



To: Mark Davis, Managing Member  
Hodgen Settlers Ranch, LLC  
PO Box 1488, Monument, CO 80132-1488

From: Julia M. Murphy, MS, PG  
Professional Geologist/Hydrogeologist

Re: Water Quality Report, Settlers Ranch Subdivision, Filing 3

Date: January 2, 2024

This Water Quality Report was completed for Mark Davis (“Applicant”) 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 Section 8.4.7 (B)(10). Ms. Murphy has over 25 years’ experience in geologic and hydrogeologic investigations with 10 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 Filing 3 of the Settlers Ranch subdivision (“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**

The Settlers Ranch subdivision is located within portions of the NE1/4 and the S1/2 of Section 23 and portions of the NE1/4 of Section 24, Township 11 South, Range 66 West of the 6<sup>th</sup> P.M., El Paso County, Colorado. In general, the subdivision is located west of Stepler Rd, ¼ mile north of Hodgen Rd, east of Settlers Ranch Filing 2C and south of the Settlers View and Abert Ranch subdivisions.

Settlers Ranch Filing 3 is a replat of a portion of Settlers Ranch subdivision located in a portion of the SE ¼ and portion of the SE1/4 of the NE1/4 of Section 23 & the SW1/4 and NW1/4 of Section 24 (Exhibit 1) all within Township 11 South, Range 66 West of the 6<sup>th</sup> P.M., in El Paso County, Colorado.

## **2.0 Subdivision Water Source**

The Dawson aquifer will be the primary source of water to supply groundwater for in-home purposes, irrigation of home gardens and lawns and watering of domestic animals. Each home will discard wastewater through an individual non-evaporative septic disposal system in compliance with and permitted by the El Paso County Department of Health and Environment. The treated water quality discharged to the subsurface meets the water quality sufficiency requirement in compliance with Section 8.4.7(3)(d) of the El Paso County Land Development Code.

### **3.0 Sample Location**

A letter dated January 3, 2023 by the El Paso County Department of Public Health stated that although there was a finding of sufficiency in Water Quality for the entire subdivision in 2000, the requirements have changed and the water quality of Settlers Ranch Filing 3 must be evaluated based on El Paso County Health and El Paso County Planning and Community Development's new requirements. The water sample was collected from the Dawson aquifer well having Permit 86781-F located within Settlers Ranch Filing 2C (Exhibits 1 & 2).

### **4.0 Sample Collection**

Representative water quality samples were collected and received by the laboratory on May 23, 2023; All holding times were met. A Chain of Custody was maintained for the transfer of samples to the Colorado Certified Laboratory and their subcontracted laboratory. Analytes included Inorganic Chemicals, Secondary Maximum Contaminants, Radionuclides, and Bacteriological. Wells for the subdivision will be drawing from the Dawson confined aquifer therefore, in accordance with the LDC 8.4.7 (B) (10), Volatile Organic Compounds and Synthetic Organic Compounds were not included for analysis.

### **5.0 Analysis Results**

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. Secondary contaminants are not health threatening however are included in analysis of public water systems as their presence above the SMCL concentrations may be a nuisance in taste, odor, color or corrosivity; these are non-enforceable for public systems but are intended to give the public guidance on how to mitigate these chemicals.

The analysis results for each constituent were compared to the Colorado Primary Drinking Water Standards maximum contaminant levels (MCL) and secondary MCLs (SMCLs) (EXHIBIT 3). All concentrations are at or below the primary drinking water MCLs. PH of the water sample was 5.89 and exceeded the SMCL of 6.5 to 8.5 pH Units. Low pH increases the potential for water corrosivity. The Langelier Saturation Index was calculated to evaluate corrosivity.

**5.1. Corrosivity.** The Langelier Saturation Index serves as a guide in evaluating the degree of potential corrosivity of well water. Results indicate the groundwater at the sample location is considered "moderately" corrosive and treatment "may" be needed. A simple pretreatment system such as a neutralizing tank can change the water to a less corrosive chemistry.

