



To: J. Brian Warner and Luraly Warner  
17350 W. Goshawk Road  
Colorado Springs CO 80908

Re: Water Quality Report for the Warner Subdivision

Date: April 16, 2021

This Water Quality Report was completed for J Brian Warner and Luraly Warner (“Applicants”) by Julia Murphy of Groundwater Investigations LLC (“GWI”), a Professional Geologist, in accordance with the requirements of the El Paso County Land Development Code and the Amendment to the Land Development Code dated August 27, 2019 Section 8.4.7 (10). Ms. Murphy has over 25 years’ experience in geologic and hydrogeologic investigations with 9 years experience in water quality sampling and analysis of drinking water aquifers with specialization in contaminant hydrogeology.

This report presents a description of groundwater sampling and analysis for the purpose of providing all necessary information for a determination of sufficiency in water quality for the Warner subdivision water supply. The subdivision water supply is required to meet the Primary Drinking Water Regulations as defined by the Water Quality Control Commissions Regulation 11 under 5CCR 1002-1.

## **1.0 Site Location and Description**

The Warner’s property consists of a 40 Acre parcel zoned RR-5 located in the Northeast ¼ of the Northwest ¼ of Section 23, Township 11 South, Range 65 West, of the 6th P.M. (“Property”). The Property is situated within the Kiowa Bijou Designated Groundwater Basin at the address 17350 W. Goshawk Road, Colorado Springs Colorado, 80908, in El Paso County (Figure 1).

The 40 acre Property will be subdivided to create a four-lot minor subdivision. Lots 1 and 2 are vacant and will be 5-acres each; Lot 3 has an existing home with a well (Permit 95869) completed into the Dawson aquifer and an individual non-evaporative septic system and leach field and will be 19.96 acres; and Lot 4 is vacant and will be 10.0 acres (Figure 2).

## **2.0 Subdivision Water Source**

Each vacant lot will be supplied water via a well completed in the Denver Basin Bedrock non-tributary Dawson Aquifer. The general depth of a Dawson Well in the area is about 300 feet below ground surface.

## **3.0 Sample Location and Collection**

A Dawson well having Well Permit 95869 serves the existing home on the Property and water samples were collected from this well via an outside pump. Representative water quality samples were collected by GWI on October 13, 2020 using standard collection and preservation methods. Water quality samples were received by the laboratory on October 14, 2020 and all holding times were met. Chain of Custody was maintained for the transfer of samples to a Colorado Certified Laboratory and their subcontracted laboratory. Constituents selected to be measured are listed in the Amendment to the Land Development Code dated August 27 2019, Section 8.4.7(B)(3)(d)(10)(a). These are described as "Inorganic Chemicals", "Secondary Maximum Contaminants", "Radionuclides" and "Bacteriological".

## **4.0 Analysis Results and Recommendations**

The analysis results for each constituent were compared to the Colorado Primary Drinking Water Standards maximum contaminant levels (MCL) and secondary MCLs. The primary MCL is the legal threshold limit on the amount of a substance that is allowed in public water systems under the Safe Drinking Water Act (SDWA). Private wells are not regulated under the SDWA however the El Paso County Public Health has required that subdivisions on wells evaluate their water supply based on the same criteria. All constituent concentrations are below the primary drinking water MCL (Attachment 1).

The corrosivity of the water was evaluated using the Langelier Index. Experience has shown that Langelier Index in the range of -1 to +1 has a relatively low corrosion impact on metallic components of a water distribution system. The Langelier Index was measured at -2.1 indicating the water may be moderately corrosive to metals.

It is recommended that a neutralizing tank be installed if copper plumbing is used. Alternatively, polyvinyl chloride (PVC) or cross-linked polyethylene (PEX), pipe

be used in plumbing applications. PVC and PEX pipe is affordable and versatile with a number of different fittings and sizes available and is great for most warm and cold water applications.

## **5.0 Sources of Potential Contaminants**

The Warner Subdivision is situated in a rural residential area surrounded by lots of 5 to 40 acres. There are no existing commercial sites in the area or upgradient of the property. Zoning is rural residential and there is no proposed plan that would indicate future commercial or industrial use. Domestic wells in the vicinity are completed to depths beyond 190 to 320 feet below ground surface completed in the Dawson aquifer. On-site septic system with leach field will be used to treat wastewater, however they are not considered a potential contaminant source when they are constructed in accordance with protective regulations regarding design and setbacks from the well. Due to slow vertical infiltration as a result of impeding clay layers, there is a low possibility for on-site or off-site sources of potential water quality degradation.

