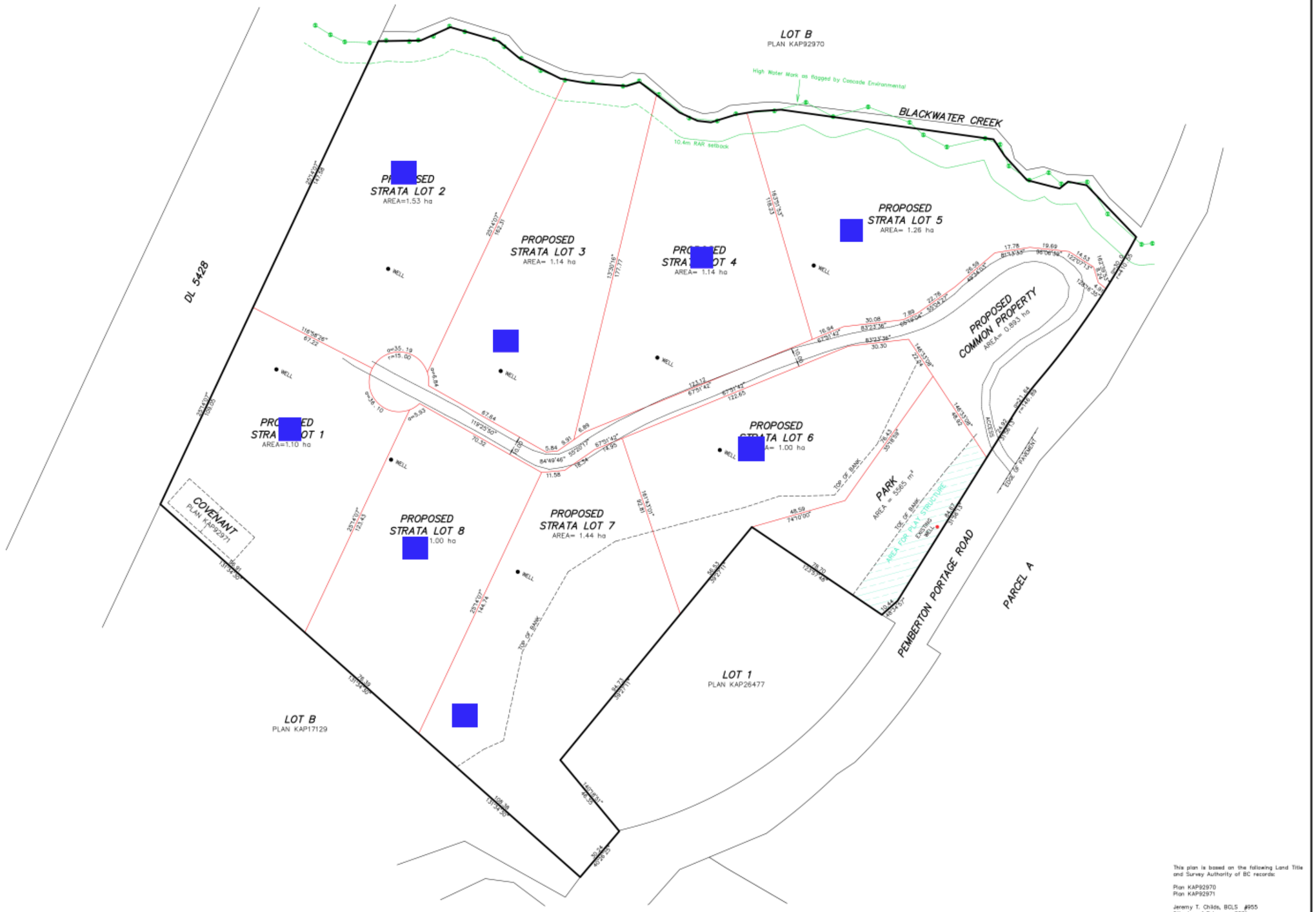
9669 Pemberton Portage Road, Devine, BC

0 18 36 54
SCALE 1:900 METRIC

All distances horizontal ground-level distances in metres and decimals thereof, unless otherwise noted.

The intended plot size is 864mm in width by 560mm in height (D size) when plotted to scale.