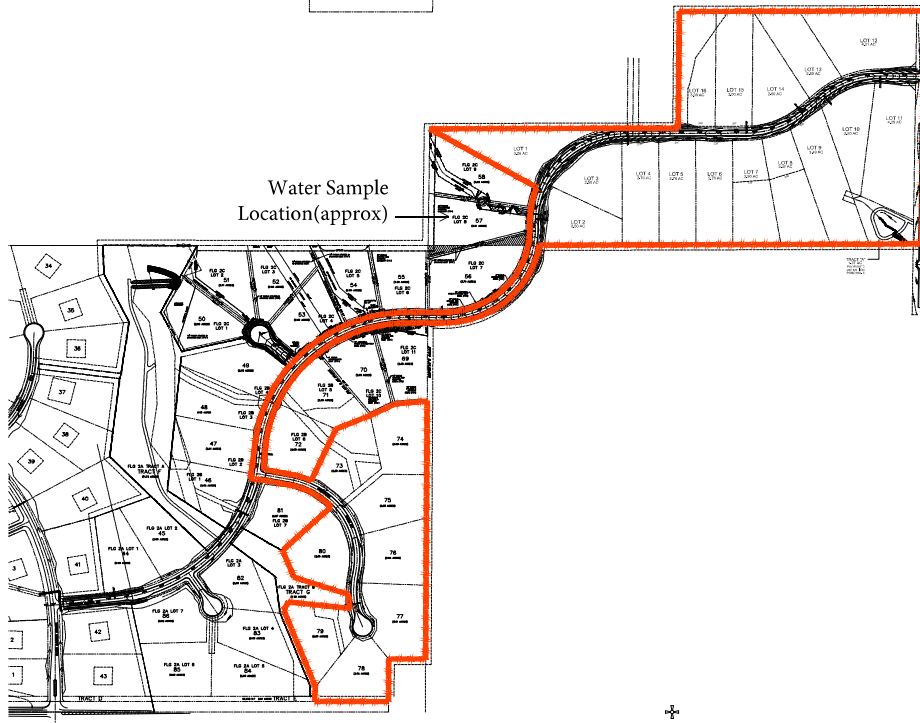
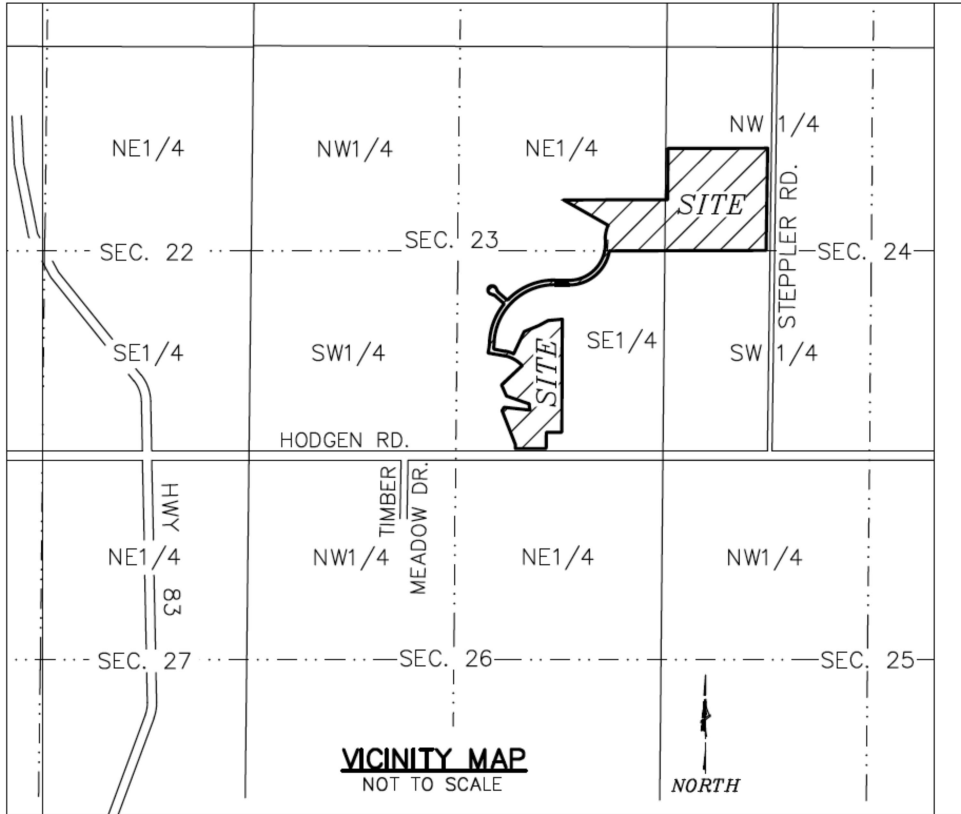
### **6.0 Sources of Potential Contaminants**

Settlers Ranch Subdivision is situated in a rural residential area surrounded by lots of 2.5 to 40 acres. There are no existing commercial sites. Zoning is rural residential and there is no proposed plan that would indicate future commercial or industrial use. 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. 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 designed in accordance with existing protective regulations. Each Septic system will meet permit criteria specified by the El Paso County Public Health and will thereby in compliance with water discharge water quality standards.

## **7.0 Recommendations**

The analysis results for each constituent were shown to meet or exceed Colorado Primary Drinking Water Standards. Only pH exceeded the SMCL. Results indicate the groundwater at the sample location is considered “moderately” corrosive and treatment “may” be needed depending on the type of plumbing installed which is at the discretion of the new homeowner. If applicable, the corrosivity can be controlled by a simple pretreatment system such as a neutralizing tank. Based on the analysis results, the water supply is sufficient in terms of water quality.