Respectfully submitted,

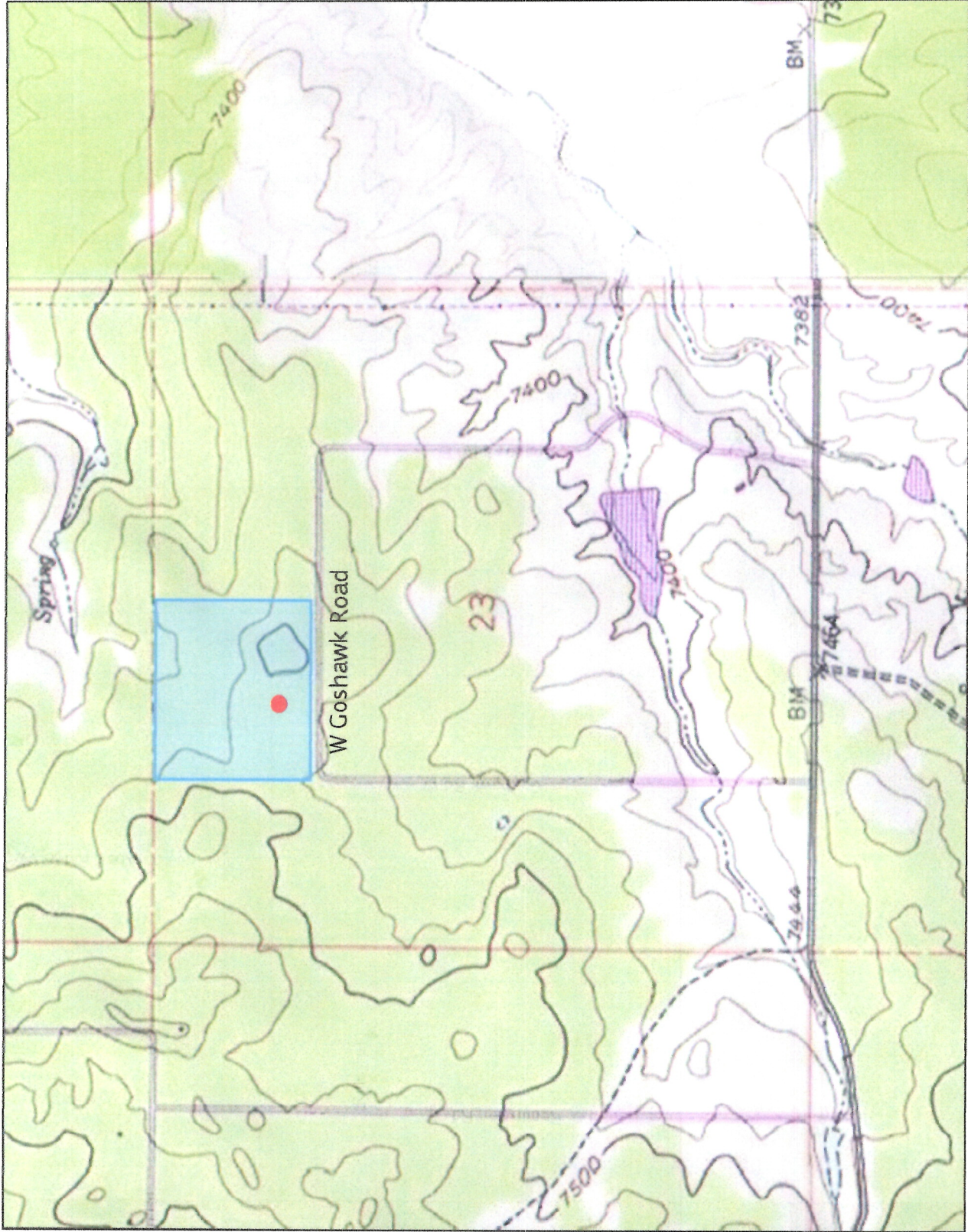
A handwritten signature in black ink, appearing to read 'Julia M. Murphy', written in a cursive style.

Julia M. Murphy, MS PG

Hydrogeologist/Professional Geologist



# Warner Subdivision



**Legend**

- County
- Well Location

**Location**

The inset map shows the location of the subdivision within a larger geographic context, including labels for "T11S", "R65W", and "COUNTY".

