

Memorandum

To: To Whom It May Concern
From: John McGinn, JDS-Hydro Consultants, Inc
Date: November 1, 2020
Subject: Second Supplement to April 2019 Water and Wastewater Resources Report for Retreat at TimberRidge Filing #1

This memo is a supplement attached to the Water and Wastewater Resources Report for The Retreat at TimberRidge Filing No. 1. This supplement addresses certain requirements noted in the July 22, 2020 County Attorney findings on Retreat Filing #1.

Requirement A; Water Summary Sheet—Retreat Filing #1: Reference to water use on the 11 Large Lots served by wells has been modified to be consistent with 18 CW 3002 as requested. Revised Water Summary Sheet for Retreat Filing No. 1 is attached as ***Supplemental Appendix A*** to this supplement.

Requirement C. Table 2. Overall Retreat Water Resources Report; Table 2 of the Water Resources Report has been amended to address Requirement C. The water available from onsite LFH sources has been modified. References to decree 16 CW 3005, have been segregated, and we have modified Table 2 to illustrate an additional contractual withholding of 612 Acre-feet of LFH water which results in the 12,828 total acre-feet referenced in comment 13 from the County attorney. Because of the 612 with-holding the commitment letter stating 12,828 acre-feet of on-site water from Arapahoe and LFH sources is correct as stated in the commitment. Table 2 has been modified such that the discrepancy is addressed. We attached the ***Revised Water Report including revised Table 2*** as requested. Since Table 2 is a Comprehensive Water Resources Table for all of Sterling Ranch's service area which has been updated. For easier reference to the Retreat On-site water are illustrated in the area highlighted in pink.

Additional water quality testing: has taken place in a nearby single-family well that would be representative of water quality anticipated for the lots within the Retreat Filing No. 1 which would be served by single family wells. The testing is attached and has been previously provided to the El Paso County Health Department. As directed by EPCHE, it is expected that a plat note will be required regarding water quality. ***Supplemental Appendix B***

The following are attached as Supplemental Appendix B;

- Listing of required substance monitoring
- Tabulated summary of Testing
- Email Response from EP County Health
- Actual supporting laboratory reports

Clarification regarding 164 vs 167 lots; The approved Retreat Preliminary Plan included 164 urban size lots which are planned to be served by central water. In the process of layout of the water lines to provide for service to Filing #1, it was determined that central system lines would be extended in front of three of the larger lots anticipated for single family wells. These lots are lots 39, 40, and 41 as shown on the Retreat Preliminary Plan. In order to better serve the area, it was decided to connect these 3 larger lots to the central system, thus the requirement to plan for 167 residences on the central system. These lots would be served with central water but sewer would remain septic as planned. This is the reason for the overall anticipated need of providing central water for 167 lots. We hope this clarifies the lot number discrepancy. The revisions to the Water Resources Report are consistent with the 167 single family homes.

Supplemental Appendix A

WATER SUPPLY INFORMATION SUMMARY

Section 30-28-133(d), C.R.S. requires that the applicant submit to the County, "Adequate evidence that a Water supply that is sufficient in terms of quantity, quality, and dependability will be available to ensure an adequate supply of water"