**EXHIBIT 1**  
 Settlers Ranch Subdivision Filing 3



**COLORADO**  
 Division of Water Resources  
 Department of Natural Resources

**WELL PERMIT NUMBER 86781-F**  
**RECEIPT NUMBER 10016536**

**ORIGINAL PERMIT APPLICANT(S)**

OAKSBURY INC

**APPROVED WELL LOCATION**

Water Division: 1      Water District: 8  
 Designated Basin: N/A  
 Management District: N/A  
 County: EL PASO  
 Parcel Name: SETTLERS RANCH  
 Lot: 8      Block:      Filing: 2C  
 Physical Address: 4798 SETTLERS RANCH RD COLORADO  
 SPRINGS, CO 80908  
 SE 1/4 NE 1/4 Section 23 Township 11.0 S Range 66.0 W Sixth P.M.

**UTM COORDINATES (Meters, Zone: 13, NAD83)**

Easting: 522359.0      Northing: 4325508.0

**PERMIT TO CONSTRUCT A NEW WELL****ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT****CONDITIONS OF APPROVAL**

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
- 3) Approved pursuant to CRS 37-90-137(4) on the condition that this well is operated in accordance with the augmentation plan approved by the Division 1 Water Court in Case No. 03CW241 and Division 2 Water Court in Case No. 03CW50. If the well is not operated in accordance with the terms of said decree, it will be subject to administration including orders to cease diverting water.
- 4) The use of groundwater from this well is limited to in-house use in one (1) single family residence, the irrigation 3,500 square feet of home lawn and gardens and the watering of up to four (4) large domestic animals.
- 5) Production from this well is limited to the Dawson aquifer. The total depth of the well shall not exceed 1150 feet below ground surface, which corresponds to the base of the Dawson aquifer. At this location the well must be constructed in accordance with Well Construction Rule 10.4.6 (2 CCR 402-2) for a Type 2 aquifer.
- 6) The pumping rate of this well shall not exceed 15 GPM.
- 7) The average annual amount of groundwater to be withdrawn shall not exceed 0.55 acre-feet and the total volume of groundwater to be withdrawn shall not exceed 165 acre-feet.
- 8) **CONDITION REVOKED ON 04/11/2022 REPLACED BY CONDITION #9.**  
 The entire length of the hole shall be geophysically logged as required by Rule 9 of the Statewide Nontributary Ground Water Rules prior to installing casing.
- 9) This well will not be drilled deeper than the base of the Dawson aquifer, which is present at the surface, therefore a geophysical log would not provide DWR with data useful to the administration of groundwater in this area. The requirement of Rule 9 of the Statewide Nontributary Ground Water Rules to geophysically log the entire length of the hole, is therefore waived.
- 10) The owner shall mark the well in a conspicuous location with well permit number(s), name of the aquifer, and court case number(s) as appropriate. The owner shall take necessary means and precautions to preserve these markings.
- 11) A totalizing flow meter must be installed on this well and maintained in good working order. Permanent records of all diversions must be maintained by the well owner (recorded at least annually) and submitted to the Division Engineer upon request.
- 12) This well shall be constructed not more than 200 feet from the location specified on this permit.
- 13) The return flow from the use of this well must be through an individual wastewater disposal system of the non-evaporative type where the water is returned to the same stream system in which the well is located.

14) This well is subject to administration by the Division Engineer in accordance with applicable decrees, statutes, rules, and regulations.

NOTE: This well is withdrawing water from a non-renewable aquifer. While the withdrawals from this aquifer are administered based on a 100 year aquifer life, water level declines may prevent this well from diverting the permitted amounts for that 100 years.

NOTE: To ensure a maximum productive life of this well, perforated casing should be set through the entire producing interval of the approved zone or aquifer indicated above.

NOTE: This permit will expire on the expiration date unless the well is constructed and a pump is installed by that date. A Well Construction and Yield Estimate Report (GWS-31) and Pump Installation and Production Equipment Test Report (GWS-32) must be submitted to the Division of Water Resources to verify the well has been constructed and the pump has been installed. A one-time extension of the expiration date may be available. Contact the DWR for additional information or refer to the extension request form (GWS-64) available at: [dwr.colorado.gov](http://dwr.colorado.gov)

NOTE: A hydrogeologic aquifer evaluation has been completed for this permit and the details of the evaluation can be viewed in the hydrogeologic aquifer evaluation imaged document and the original permit file.