**Notes**

NE4 NW4 S23 T11S R65W

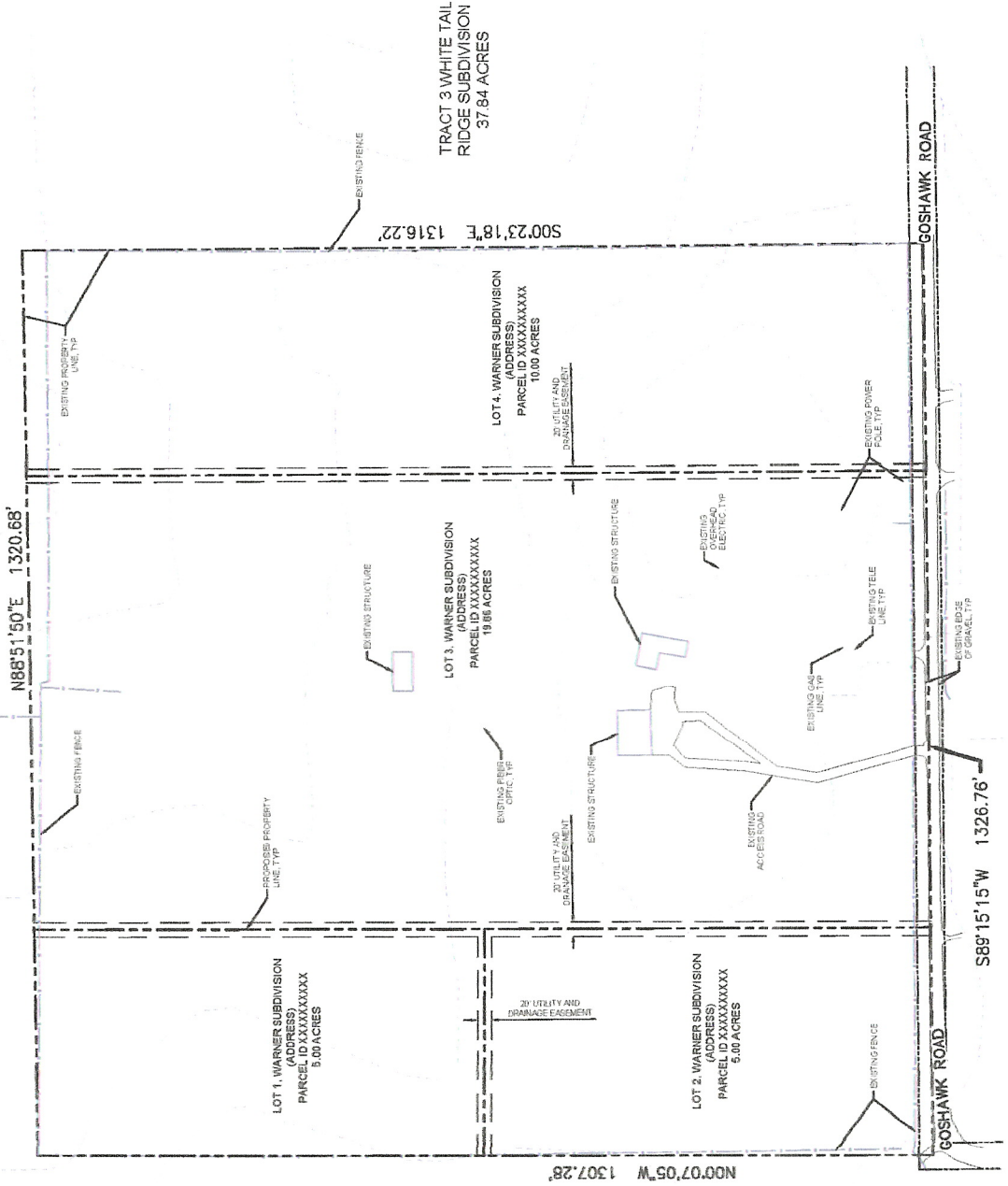
**FIGURE 1**



FIGURE 2

**WARNER 4-LOT SUBDIVISION**  
 SITE DEVELOPMENT PLANS  
 17350 GOSHAWK RD. COLORADO SPRINGS, CO 80908

GENERAL NOTES:



NO.	BY	DATE	REVISIONS

**FORSGREN**  
 Associates, Inc.  
 500 Inverness Drive East, Suite 112, Englewood, CO 80112  
 TEL: 720.214.5844 FAX: 720.000.0000

**OWNER**  
 BRIAN WARNER  
 COLORADO SPRINGS, CO

**DEVELOPMENT PLAN**  
 4-LOT MINOR SUBDIVISION

SHEET NO. **C-01**  
 DATE: 06/10/2020  
 PLOT NO. 1051

**Report To:** Julia M. Murphy

**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Bill To:** Julia M. Murphy

**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Task No.:** 201014020  
**Client PO:**  
**Client Project:** Warner Sub

**Date Received:** 10/14/20  
**Date Reported:** 10/21/20  
**Matrix:** Water - Drinking

**Customer Sample ID** W1013

**Sample Date/Time:** 10/13/20 11:30 AM

**Lab Number:** 201014020-01

Test	Result	Method	ML	Date Analyzed	Analyzed By	MCL
Nitrate/ Nitrite Nitrogen	0.59 mg/L	Calculation	0.05 mg/L	10/15/20	MAT	
Chloride	1.9 mg/L	EPA 300.0	0.1 mg/L	10/14/20	MAT	
Fluoride	0.18 mg/L	EPA 300.0	0.09 mg/L	10/14/20	MAT	4
Nitrate Nitrogen	0.59 mg/L	EPA 300.0	0.05 mg/L	10/14/20	MAT	10
Nitrite Nitrogen	< 0.03 mg/L	EPA 300.0	0.03 mg/L	10/14/20	MAT	1
Sulfate	6.3 mg/L	EPA 300.0	0.1 mg/L	10/14/20	MAT	
Cyanide-Total	< 0.005 mg/L	EPA 335.4	0.005 mg/L	10/15/20	JTF	0.02
<b>Total</b>						
Iron	< 0.005 mg/L	EPA 200.7	0.005 mg/L	10/16/20	MBN	0.3
Aluminum	0.009 mg/L	EPA 200.8	0.001 mg/L	10/15/20	IPC	0.05
Antimony	< 0.0012 mg/L	EPA 200.8	0.0012 mg/L	10/15/20	IPC	0.006
Arsenic	< 0.0006 mg/L	EPA 200.8	0.0006 mg/L	10/15/20	IPC	0.01
Barium	0.0772 mg/L	EPA 200.8	0.0007 mg/L	10/15/20	IPC	2
Beryllium	0.0001 mg/L	EPA 200.8	0.0001 mg/L	10/15/20	IPC	0.004
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	10/15/20	IPC	0.005
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	10/15/20	IPC	0.1
Manganese	< 0.0008 mg/L	EPA 200.8	0.0008 mg/L	10/15/20	IPC	0.05
Mercury	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	10/15/20	IPC	0.002
Selenium	0.0015 mg/L	EPA 200.8	0.0008 mg/L	10/15/20	IPC	0.05