N



File 2020-181-4.dwg

BUNBURY & ASSOCIATES LAND SURVEYING LTD.
SQUAMISH 604-892-3090
WHISTLER 604-932-3770
WWW.BUNBURY-SURVEYS.COM

This plan is based on the following Land Title and Survey Authority of BC records:

Plan KAP92970
Plan KAP92971

Jeremy T. Childs, BCLS #955
9th day of February, 2021

Attachment B

Laboratory Report

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21C2454**	Page	: 1 of 5
Amendment	: **1**		
Client	: **Ponderosa Height Ltd.**	Laboratory	: Vancouver - Environmental
Contact	: Sebastian de la Rosa	Account Manager	: Sean Zhang
Address	: 9411 Pemberton Portage Rd. Darcy BC Canada V0N1L0	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 12-Oct-2021 13:35
PO	: ----	Date Analysis Commenced	: 13-Oct-2021
C-O-C number	: 20-938075	Issue Date	: 14-Oct-2021 15:54
Sampler	: ----		
Site	: ----		
Quote number	: VA21-PDRH100-001		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Well#4	Well#4A	Well#4	Well#4	----
					Client sampling date / time	07-Oct-2021 15:45	07-Oct-2021 15:45	09-Oct-2021 15:45	11-Oct-2021 15:45	----
						VA21C2454-001	VA21C2454-002	VA21C2454-003	VA21C2454-004	--------
						Result	Result	Result	Result	----
Physical Tests										
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L		117	118	120	122	----
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.0864	0.106	<0.0030	0.0058	----
antimony, total	7440-36-0	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.0136	0.0135	0.0138	0.0139	----
barium, total	7440-39-3	E420	0.00010	mg/L		0.0569	0.0566	0.0541	0.0536	----
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	----
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
boron, total	7440-42-8	E420	0.010	mg/L		0.012	0.012	0.012	0.012	----
cadmium, total	7440-43-9	E420	0.0000050	mg/L		<0.0000050	0.0000050	<0.0000050	<0.0000050	----
calcium, total	7440-70-2	E420	0.050	mg/L		25.7	25.1	25.9	25.5	----
cesium, total	7440-46-2	E420	0.000010	mg/L		0.000012	0.000015	<0.000010	<0.000010	----
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	0.00057	<0.00050	<0.00050	----
cobalt, total	7440-48-4	E420	0.00010	mg/L		0.00016	0.00020	0.00013	0.00015	----
copper, total	7440-50-8	E420	0.00050	mg/L		0.00070	0.00087	<0.00050	<0.00050	----
iron, total	7439-89-6	E420	0.010	mg/L		0.490	0.616	0.022	0.025	----
lead, total	7439-92-1	E420	0.000050	mg/L		<0.000050	0.000058	<0.000050	<0.000050	----
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0014	0.0013	0.0013	0.0013	----
magnesium, total	7439-95-4	E420	0.0050	mg/L		14.4	14.2	13.8	14.0	----
manganese, total	7439-96-5	E420	0.00010	mg/L		0.0626	0.0639	0.0561	0.0574	----
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.00271	0.00264	0.00272	0.00268	----
nickel, total	7440-02-0	E420	0.00050	mg/L		0.00065	0.00081	<0.00050	<0.00050	----
phosphorus, total	7723-14-0	E420	0.050	mg/L		0.072	0.079	0.059	0.071	----
potassium, total	7440-09-7	E420	0.050	mg/L		3.18	3.16	3.10	3.16	----
rubidium, total	7440-17-7	E420	0.00020	mg/L		0.00070	0.00075	0.00062	0.00063	----
selenium, total	7782-49-2	E420	0.000050	mg/L		0.000056	0.000088	0.000126	0.000119	----
silicon, total	7440-21-3	E420	0.10	mg/L		4.98	4.84	4.84	4.71	----
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
sodium, total	17341-25-2	E420	0.050	mg/L		3.93	3.98	4.06	4.12	----
strontium, total	7440-24-6	E420	0.00020	mg/L		0.160	0.158	0.164	0.163	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Well#4	Well#4A	Well#4	Well#4	----
					Client sampling date / time	07-Oct-2021 15:45	07-Oct-2021 15:45	09-Oct-2021 15:45	11-Oct-2021 15:45	----
						VA21C2454-001	VA21C2454-002	VA21C2454-003	VA21C2454-004	--------
						Result	Result	Result	Result	----
Total Metals										
sulfur, total	7704-34-9	E420	0.50	mg/L		4.72	4.51	4.76	4.67	----
tellurium, total	13494-80-9	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
thorium, total	7440-29-1	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
titanium, total	7440-32-6	E420	0.00030	mg/L		0.00632	0.00724	<0.00030	<0.00030	----
tungsten, total	7440-33-7	E420	0.00010	mg/L		0.00016	0.00016	0.00015	0.00016	----
uranium, total	7440-61-1	E420	0.000010	mg/L		0.00132	0.00134	0.00134	0.00138	----
vanadium, total	7440-62-2	E420	0.00050	mg/L		0.00072	0.00081	<0.00050	<0.00050	----
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	----
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0024	0.0022	0.0023	0.0024	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.0132	0.0130	0.0140	0.0143	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0542	0.0527	0.0542	0.0548	----
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
boron, dissolved	7440-42-8	E421	0.010	mg/L		0.012	0.011	0.012	0.012	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L		24.9	25.1	25.3	26.1	----
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	0.00013	0.00016	----
copper, dissolved	7440-50-8	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0012	0.0012	0.0012	0.0012	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		13.4	13.4	13.7	13.8	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.0559	0.0558	0.0559	0.0571	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.00270	0.00277	0.00270	0.00274	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Well#4	Well#4A	Well#4	Well#4	----