Issued By DEBRA GONZALES

Date Issued: 3/15/2022

Expiration Date: 3/15/2023

**PERMIT HISTORY**

04-11-2022 GEOPHYSICAL LOG WAIVED



## Analytical Results

TASK NO: 230522036

**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.:** 230522036  
**Client PO:**  
**Client Project:** Settlers Ranch Filing 3

**Date Received:** 5/22/23  
**Date Reported:** 6/5/23  
**Matrix:** Water - Drinking

**Customer Sample ID** SR522  
**Sample Date/Time:** 5/22/23 8:30 AM  
**Lab Number:** 230522036-01

Test	Result	Method	RL	MCL	Date Analyzed	QC Batch ID	Analyzed By
Nitrate/ Nitrite Nitrogen	0.49 mg/L	Calculation	0.05 mg/L		5/24/23	-	NRP
Chloride	1.4 mg/L	EPA 300.0	0.1 mg/L		5/23/23	QC65198	NRP
Fluoride	0.12 mg/L	EPA 300.0	0.10 mg/L	4	5/23/23	QC65199	NRP
Nitrate Nitrogen	0.49 mg/L	EPA 300.0	0.05 mg/L	10	5/23/23	QC65201	NRP
Nitrite Nitrogen	ND	EPA 300.0	0.03 mg/L	1	5/23/23	QC65202	NRP
Sulfate	3.2 mg/L	EPA 300.0	0.1 mg/L		5/23/23	QC65200	NRP
Cyanide-Total	ND	EPA 335.4	0.005 mg/L	0.02	5/24/23	QC65250	DPL
<b>Total</b>							
Iron	ND	EPA 200.7	0.005 mg/L	0.3	5/24/23	QC65217	MAT
Aluminum	0.005 mg/L	EPA 200.8	0.001 mg/L	0.05	5/24/23	QC65182	MBN
Antimony	ND	EPA 200.8	0.0012 mg/L	0.006	5/24/23	QC65182	MBN
Arsenic	ND	EPA 200.8	0.0006 mg/L	0.01	5/24/23	QC65182	MBN
Barium	0.0390 mg/L	EPA 200.8	0.0007 mg/L	2	5/24/23	QC65182	MBN
Beryllium	0.0001 mg/L	EPA 200.8	0.0001 mg/L	0.004	5/24/23	QC65182	MBN
Cadmium	ND	EPA 200.8	0.0001 mg/L	0.005	5/24/23	QC65182	MBN
Chromium	ND	EPA 200.8	0.0015 mg/L	0.1	5/24/23	QC65182	MBN
Manganese	ND	EPA 200.8	0.0008 mg/L	0.05	5/24/23	QC65182	MBN
Mercury	ND	EPA 200.8	0.0001 mg/L	0.002	5/24/23	QC65182	MBN
Selenium	0.0033 mg/L	EPA 200.8	0.0008 mg/L	0.05	5/24/23	QC65182	MBN
Silver	ND	EPA 200.8	0.0005 mg/L	0.1	5/24/23	QC65182	MBN

### Abbreviations/ References:

RL = Reporting Limit - Minimum Level  
 mg/L = Milligrams Per Liter or PPM  
 ug/L = Micrograms Per Liter or PPB  
 mpn/100 ml = Most Probable Number Index/ 100 ml  
 Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.  
 (s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

MCL = Maximum contaminant level per the EPA  
 ND = Not Detected at Reporting Limit.

10411 Heinz Way / Commerce City, CO 80640 / 303-659-2313  
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507

## Analytical QC Summary

TASK NO: 230522036

Report To: Julia M. Murphy  
Company: Groundwater Investigations LLC

Receive Date: 5/22/23  
Project Name: Settlers Ranch Filing 3

Test	QC Batch ID	QC Type	Result	Method	Prep Date
Chloride	QC85198	Blank	ND	EPA 300.0	5/23/23
Cyanide-Total	QC85250	Blank	ND	EPA 335.4	5/24/23
Fluoride	QC85199	Blank	ND	EPA 300.0	5/23/23
Aluminum	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Antimony	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Arsenic	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Barium	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Beryllium	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Cadmium	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Chromium	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Manganese	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Mercury	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Selenium	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Silver	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Thallium	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Zinc	QC85182	Method Blank	ND	EPA 200.8	5/22/23
Iron	QC85217	Method Blank	ND	EPA 200.7	5/22/23
Nitrate Nitrogen	QC85201	Blank	ND	EPA 300.0	5/23/23
Nitrite Nitrogen	QC85202	Blank	ND	EPA 300.0	5/23/23
Sulfate	QC85200	Blank	ND	EPA 300.0	5/23/23

Test	QC Batch ID	QC Type	Limits	% Rec	RPD	Method
Chloride	QC85198	Duplicate	0 - 20	-	0.4	EPA 300.0
		LCS	90 - 110	97.9	-	
		MS	75 - 125	100.2	-	
Cyanide-Total	QC85250	Duplicate	0 - 20	-	9.5	EPA 335.4
		LCS	90 - 110	105.1	-	
		MS	75 - 125	106.5	-	
Fluoride	QC85199	Duplicate	0 - 20	-	1.9	EPA 300.0
		LCS	90 - 110	90.8	-	
		MS	75 - 125	98.2	-	
Aluminum	QC85182	LCS	90 - 110	108.2	-	EPA 200.8
		MS	70 - 130	106.8	-	
		MSD	0 - 10	-	2.3	
Antimony	QC85182	LCS	90 - 110	108.8	-	EPA 200.8
		MS	70 - 130	111.4	-	
		MSD	0 - 10	-	0.3	
Arsenic	QC85182	LCS	90 - 110	109.1	-	EPA 200.8
		MS	70 - 130	120.2	-	
		MSD	0 - 10	-	4.4	
Barium	QC85182	LCS	90 - 110	108.5	-	EPA 200.8

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(f) RPD acceptable due to low duplicate and sample concentrations.  
(g) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

MCL = Maximum contaminant level per the EPA  
ND = Not Detected at Reporting Limit.