**Abbreviations/ References:**

ML = Minimum Level = LRL = RL

MCL = Maximum Contaminant Level per The EPA

mg/L = Milligrams Per Liter or PPM

ug/L = Micrograms Per Liter or PPB

mpn/100 mls = Most Probable Number Index/ 100 mls

Date Analyzed = Date Test Completed



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**Analytical Results**

**TASK NO: 201014020**

**Report To:** Julia M. Murphy  
**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Bill To:** Julia M. Murphy  
**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

<b>Task No.:</b> 201014020	<b>Date Received:</b> 10/14/20
<b>Client PO:</b>	<b>Date Reported:</b> 10/21/20
<b>Client Project:</b> Warner Sub	<b>Matrix:</b> Water - Drinking

**Customer Sample ID** W1013  
**Sample Date/Time:** 10/13/20 11:30 AM  
**Lab Number:** 201014020-01

Test	Result	Method	ML	Date Analyzed	Analyzed By	MCL
<i>Total</i>						
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	10/15/20	IPC	
Thallium	< 0.0002 mg/L	EPA 200.8	0.0002 mg/L	10/15/20	IPC	0.002
Zinc	0.004 mg/L	EPA 200.8	0.001 mg/L	10/15/20	IPC	5

**Abbreviations/ References:**

ML = Minimum Level = LRL = RL  
MCL = Maximum Contaminant Level per The EPA  
mg/L = Milligrams Per Liter or PPM  
ug/L = Micrograms Per Liter or PPB  
mpn/100 mls = Most Probable Number Index/ 100 mls  
Date Analyzed = Date Test Completed



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### Chain of Custody Form



**Colorado Analytical**  
 LABORATORIES, INC.

Commerce City Lab  
 10411 Heinz Way  
 Commerce City CO 80640

Lakewood Service Center  
 12860 W. Cedar Dr, Suite 100A  
 Lakewood CO 80228

Phone: 303-659-2313

[www.coloradolab.com](http://www.coloradolab.com)

<b>Report To Information</b>		<b>Bill To Information</b> (If different from report to)		<b>Project Name / Number</b>	
Company Name: <u>CVI</u>		Company Name: _____		<u>LAZARUS SCS</u>	
Contact Name: <u>Teria Murphy</u>		Contact Name: _____		Task Number (Lab Use Only)	
Address: <u>11590 Black Forest Rd</u>		Address: _____		<u>CAL Task</u>	
City: <u>CS</u> State: <u>CO</u> Zip: <u>80908</u>		City: _____ State: _____ Zip: _____		<u>201014020</u>	
Phone: <u>719 338 1805</u>		Phone: _____		JML	
Email: <u>tmurphy@cv.com</u>		Email: _____			
Sample Collector: <u>Teria Murphy</u>		PO No.: _____			
Sample Collector Phone: <u>719 338 1805</u>					

Sample Matrix (Select One Only)			Sample ID	No. of Containers	Grab or (Check One Only) Composite	Tests Requested														
Waste Water <input type="checkbox"/>	Ground Water <input checked="" type="checkbox"/>	Surface Water <input type="checkbox"/>				Soil <input type="checkbox"/>	Sludge <input type="checkbox"/>	Drinking Water <input type="checkbox"/>	Nitrate	Nitrite	Fluoride	Sulfate	Chloride	TDS	pH	ALKALINITY	METALS TOTAL	Coliform	Cyanide	Gross d+B
			W1013	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
				1	✓															
				1	✓															
				1	✓															
				1	✓															

Instructions: PER QUOTE Q30 20160804  
 Add'l: LANG. Index \* \* \*  
 Relinquished By: [Signature] Date/Time: 10/13/20 Received By: [Signature] Date/Time: 10/14/20 10:15  
 C/S Info: 9 Deliver Via: Fed Ex C/S Charge:  Temp. 2.2 °C/ice Y Seals Present Yes  No   
 Relinquished By: [Signature] Date/Time: 10/13/20 Received By: [Signature] Date/Time: 10/14/20 10:15 Sample Pres. Yes  No





LABORATORIES INC

Quotation for Analytical Services

Quote ID: QBO20060094

Prepared For: Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15

Quote Date: Monday, June 29, 2020  
Turn Around Time: 10 Working Days

Colorado Springs, CO 80908

Attn: Julia M. Murphy

Project:

Matrix	Description	Method	Qty.	Price - each	Total
Water - Drinking	Nitrate/ Nitrite Nitrogen	Calculation	1	\$0.00	\$0.00
Water - Drinking	Fe - Total	EPA 200.7	1	\$12.00	\$12.00
Water - Drinking	Ph	SM 4500-H-B	1	\$12.00	\$12.00
Water - Drinking	Ag - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Al - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Alkalinity	SM 2320-B	1	\$15.00	\$15.00
Water - Drinking	As - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Ba - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Be - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Cd - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Cr - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Hg	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Mn - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Sb - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Se - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	TDS	SM 2540-C	1	\$15.00	\$15.00
Water - Drinking	Tl - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Zn - Total	EPA 200.8	1	\$15.00	\$15.00
Water - Drinking	Chloride	EPA 300.0	1	\$17.00	\$17.00
Water - Drinking	Nitrate Nitrogen	EPA 300.0	1	\$17.00	\$17.00
Water - Drinking	Nitrite Nitrogen	EPA 300.0	1	\$17.00	\$17.00
Water - Drinking	Sulfate	EPA 300.0	1	\$17.00	\$17.00
Water - Drinking	Fluoride	EPA 300.0	1	\$18.00	\$18.00
Water - Drinking	Total Coliform P/A	SM 9223	1	\$23.00	\$23.00
Water - Drinking	Cyanide-Total	EPA 335.4	1	\$38.00	\$38.00
Water - Drinking	Gross Alpha/Beta (Sub)	SM 7110-B	1	\$56.16	\$56.16
Water - Drinking	Radium 226 (Sub)	SM 7500-Ra B	1	\$75.60	\$75.60
Water - Drinking	Radium 228 (Sub)	EPA Ra-05	1	\$118.80	\$118.80
Shipping	Cooler Shipment - UPS	UPS	1	\$10.00	\$10.00
Shipping	Sample Shipment to Outside Lab	UPS	1	\$30.00	\$30.00