1. NAME OF DEVELOPMENT AS PROPOSED		<u>Retreat at TimberRidge Filing No.1 -Final Plat</u>	
2. LAND USE ACTION		<u>Final Plat</u>	
3. NAME OF EXISTING PARCEL AS RECORDED		<u>N/A</u>	
SUBDIVISION	<u>See Above</u>	FILING	<u>Final</u>
BLOCK	<u>All</u>	Lot	<u>All</u>
4. TOTAL ACERAGE	<u>68.135</u>	5. NUMBER OF LOTS PROPOSED	<u>70</u>
PLAT MAPS ENCLOSED		<input type="checkbox"/> YES <u>Final Plat Separate Cover</u>	
6. PARCEL HISTORY - Please attach copies of deeds, plats, or other evidence or documentation. (In submittal package)			
A. Was parcel recorded with county prior to June 1, 1972?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
B. Has the parcel ever been part of a division of land action since June 1, 1972?		<input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If yes, describe the previous action			
7. LOCATION OF PARCEL - Include a map delineating the project area and tie to a section corner. (In submittal)			
OF SECTION <u>27 and 28</u> TOWNSHIP <u>12</u>		<input type="checkbox"/> N <input checked="" type="checkbox"/> S RANGE <u>65</u>	
OF SECTION _____ TOWNSHIP _____		<input type="checkbox"/> E <input checked="" type="checkbox"/> W	
OF 1SECTION _____ TOWNSHIP _____			
PRINCIPAL MERIDIAN: <input checked="" type="checkbox"/> 6TH <input type="checkbox"/> N.M. <input type="checkbox"/> UTE <input type="checkbox"/> COSTILLA			
8. PLAT - Location of all wells on property must be plotted and permit numbers provided.			
Surveyors plat <input type="checkbox"/> YES <input type="checkbox"/> NO		If not, scaled hand-drawn sketch <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <u>N/A</u>	
9. ESTIMATED WATER REQUIREMENTS - Gallons per Day or Acre Foot per Year		10. WATER SUPPLY SOURCE <u>DENVER BASIN</u>	
HOUSEHOLD USE # 1 *	<u>59</u> of units <u>18,593</u> GPD <u>20.83</u> AF	<input checked="" type="checkbox"/> EXISTING <input type="checkbox"/> DEVELOPED	<input type="checkbox"/> NEW WELLS
HOUSEHOLD USE # 2 *	<u>11</u> of units <u>3,142</u> GPD <u>3.52</u> AF	WELLS SPRING	Proposed Aquifers - (Check One)
COMMERCIAL USE #	_____ Acres _____ GPD _____ AF	WELL PERMIT NUMBERS	<input type="checkbox"/> Alluvial <input checked="" type="checkbox"/> Upper Arapahoe
IRRIGATION # ***	_____ acres _____ GPD _____ AF	<u>LFH 80131-F</u>	<input type="checkbox"/> Upper Dawson <input checked="" type="checkbox"/> Lower Arapahoe
STOCK WATERING #	_____ of head _____ GPD _____ AF	<u>Arapahoe 80132-F</u>	<input type="checkbox"/> Lower Dawson <input checked="" type="checkbox"/> Laramie Fox Hills
OTHER	_____ GPD _____ AF	<u>Individual 17CW3002 and 18CW3002</u>	<input type="checkbox"/> Denver <input type="checkbox"/> Dakota
TOTAL	<u>18,593</u> GPD <u>20.83</u> AF	<input type="checkbox"/> MUNICIPAL	<input type="checkbox"/> Other
* Household Use includes Indoor at 0.18 AF/SFE and .173 AF/SFE Outdoor Use		<input type="checkbox"/> ASSOCIATION	WATER COURT DECREE CASE NUMBERS
Household Use #1 are urban lots to be served by Central Water /Sewer		<input checked="" type="checkbox"/> COMPANY	<u>08 CW-113; 08 CW -018</u>
Household Use #2 are rural lots to be served by Individual Water /Sewer		<input checked="" type="checkbox"/> DISTRICT	<u>Numerous</u>
<i>included in SFE</i>		NAME <u>Sterling Ranch Metropolitan District #1</u>	<u>Individual 17CW3002 and 18CW 3002</u>
		LETTER OF COMMITMENT FOR SERVICE	
		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
11. ENGINEER'S WATER SUPPLY REPORT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If yes, please forward with this form. (This may be required before our review is completed)			
12. TYPE OF SEWAGE DISPOSAL SYSTEM <u>Central Sewer for 59 urban lots and 11 individual Septics for 11 rural lots</u>			
<input checked="" type="checkbox"/> SEPTIC TANK/LEACH FIELD	<u>11 Rural Lots</u>	<input checked="" type="checkbox"/> CENTRAL SYSTEM - DISTRICT NAME:	<u>Sterling Ranch Metropolitan District #1</u>
<input type="checkbox"/> LAGOON		<input type="checkbox"/> VAULT - LOCATION SEWAGE HAULED TO:	
<input type="checkbox"/> ENGINEERED SYSTEM (Attach a copy of engineering design)		<input type="checkbox"/> OTHER:	

Supplemental Appendix B

EPC Confined Aquifer Sampling Requirements

Field Measurements

pH

Temp

Radionuclides

Radium 226 and Radium 228

Gross alpha/Beta

Inorganics

Antimony

Arsenic

Barium

Beryllium

Cadmium

Chromium

Cyanide (Total)

Fluoride

Mercury

Nitrate

Nitrite

Selenium

Thallium

Secondary MCLs

Aluminum

Chloride

Corrosivity

Iron

Manganese

Silver

Sulfate

Zinc

TDS

Bacteriological:

Total Coliform

Stephanie Schwenke

From: Catherine McGarvy <CatherineMcGarvy@elpasoco.com>
Sent: Tuesday, October 13, 2020 11:59 AM
To: Stephanie Schwenke
Subject: RE: Small subdivision plat approval question regarding sampled water quality

Good Afternoon,

I apologize for the delay in response I am working through a lot of inquiries at the moment and wanted to make sure I had the most accurate information for you.