Test	QC Batch ID	QC Type	Limits	% Rec	RPD	Method
Beryllium	QC85182	MS	70 - 130	112.3	-	EPA 200.8
		MSD	0 - 10	-	3.8	
		LCS	90 - 110	107.4	-	
Cadmium	QC85182	MS	70 - 130	110.3	-	EPA 200.8
		MSD	0 - 10	-	4.7	
		LCS	90 - 110	104.6	-	
Chromium	QC85182	MS	70 - 130	111.4	-	EPA 200.8
		MSD	0 - 10	-	0.4	
		LCS	90 - 110	108.4	-	
Manganese	QC85182	MS	70 - 130	111.4	-	EPA 200.8
		MSD	0 - 10	-	0.4	
		LCS	90 - 110	109.2	-	
Mercury	QC85182	MS	70 - 130	111.2	-	EPA 200.8
		MSD	0 - 10	-	0.1	
		LCS	90 - 110	104.3	-	
Selenium	QC85182	MS	70 - 130	85.2	-	EPA 200.8
		MSD	0 - 10	-	6.9	
		LCS	90 - 110	104.7	-	
Silver	QC85182	MS	70 - 130	121.1	-	EPA 200.8
		MSD	0 - 10	-	8.2	
		LCS	90 - 110	99.8	-	
Thallium	QC85182	MS	70 - 130	101.0	-	EPA 200.8
		MSD	0 - 10	-	1.0	
		LCS	90 - 110	107.0	-	
Zinc	QC85182	MS	70 - 130	105.5	-	EPA 200.8
		MSD	0 - 10	-	2.3	
		LCS	90 - 110	108.5	-	
Iron	QC85217	MS	70 - 130	112.8	-	EPA 200.7
		MSD	0 - 10	-	0.6	
		Duplicate	0 - 20	-	0.2	
Nitrate Nitrogen	QC85201	LCS	90 - 110	97.9	-	EPA 300.0
		MS	75 - 125	79.5	-	
		Duplicate	0 - 20	-	0.1	
Nitrite Nitrogen	QC85202	LCS	90 - 110	94.3	-	EPA 300.0
		MS	75 - 125	81.8	-	
		Duplicate	0 - 20	-	0.0	
Sulfate	QC85200	LCS	90 - 110	91.0	-	EPA 300.0
		MS	75 - 125	99.6	-	
		Duplicate	0 - 20	-	0.3	
		LCS	90 - 110	97.1	-	
		MS	75 - 125	87.4	-	
		Duplicate	0 - 20	-	0.3	

All analyses were performed in accordance with approved methods under the latest revision to 40 CFR Part 136 unless otherwise identified. Based on my inquiry of the person or persons directly responsible for analyzing the wastewater samples and generating the report (s), the analyses, report, and information submitted are, to the best of my knowledge and belief, true, accurate, and complete.



DATA APPROVED FOR RELEASE BY

**Abbreviations/References:**

RL = Reporting Limit - Minimum Level  
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 ug/L = Micrograms Per Liter or PPB  
 mpn/100 mls = Most Probable Number Index/ 100 mls  
 Date Analyzed = Date Test Completed

(d) RPD acceptable due to low duplicate and sample concentrations.  
 (s) The accuracy of the spike recovery value is reduced due to the analyte concentration in the sample being disproportionate to the spike level. The laboratory control sample recovery was acceptable

MCL = Maximum contaminant level per the EPA  
 ND = Not Detected at Reporting Limit.

# Drinking Water Chain of Custody



**Commerce City Lab**  
 10411 Heinz Way  
 Commerce City CO 80640  
  
 Lakewood Service Center  
 610 Garrison Street, Unit E  
 Lakewood CO 80215  
  
 Phone: 303-659-2313  
  
[www.coloradolab.com](http://www.coloradolab.com)