Add: Lang Index

## Analytical Results

**TASK NO: 201014020**

**Report To:** Julia M. Murphy

**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Bill To:** Julia M. Murphy

**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Task No.:** 201014020  
**Client PO:**  
**Client Project:** Warner Sub

**Date Received:** 10/14/20  
**Date Reported:** 10/21/20  
**Matrix:** Water - Drinking

Lab Number	Customer Sample ID	Sample Date/Time	Test	Result	Method	Date Analyzed
201014020-01A	W1013	10/13/20 11:30 AM	Total Coliform	<b>Absent</b>	SM 9223	10/15/20
			E-Coli	<b>Absent</b>	SM 9223	10/15/20

**Abbreviations/ References:**

Absent = Coliform Not Detected

Present = Coliform Detected - Chlorination Recommended

Date Analyzed = Date Test Completed

SM = "Standard Methods for the Examination of Water and Wastewater"; APHA; 19th Edition; 1995



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### Chain of Custody Form



<b>Report To Information</b> Company Name: <u>CVI</u> Contact Name: <u>Julia Murphy</u> Address: <u>11590 Black Forest Rd</u> City: <u>CS</u> State: <u>CO</u> Zip: <u>80908</u> Phone: <u>719 338 1805</u> Email: <u>jmurphy@29gwi.com</u>	<b>Bill To Information (If different from report to)</b> Company Name: _____ Contact Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____ PO No.: _____
<b>Project Name / Number</b> <u>LAKEWOOD STUBS</u>	
<b>Task Number (Lab Use Only)</b> <u>CAL TASK</u> <u>201014020</u> JML	

Commerce City Lab  
 10411 Heinz Way  
 Commerce City CO 80640  
 Lakewood Service Center  
 12860 W. Cedar Dr, Suite 100A  
 Lakewood CO 80228  
 Phone: 303-659-2313  
[www.coloradolab.com](http://www.coloradolab.com)

Sample Matrix (Select One Only)			Sample ID	No. of Containers	Grab or (Check One Only) Composite	Tests Requested														
Waste Water <input type="checkbox"/>	Ground Water <input checked="" type="checkbox"/>	Surface Water <input type="checkbox"/>				Soil <input type="checkbox"/>	Sludge <input type="checkbox"/>	Drinking Water <input type="checkbox"/>	Nitrate	Nitrite	Fluoride	Sulfate	Chloride	TDS	pH	ALKALINITY	METALS TOTAL	Coliform	Cyanide	Gross d+B
			W1013	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
				1	✓															
				1	✓															
				1	✓															

Instructions: PER QUOTE Q30 20160804  
 Add'l: LANG. Index #4  
 Relinquished By: [Signature] Date/Time: 10/13/20 Received By: [Signature] Date/Time: 10/14/20 10:15  
 C/S Info: 9 Deliver Via: Fed Ex C/S Charge:  Temp. 2.2 °C/ice Y Seals Present Yes  No   
 Sample Pres. Yes  No



LABORATORIES INC

Quotation for Analytical Services

Quote ID: QBO20060094

Prepared For: Groundwater Investigations LLC
11590 Black Forest Road, Suite 15

Quote Date: Monday, June 29, 2020
Turn Around Time: 10 Working Days

Colorado Springs, CO 80908

Attn: Julia M. Murphy

Project:

Table with 5 columns: Matrix, Description, Method, Qty., Price - each, Total. Lists various analytical services for water and shipping.

Add: Lang Index





**Hazen Research, Inc.**  
4601 Indiana Street  
Golden, CO 80403 USA  
Tel: (303) 279-4501  
Fax: (303) 278-1528

Lab Control ID: 20M02935  
Received: Oct 14, 2020  
Reported: Nov 23, 2020  
Purchase Order No.  
None Received

Customer ID: 20040H  
Account ID: Z01034

Stuart Nielson  
Colorado Analytical Laboratories, Inc.  
10411 Heinz Way  
Commerce City, CO 80640

# ANALYTICAL REPORT

*Report may only be copied in its entirety.  
Results reported herein relate only to discrete samples  
submitted by the client. Hazen Research, Inc. does not warrant  
that the results are representative of anything other than the  
samples that were received in the laboratory*

By:   
\_\_\_\_\_  
Jessica Axen  
Analytical Laboratories Director



**Hazen Research, Inc.**  
 4601 Indiana Street  
 Golden, CO 80403 USA  
 Tel: (303) 279-4501  
 Fax: (303) 278-1528

Lab Control ID: 20M02935  
 Received: Oct 14, 2020  
 Reported: Nov 23, 2020  
 Purchase Order No.  
 None Received

Customer ID: 20040H  
 Account ID: Z01034

**ANALYTICAL REPORT**

Stuart Nielson  
 Colorado Analytical Laboratories, Inc.