					Client sampling date / time	07-Oct-2021 15:45	07-Oct-2021 15:45	09-Oct-2021 15:45	11-Oct-2021 15:45	----
Analyte	CAS Number	Method	LOR	Unit		VA21C2454-001	VA21C2454-002	VA21C2454-003	VA21C2454-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		0.053	0.060	0.063	0.058	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L		3.11	3.11	3.18	3.24	----
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		0.00055	0.00058	0.00068	0.00060	----
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000065	0.000078	0.000131	0.000152	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L		4.62	4.64	4.66	4.63	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L		3.84	3.87	4.00	4.28	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.167	0.164	0.169	0.169	----
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		4.91	5.24	4.78	4.90	----
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		0.00016	0.00015	0.00015	0.00014	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.00133	0.00132	0.00139	0.00140	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
dissolved metals filtration location	----	EP421	-	-		Laboratory	Laboratory	Laboratory	Laboratory	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21C2454**	Page	: 1 of 6
Amendment	: 1		
Client	: **Ponderosa Height Ltd.**	Laboratory	: Vancouver - Environmental
Contact	: Sebastian de la Rosa	Account Manager	: Sean Zhang
Address	: 9411 Pemberton Portage Rd. Darcy BC Canada V0N1L0	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 12-Oct-2021 13:35
PO	: ----	Issue Date	: 14-Oct-2021 15:55
C-O-C number	: 20-938075		
Sampler	: ----		
Site	: ----		
Quote number	: VA21-PDRH100-001		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Dissolved Metals	QC-317732-001	----	magnesium, dissolved	7439-95-4	E421	0.0079 B mg/L	0.005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	*Description*
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Well#4	E421	11-Oct-2021	13-Oct-2021	----	----		13-Oct-2021	180 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Well#4	E421	09-Oct-2021	13-Oct-2021	----	----		13-Oct-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Well#4	E421	07-Oct-2021	13-Oct-2021	----	----		13-Oct-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Well#4A	E421	07-Oct-2021	13-Oct-2021	----	----		13-Oct-2021	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Well#4	E420	11-Oct-2021	----	----	----		13-Oct-2021	180 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Well#4	E420	09-Oct-2021	----	----	----		13-Oct-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Well#4	E420	07-Oct-2021	----	----	----		13-Oct-2021	180 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Well#4A	E420	07-Oct-2021	----	----	----		13-Oct-2021	180 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Dissolved Metals in Water by CRC ICPMS	E421	317732	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	318597	1	8	12.5	5.0	✓
Laboratory Control Samples (LCS)							
Dissolved Metals in Water by CRC ICPMS	E421	317732	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	318597	1	8	12.5	5.0	✓
Method Blanks (MB)							
Dissolved Metals in Water by CRC ICPMS	E421	317732	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	318597	1	8	12.5	5.0	✓
Matrix Spikes (MS)							
Dissolved Metals in Water by CRC ICPMS	E421	317732	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	318597	1	8	12.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 938075

Canada Toll Free: 1 800 668 9878

Page of

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Ponderosa Heights
Contact:	Sebastian de la Rosa
Phone:	604 849 3900
	Company address below will appear on the final report
Street:	9411 Potase rd.
City/Province:	Darcy, BC
Postal Code:	V0N1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2 sebastiandelarosa.a@gmail.com

Email 3

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☑ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	PDRH 100	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact: Sean Zaig	Sampler: Sebastian

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Total metals	Dissolved Metals	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Well # 4	07-Oct-21	15:45	well water		✓	✓			
	Well # 4A	07-Oct-21	15:45	well water		✓	✓			
	Well # 4	09-Oct-21	15:45	well water		✓	✓			
	Well #4	09-Oct-21	15:45	well water		✓	✓			
	Well #4	11-Oct-21	15:45	Well water		✓	✓			
	Well #4	11-Oct-21	15:45	well water		✓	✓			

Environmental Division
Vancouver
Work Order Reference
VA21C2454

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?

☐ YES ☒ NO

Are samples for human consumption/ use?

☐ YES ☒ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				3.0			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: JV	Date: Oct 12/21	Time: 1:35 pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.