<b>Report To Information</b> Company Name: <u>COWT</u> Contact Name: <u>Susan Murphy</u>		<b>Bill To Information (If different from report to)</b> Company Name: _____ Contact Name: _____		<b>Project Information</b> PWSID: _____ System Name: _____	
Address: <u>7660 Garland St #120</u>		Compliance Samples: Yes <input type="checkbox"/> No <input type="checkbox"/> Send Results to CDPHE: Yes <input type="checkbox"/> No <input type="checkbox"/>		Task Number (Lab Use On): <b>CAL Task</b> <b>230522036</b> NAB	
City: <u>Windsor</u> State: <u>CO</u> Zip: <u>80920</u>	City: _____ State: _____ Zip: _____	Phone: <u>719.338.1805</u>		PO Number: _____	
Email: <u>smurphy@29win.com</u>		Email: _____		Email: _____	
Sample Collector: <u>JTM</u>		Sample Collector Phone: <u>719.338.1805</u>		Sample Collector Phone: _____	

Date		Time	Client Sample ID / Sample Pt ID	PHASE I, II, V Drinking Water Analyses (check requested analysis)														Subcontract Analyses													
<u>07/24/23</u>	<u>08:30</u>	<u>58522</u>		No. of Containers	Residual Chlorine (mg/L)	P/A Samples Only	Total Coliform P/A	504.1 EDB/DBCP	505 Pests/PCBs	515.4 Herbicides	524.2 VOCs	525.2 SOCs-Pest	531.1 Carbinates	547 Glyphosate	548.1 Endothal	549.2 Diquat	524.2 THMs	522 HAA5s	Lead/Copper	Nitrate	Nitrite	Fluoride	Inorganics	Alk.Lang. Index (Circle)	TOC, DOC (Circle)	SUVA, UV 254 (Circle)	Gross Alpha/Beta	Radium 226/228	Radon	Uranium	Chlorite
Instructions: <u>PB023030042 - See attached for tests requested.</u>				C/S Info: _____		Seals Present Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Headspace Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Temp. °C: <u>12.1</u>		Temp. °C: <u>12.1</u>		Date/Time: _____		Date/Time: _____		Date/Time: _____		Date/Time: _____		Date/Time: _____		Date/Time: _____		Date/Time: _____		Date/Time: _____		Date/Time: _____	
Relinquished By: <u>[Signature]</u>				Relinquished By: <u>[Signature]</u>				Relinquished By: <u>[Signature]</u>				Relinquished By: <u>[Signature]</u>				Relinquished By: <u>[Signature]</u>				Relinquished By: <u>[Signature]</u>				Relinquished By: <u>[Signature]</u>							



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

Lab Control ID: 23H01943  
Received: May 23, 2023  
Reported: Jul 21, 2023  
Purchase Order No.  
None Received

Customer ID: 20040H  
Account ID: Z01034

Rebecca Manzanares  
Colorado Analytical Laboratories, Inc.  
10411 Heinz Way  
Commerce City, CO 80640

## REVISED 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: Michelle Stringer for  
Roxanne Sullivan  
Analytical Laboratories Director

Customer ID: 20040H  
 Account ID: Z01034

**REVISED ANALYTICAL REPORT**

Rebecca Manzanaras  
 Colorado Analytical Laboratories, Inc.

<b>Lab Sample ID</b>			23H01943-001					
<b>Customer Sample ID</b>			230522047-01 - Settlers Ranch Subdivision - SR522 sampled on 05/22/23 @ 0830					
<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	1.1	1.5	0.1	SM 7110 B	6/22/23 @ 1352	KT
Gross Beta	pCi/L	T	<3.1	2.5	3.1	SM 7110 B	6/22/23 @ 1352	KT
Radium-226	pCi/L	T	NR	-	-	SM 7500-Ra B	-	-
Radium-228	pCi/L	T	NR	-	-	EPA pg.19	-	-

<b>Lab Sample ID</b>			23H01943-002					
<b>Customer Sample ID</b>			230522047-01A - Settlers Ranch Subdivision - SR522 sampled on 05/22/23 @ 0830					
<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	0.5	0.3	0.2	SM 7500-Ra B	7/5/23 @ 1245	KT
Radium-228	pCi/L	T	1.2	0.9	0.1	EPA pg.19	7/3/23 @ 1125	JR

7-21-23: Report revised to change project name per client's request.

5-24-23: Gross alpha analysis was changed to gross alpha and beta per client request.

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

Certification ID's: CO/EPA CO00008

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

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

**Batch QC Summary Form**

Analyte: Gross Alpha

Control Standard/LFB: ID: C11a-004 pCi/mL: 57.4 (use 1 diluted)

Spike Solution: ID: C11a-004 pCi/mL: 57.4 (use 1 mL)

Spike Recovery Calculation: Sample: Tap\*

$$\text{Calculation: } \frac{(54.4) - (1.000) - (0.9) - (0.200)}{57.4} \times 100 = 94\%$$

Batch QC Evaluation:

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

\* 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>23H01900</u>	<u>23H01923</u>
<u>23H01915</u>	<u>23H01924</u>
<u>23H02001</u>	<u>23H01925</u>
<u>23H02016</u>	<u>23H01926</u>
<u>23H02018</u>	<u>23H01939</u>
<u>23H02035</u>	<u>23H01943</u>
<u>23H02064</u>	<u>23H01981</u>
<u>23H02070</u>	_____
<u>23H01908</u>	_____
<u>23H01914</u>	_____