<b>Lab Sample ID</b>			20M02935-001					
<b>Customer Sample ID</b>			201014023-01 - W1013 sampled on 10/13/20 @ 1130					
<b>Parameter</b>	<b>Units</b>	<b>Code</b>	<b>Result</b>	<b>Precision* +/-</b>	<b>Detection Limit</b>	<b>Method</b>	<b>Analysis Date / Time</b>	<b>Analyst</b>
Gross Alpha	pCi/L	T	3.1	1.9	0.1	SM 7110 B	10/22/20 @ 0916	KT
Gross Beta	pCi/L	T	5.7	2.2	3.6	SM 7110 B	10/22/20 @ 0916	KT
Radium-226	pCi/L	T	NR	-	-	SM 7500-Ra B	-	-
Radium-228	pCi/L	T	NR	-	-	EPA Ra-05	-	-

NR - Not Requested - Analysis not requested on this sample.

Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; MI 9070; NJ CO008;  
 NYSELAP (NELAC Certified) 11417; RI LAO00284; WI 998376610, TX T104704256-15-6

\*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.

Codes: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Residual (AR) = As Received < = Less Than



**Hazen Research, Inc.**  
 4601 Indiana Street  
 Golden, CO 80403 USA  
 Tel: (303) 279-4501  
 Fax: (303) 278-1528

Lab Control ID: 20M02935  
 Received: Oct 14, 2020  
 Reported: Nov 23, 2020  
 Purchase Order No.  
 None Received

Customer ID: 20040H  
 Account ID: Z01034

**ANALYTICAL REPORT**

Stuart Nielson  
 Colorado Analytical Laboratories, Inc.

<b>Lab Sample ID</b>			20M02935-002					
<b>Customer Sample ID</b>			201014023-01A - W1013 sampled on 10/13/20 @ 1130					
<b>Parameter</b>	<b>Units</b>	<b>Code</b>	<b>Result</b>	<b>Precision* +/-</b>	<b>Detection Limit</b>	<b>Method</b>	<b>Analysis Date / Time</b>	<b>Analyst</b>
Gross Alpha	pCi/L	T	NR	-	-	SM 7110 B	-	-
Gross Beta	pCi/L	T	NR	-	-	SM 7110 B	-	-
Radium-226	pCi/L	T	1.2	0.4	0.2	SM 7500-Ra B	11/18/20 @ 0935	AS
Radium-228	pCi/L	T	3.4	1.0	0.3	EPA Ra-05	10/27/20 @ 1109	JR

NR - Not Requested - Analysis not requested on this sample.

Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; MI 9070; NJ CO008;  
 NYSELAP (NELAC Certified) 11417; RI LAO00284; WI 998376610, TX T104704256-15-6

\*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.

Codes: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Residual (AR) = As Received < = Less Than

**Batch QC Summary Form**

Analyte: Gross Alpha

Control Standard/LFB: ID: C-11 pCi/mL: 57.4 (use 1 diluted)

Spike Solution: ID: C-11 pCi/mL: 57.4 (use 1 mL)

Spike Recovery Calculation: Sample: Tap\*

$$\text{Calculation: } \frac{(60.4) (1.000) - (0.5) (0.200)}{57.4} \times 100 = 105\%$$

Batch QC Evaluation:

Parameter	Criteria	Pass	Fail	N/A
Control Std./LFB	+/- 30 %	<b>x</b>		
Spike Recovery	70 - 130 %	<b>x</b>		
Blank	< or = 3 x Uncertainty	<b>x</b>		
Duplicate 1	95% confidence interval overlap	<b>x</b>		
Duplicate 2 *	95% confidence interval overlap			<b>x</b>

\* Required for batch size greater than 10 samples.

Conclusions:

  **x** Batch QC Passes\*\*  
       Batch QC Fails  
       Batch QC Passes, with exceptions\*\*:

Reruns Required: \_\_\_\_\_

Narrative:

\*\*All QC data provided in this section of the report met the acceptance criteria specified in the analytical methods and procedures. State Maximum Contamination Levels (MCLs) are not evaluated in this report.

Batch Listing by Lab Control Number:

20M02932 \_\_\_\_\_  
20M02933 \_\_\_\_\_  
20M02935 \_\_\_\_\_  
20M02936 \_\_\_\_\_  
20M02937 \_\_\_\_\_  
20M02950 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Evaluator:  
 \_\_\_\_\_

10/26/2020  
 \_\_\_\_\_  
 Date



**Batch QC Summary Form**

Analyte: Gross Beta

Control Standard/LFB: ID: C-11 pCi/mL: 44 (use 1 diluted)

Spike Solution: ID: C-11 pCi/mL: 44 (use 1 mL)

Spike Recovery Calculation: Sample: Tap\*

$$\text{Calculation: } \frac{(39.8) (1.000) - (0.0) (0.200)}{44} \times 100 = 90\%$$

Batch QC Evaluation:

Parameter	Criteria	Pass	Fail	N/A
Control Std./LFB	+/- 20 %	<b>x</b>		
Spike Recovery	80 - 120 %	<b>x</b>		
Blank	< or = 3 x Uncertainty	<b>x</b>		
Duplicate 1	95% confidence interval overlap	<b>x</b>		
Duplicate 2 *	95% confidence interval overlap			<b>x</b>

\* Required for batch size greater than 10 samples.

Conclusions:

  **x** Batch QC Passes\*\*  
       Batch QC Fails  
       Batch QC Passes, with exceptions\*\*:

Reruns Required: \_\_\_\_\_

Narrative:

\*\*All QC data provided in this section of the report met the acceptance criteria specified in the analytical methods and procedures. State Maximum Contamination Levels (MCLs) are not evaluated in this report.

Batch Listing by Lab Control Number:

20M02932 \_\_\_\_\_  
20M02933 \_\_\_\_\_  
20M02935 \_\_\_\_\_  
20M02936 \_\_\_\_\_  
20M02937 \_\_\_\_\_  
20M02950 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Evaluator:  
 \_\_\_\_\_

10/26/2020  
 \_\_\_\_\_  
 Date

**Batch QC Summary Form**

Analyte: Radium-226

Control Standard/LFB: ID: NBL-6A pCi/mL: 23 (use 2 diluted)

Spike Solution: ID: NBL-6A pCi/mL: 23 (use 2 mL)

Spike Recovery Calculation: Sample: 20M02941-001b

$$\text{Calculation: } \frac{(51.2) (1.000) - (1.2) (1.000)}{46} \times 100 = 109\%$$

Batch QC Evaluation:

Parameter	Criteria	Pass	Fail	N/A
Control Std./LFB	+/- 20 %	<b>x</b>		
Spike Recovery	80 - 120 %	<b>x</b>		
Blank	< or = 3 x Uncertainty	<b>x</b>		
Duplicate 1	95% confidence interval overlap	<b>x</b>		
Duplicate 2 *	95% confidence interval overlap	<b>x</b>		

\* Required for batch size greater than 10 samples.

Conclusions:

    **x** Batch QC Passes\*\*  
           Batch QC Fails  
           Batch QC Passes, with exceptions\*\*:

Reruns Required: \_\_\_\_\_

Narrative:

\*\*All QC data provided in this section of the report met the acceptance criteria specified in the analytical methods and procedures. State Maximum Contamination Levels (MCLs) are not evaluated in this report.

Batch Listing by Lab Control Number:

<u>20M02941</u>	<u>20M02954</u>
<u>20M02930</u>	<u>20M02955</u>
<u>20M02934</u>	<u>20M02956</u>
<u>20M02935</u>	<u>20M02967</u>
<u>20M02936</u>	<u>20M02973</u>
<u>20M02942</u>	<u>20M02976</u>
<u>20M02943</u>	<u>20M02977</u>
<u>20M02944</u>	<u>20M02993</u>
<u>20M02952</u>	_____
<u>20M02953</u>	_____

Evaluator:

*Gynnea Rockwell* \_\_\_\_\_

11/20/2020

Date

**Batch QC Summary Form**

Analyte: Radium-228

Control Standard/LFB: ID: NBL-7A pCi/mL: 13.2 (use 10 diluted)

Spike Solution: ID: NBL-7A pCi/mL: 13.2 (use 10 mL)

Spike Recovery Calculation: Sample: 20M02943-001c

$$\text{Calculation: } \frac{(141.4) (1.000) - (1.5) (1.000)}{132} \times 100 = 106\%$$

Batch QC Evaluation:

Parameter	Criteria	Pass	Fail	N/A
Control Std./LFB	+/- 20 %	<b>x</b>		
Spike Recovery	80 - 120 %	<b>x</b>		
Blank	< or = 3 x Uncertainty	<b>x</b>		
Duplicate 1	95% confidence interval overlap	<b>x</b>		
Duplicate 2 *	95% confidence interval overlap			<b>x</b>

\* Required for batch size greater than 10 samples.

Conclusions:

    **x** Batch QC Passes\*\*  
           Batch QC Fails  
           Batch QC Passes, with exceptions\*\*:

Reruns Required: \_\_\_\_\_

Narrative:

\*\*All QC data provided in this section of the report met the acceptance criteria specified in the analytical methods and procedures. State Maximum Contamination Levels (MCLs) are not evaluated in this report.

Batch Listing by Lab Control Number:

20M02934 \_\_\_\_\_  
20M02935 \_\_\_\_\_  
20M02936 \_\_\_\_\_  
20M02942 \_\_\_\_\_  
20M02943 \_\_\_\_\_  
20M02944 \_\_\_\_\_  
20M02952 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Evaluator:  
 \_\_\_\_\_

\_\_\_\_\_ 11/03/2020  
Date



LABORATORIES, INC.