Evaluator:

*Michelle Stringer* \_\_\_\_\_

06/29/2023

Date

**Batch QC Summary Form**

Analyte: Gross Beta

Control Standard/LFB: ID: C11a-004 pCi/mL: 44 (use 1 diluted)

Spike Solution: ID: C11a-004 pCi/mL: 44 (use 1 mL)

Spike Recovery Calculation: Sample: Tap\*

$$\text{Calculation: } \frac{(40.4) - (1.000) - (0.0)}{44} \times 100 = 92\%$$

Batch QC Evaluation:

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

\* 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>23H01900</u>	<u>23H01923</u>
<u>23H01915</u>	<u>23H01924</u>
<u>23H02001</u>	<u>23H01925</u>
<u>23H02016</u>	<u>23H01926</u>
<u>23H02018</u>	<u>23H01939</u>
<u>23H02035</u>	<u>23H01943</u>
<u>23H02064</u>	<u>23H01981</u>
<u>23H02070</u>	_____
<u>23H01908</u>	_____
<u>23H01914</u>	_____

Evaluator:

*Michelle Stringer* \_\_\_\_\_

06/29/2023

Date

**Batch QC Summary Form**

Analyte: Radium-226

Control Standard/LFB: ID: C73-001 pCi/mL: 21.1 (use 2 diluted)

Spike Solution: ID: C73-001 pCi/mL: 21.1 (use 2 mL)

Spike Recovery Calculation: Sample: 23H01944-02b

$$\text{Calculation: } \frac{(47.5) (1.000) - (1.1) (1.000)}{42.2} \times 100 = 110\%$$

Batch QC Evaluation:

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

\* 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>23H01934</u>	<u>      </u>
<u>23H01943</u>	<u>      </u>
<u>23H01944</u>	<u>      </u>
<u>23H02136</u>	<u>      </u>
<u>23H02158</u>	<u>      </u>
<u>      </u>	<u>      </u>
<u>      </u>	<u>      </u>
<u>      </u>	<u>      </u>
<u>      </u>	<u>      </u>
<u>      </u>	<u>      </u>

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

07/10/2023  
Date

**Batch QC Summary Form**

Analyte: Radium-228

Control Standard/LFB: ID: C6-005 pCi/mL: 14.5 (use 5 diluted)

Spike Solution: ID: C6-005 pCi/mL: 14.5 (use 5 mL)

Spike Recovery Calculation: Sample: 23H01943-2b

$$\text{Calculation: } \frac{(72.1) (1.000) - (1.2) (1.000)}{72.5} \times 100 = 97.8\%$$

Batch QC Evaluation:

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

\* 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>23H01934</u>	_____
<u>23H01942</u>	_____
<u>23H01943</u>	_____
<u>23H02116</u>	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Evaluator:

*Roxanne Sullivan* \_\_\_\_\_

07/10/2023

Date



23HØ1943



Ship To: Hazen Research  
Preserved: Y (N)  
HNO3 Lot #: N/A  
Date Preserved: N/A

<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>	<b>Bill To Information (if different from report to)</b>	<b>Project Name</b> <u>New Breed Ranch Subdivision</u>
<b>Address:</b> <u>10411 Heinz Way</u> <u>Commerce City, CO 80640</u> <b>Phone:</b> <u>303-659-2313</u>	<b>Address:</b>	<b>Compliance Samples:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Submit Data to CDPHE:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	<b>CAL TASK</b> 230522047 NAB	

**Tests Requested**

Sample Date/Time	Sample ID	Matrix	Container Type
5/22/23 8:30 AM	230522047-01 - SR522	Water - Drinking	1L - Unpreserved
5/22/23 8:30 AM	230522047-01A - SR522	Water - Drinking	4 - 1L - Unpreserved

**Comment:**

*Preservation on 5/24/23 1500  
All preserved by 5/23/23 1320*

Relinquished by: (Signature) <i>[Signature]</i>	Date: Time: 1030 5/23/23	Received by: (Signature) <i>[Signature]</i>	Date: Time: RECEIVED MAY 23 2023 1245
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23H01943

Ship To: Hazen Research  
Preserved: Y (N)  
HNO3 Lot #: N/A  
Date Preserved: NA



<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>	<b>Bill To Information (if different from report to)</b> Project Name <u>New Breed Ranch Subdivision</u>
<b>Address:</b> <u>10411 Heinz Way</u> <u>Commerce City, CO 80640</u> Phone: <u>303-659-2313</u>	<b>Address:</b> CAL TASK <u>230522047</u> NAB

**Tests Requested**

Sample Date/Time	Sample ID	Matrix	Container Type
5/22/23	8:30 AM 230522047-01 - SR522	Water - Drinking	1L - Unpreserved
5/22/23	8:30 AM 230522047-01A - SR522	Water - Drinking	4 - 1L - Unpreserved

Comment:

Radium 228 (Sub)

Gross Alpha/Beta (Sub)

Radium 226 (Sub)

Relinquished by: (Signature) <i>[Signature]</i>	Date: Time: 1030	Received by: (Signature) <i>[Signature]</i>	Date: Time: 5/23/23
Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:



Ship To: Hazen Research  
 Preserved: Y (N)  
 HNO3 Lot #: NA  
 Date Preserved: NA

<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>	<b>Bill To Information (if different from report to)</b>   	<b>Project Name</b> <u>New-Breed-Ranch Subdivision</u> Settlers Ranch Subdivision - JL 7-21-23
<b>Address:</b> <u>10411 Heinz Way</u> <u>Commerce City, CO 80640</u> Phone: <u>303-659-2313</u>	<b>Address:</b>  	<b>Compliance Samples:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>Submit Data to CDPHE:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

**Tests Requested**

Sample Date/Time	Sample ID	Matrix	Tests Requested	Container Type
5/22/23 8:30 AM	230522047-01 - SR522	Water - Drinking	Radium 228 (Sub)	1L - Unpreserved
5/22/23 8:30 AM	230522047-01A - SR522	Water - Drinking	Gross Alpha/Beta (Sub)	4 - 1L - Unpreserved
			Radium 226 (Sub)	

Comment:

Relinquished by: <u>(Signature)</u>	Date: <u>5/23/23</u>	Time: <u>1030</u>	Received by: <u>(Signature)</u>	Date: _____	Time: _____
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## Analytical Results

TASK NO: 230522036

**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> 230522036 <b>Client PO:</b> <b>Client Project:</b> Settlers Ranch Filing 3	<b>Date Received:</b> 5/22/23 <b>Date Reported:</b> 6/5/23 <b>Matrix:</b> Water - Drinking
---	--

Lab Number	Customer Sample ID	Sample Date/Time	Test	Result	Method	Date Analyzed
230522036-01C	SR522	5/22/23 8:30 AM	Total Coliform E-Coli	<b>Absent</b> <b>Absent</b>	SM 9223 SM 9223	5/23/23 5/23/23

**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



DATA APPROVED FOR RELEASE BY

# Drinking Water Chain of Custody



**Commerce City Lab**  
 10411 Heinz Way  
 Commerce City CO 80640  
 Lakewood Service Center  
 610 Garrison Street, Unit E  
 Lakewood CO 80215  
 Phone: 303-659-2313  
[www.coloradolab.com](http://www.coloradolab.com)

<b>Report To Information</b> Company Name: <u>GWZ</u> Contact Name: <u>Justin Murphy</u> Address: <u>7660 Gothard St #120</u> City: <u>Colo Spg</u> State: <u>CO</u> Zip: <u>80920</u> Phone: <u>719.338.1805</u> Email: <u>jmurphy@29win.com</u> Sample Collector: <u>JM</u> Sample Collector Phone: <u>719.338.1805</u>		<b>Bill To Information (If different from report to)</b> Company Name: _____ Contact Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____ PO Number: _____		<b>Project Information</b> PWSID: _____ System Name: _____ Compliance Samples: Yes <input type="checkbox"/> No <input type="checkbox"/> Send Results to CDPHE: Yes <input type="checkbox"/> No <input type="checkbox"/> Task Number (Lab Use On): <b>CAL Task</b> <b>230522036</b> NAB	
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PHASE I, II, V Drinking Water Analyses (check requested analysis)		Subcontract Analyses	
Date	Time	Client Sample ID / Sample Pt ID	
02/23	08:30	518522	Chlorite
			Uranium
			Radon
			Radium 226/228
			Gross Alpha/Beta
			SUVA, UV 254 (Circ)
			TOC, DOC (Circ)
			Alk/Lang. Index (Circ)
			Inorganics
			Fluoride
			Nitrite
			Nitrate
			Lead/Copper
			552.2 HAA5s
			524.2 THMs
			549.2 Diquat
			548.1 Endothal
			547 Glyphosate
			531.1 Carbinates
			525.2 SOCs-Pest
			524.2 VOCs
			515.4 Herbicides
			505 Pests/PCBs
			504.1 EDB/DBCP
			Total Coliform P/A
			Residual Chlorine (mg/L)
			P/A Samples Only
			No. of Containers

**Instructions:**  
 P8023030012 - See attached for tests requested.

Received By: [Signature] Date/Time: 5/22/23 4:40  
 Relinquished By: [Signature] Date/Time: 5/22/23 12:00  
 Delivered Via: HD  
 Relinquished By: [Signature] Date/Time: 5/22/23 12:00

Seals Present Yes  No  Headspace Yes  No   
 Temp: 12.1 °C / 54 °F Sample Pres. Yes  No   
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_