Sub-Lab Chain of Custody Form

Ship To: Hazen Research

*29 m 2935*

<b>Report To Information</b> Company Name: <u>Colorado Analytical Laboratory</u> Report To: <u>Stuart Nielson</u> E-Mail: <u>stuartnielson@coloradolab.com</u> Address: <u>10411 Heinz Way</u> <u>Commerce City, CO 80640</u> Phone: <u>303-659-2313</u>	<b>Bill To Information (if different from report to)</b> Address:   	<b>Project Name</b> <u>Warner Sub</u>
CAL TASK 201014023 JML	Compliance Samples: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Submit Data to CDPHE: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

**Tests Requested**

Sample Date/Time	Sample ID	Matrix	Radium 226 (Sub)	Gross Alpha/Beta (Sub)	Radium 228 (Sub)															Container Type
10/13/20	11:30 AM	201014023-01 - W1013																		11 Cylinder - HNO3
10/13/20	11:30 AM	201014023-01A - W1013																		3 - 1L Cylinder - HNO3

Comment:

Relinquished by: <i>(Signature)</i> Date: <u>10/14/20</u> Time: <u>1115</u>	Received by: <i>(Signature)</i> Date: <u>10/19/20</u> Time: <u>1515</u>	Relinquished by: <i>(Signature)</i> Date: _____ Time: _____	Received by: <i>(Signature)</i> Date: _____ Time: _____
--	--	--	--

*Reed pres*



# Analytical Results

**TASK NO: 201014020**

**Report To:** Julia M. Murphy

**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Bill To:** Julia M. Murphy

**Company:** Groundwater Investigations LLC  
11590 Black Forest Road, Suite 15  
Colorado Springs CO 80908

**Task No.:** 201014020  
**Client PO:**  
**Client Project:** Warner Sub

**Date Received:** 10/14/20  
**Date Reported:** 10/21/20  
**Matrix:** Water - Drinking

**Customer Sample ID** W1013  
**Sample Date/Time:** 10/13/20 11:30 AM  
**Lab Number:** 201014020-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
Bicarbonate	41.8 mg/L as CaCO3	SM 2320-B	4	10/15/20	ECM
Calcium as CaCO3	25.7 mg/L	EPA 200.7	0.1	10/16/20	MBN
Carbonate	< 4 mg/L as CaCO3	SM 2320-B	4	10/15/20	ECM
Hydroxide	< 4 mg/L as CaCO3	SM 2320-B	4	10/15/20	ECM
Langelier Index	-2.16 units	SM 2330-B		10/19/20	SAN
pH	6.52 units	SM 4500-H-B	0.01	10/14/20	MBN
Temperature	20 °C	SM 4500-H-B	1	10/14/20	MBN
Total Alkalinity	41.8 mg/L as CaCO3	SM 2320-B	4	10/15/20	ECM
Total Dissolved Solids	96 mg/L	SM 2540-C	5	10/19/20	ISG

**Abbreviations/ References:**

ML = Minimum Level = LRL = RL  
mg/L = Milligrams Per Liter or PPM  
ug/L = Micrograms Per Liter or PPB  
mpn/100 mls = Most Probable Number Index/ 100 mls  
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

**Chain of Custody Form**



LABORATORIES, INC

**Commerce City Lab**  
 10411 Heinz Way  
 Commerce City CO 80640

**Lakewood Service Center**  
 12860 W. Cedar Dr, Suite 100A  
 Lakewood CO 80228

Phone: 303-659-2313  
[www.coloradolab.com](http://www.coloradolab.com)

<b>Report To Information</b>		<b>Bill To Information (If different from report to)</b>		<b>Project Name / Number</b>	
Company Name: <u>SWI</u>	Company Name: _____	Company Name: <u>LABORATORY SERVICES</u>	Company Name: _____	Task Number (Lab Use Only)	
Contact Name: <u>Teresa Murphy</u>	Contact Name: _____	Contact Name: _____	Contact Name: _____	CAL Task	
Address: <u>11590 Black Forest Rd</u>	Address: _____	Address: _____	Address: _____	201014020	
City: <u>CS</u> State: <u>CO</u> Zip: <u>80908</u>	City: _____ State: _____ Zip: _____	City: _____ State: _____ Zip: _____	City: _____ State: _____ Zip: _____	JML	
Phone: <u>719 338 1805</u>	Phone: _____	Phone: _____	Phone: _____	JML	
Email: <u>tmurphy@29wi.com</u>	Email: _____	Email: _____	Email: _____	JML	
Sample Collector: <u>Teresa Murphy</u>	Sample Collector: _____	Sample Collector: _____	Sample Collector: _____	JML	
Sample Collector Phone: <u>719.338.1805</u>	Sample Collector Phone: _____	Sample Collector Phone: _____	Sample Collector Phone: _____	JML	

Date	Time	Sample ID	Sample Matrix (Select One Only)			No. of Containers	Grab or (Check One Only) Composite	Tests Requested																
			Waste Water <input type="checkbox"/>	Ground Water <input checked="" type="checkbox"/>	Surface Water <input type="checkbox"/>			Soil <input type="checkbox"/>	Sludge <input type="checkbox"/>	Drinking Water <input type="checkbox"/>	Nitrate	Nitrite	Fluoride	Sulfate	Chloride	TDS	pH	ALKALINITY	METALS TOTAL	Coliform	Cyanide	Cross+B	Radium 226	Radium 228
10/13/2008	11:30	W1013		<input checked="" type="checkbox"/>		5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
				<input checked="" type="checkbox"/>		1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
				<input checked="" type="checkbox"/>		1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
				<input checked="" type="checkbox"/>		1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Instructions: PER QUOTE Q130 2008 08094

Relinquished By: [Signature] Date/Time: 10/13/2008 16:00

Received By: [Signature] Date/Time: 10/14/2008 10:15

Deliver Via: Fed Ex Page 2 of 3

Seals Present Yes  No

Temp. 2.2 °C/°F Y

Sample Pres. Yes  No