El Paso County Public Health (EPCPH) will note this on the Water Quality sufficiency determination. That determination is usually made just before the Final Plat is submitted. Once we make comment on the sufficiency they will usually attach and record plat note to the subdivision final drawings that is part of the information disclosed when anyone buys a lot. In some cases EPCPH has strongly encouraged the installation of an under the counter type RO system be installed, especially with a more prevalent contaminant like fluoride or nitrates. A high radium result on one test is not likely the case throughout the subdivision, so a plat note is what I would expect.

I hope this helps, please let me know if I can provide any additional information.

Thank you

Kat McGarvy M.S., R.E.H.S
Water Quality Program Manager
El Paso County Public Health
1675 W. Garden of the Gods Rd., Ste. 2044
Colorado Springs, CO 80907
Office: (719) 578-3112
Cell: (719) 337-7832
Fax: (719) 578-3118
www.elpasocountypublichealth.org

For local information about the novel coronavirus disease 2019 (COVID-19), visit [El Paso County Public Health's COVID-19 website](#).





2020 Census information can be found at:
<https://coloradosprings.gov/pikespeakcensus>

From: Stephanie Schwenke <sschwenke@jdshydro.com>
Sent: Thursday, October 8, 2020 4:31 PM
To: Catherine McGarvy <CatherineMcGarvy@elpasoco.com>
Subject: Small subdivision plat approval question regarding sampled water quality

CAUTION: This email originated from outside the El Paso County technology network. Do not click links or open attachments unless you recognize the sender and know the content is safe. Please call IT Customer Support at 520-6355 if you are unsure of the integrity of this message.

Kat,

I believe you have replaced Aaron Doussett in responding to water quality questions within El Paso County Health. I have a client who would like to subdivide land on the eastern side of the County into 10 - 12 lots that would range in size from 2.5 - 5 acres. We were able to pull water samples from the same aquifer at a property that was 0.5 miles away from the furthest possible future well in this subdivision. All the water quality came back below MCL limits except combined Radium 226+228. The result was 5.5 pCi/l using the standard deviation. That result is just above the MCL for combined Radium 226+228 of 5 pCi/l.

JDS is wondering if EPC would sign off on the signature page of the Water Resources Report with a recommendation for disclosure of the results to the lot purchaser. With that disclosure would be treatment information for the new owner to install one of several NSF approved Reverse Osmosis Point of Use treatment systems in the new home for the removal of Radium 226+228.

Please respond as soon as possible and do not hesitate to contact to contact me if you have any questions.

Thank you for your time!

Stephanie Schwenke
JDS-Hydro Consultants, INC
545 E. Pikes Peak Ave. Ste 300
Colorado Springs, CO 80903
719-227-0072
719-321-5341 (c)
sschwenke@jdshydro.com



1675 W. Garden of the Gods Road Suite 2044
 Colorado Springs, CO 80907 (719) 578-3120

REPORTING FORM FOR INORGANIC ANIONS IN WATER
 EPA ID # CO00025

PWSID# CO0	CONTACT: Stephanie Schwenke-JDS-Hydro
SITE ADDRESS: 10620 Vollmer Colorado Springs, CO 80908	PHONE: (719) 227-0072
	FAX/EMAIL: sschwenke@jdshydro.com
	COLLECTED BY: Stephanie Schwenke
	SAMPLE COLLECTION DATE: 9/8/20
SITE DESCRIPTION: <input type="checkbox"/> Public System <input checked="" type="checkbox"/> Private <input type="checkbox"/> Surface <input type="checkbox"/> Stream <input type="checkbox"/> GWUDI <input type="checkbox"/> Other	SAMPLE COLLECTION TIME: 0850
	MATRIX: Groundwater
	RESIDUAL CHLORINE: mg/L
CUSTOMER: Stephanie Schwenke-JDS-Hydro 5540 Tech Center Drive Ste 100 COLORADO SPRINGS, CO 80908	SAMPLE RECEIVED DATE: 9/8/20
	RECEIVED TIME: 1350 TECH: EE0000728
	RECEIVED TEMP: 21.8°C
	DILUTIONS: 1:1

COMMENTS:

TESTED	COMPLETED	TECH
DATE: 09/09/2020	DATE: 09/09/2000	
TIME: 1122	TIME: 1440	ID: EE0000742
LAB SAMPLE #:IC21798	SAMPLE POINT NAME: Hydrant	
SAMPLE POINT ID:	FACILITY TYPE:	
FACILITY ID:	FACILITY NAME:	

PARAMETER	RESULTS	UNITS	MCL	MSL	STANDARD METHOD	LAB MRL
Fluoride		mg/L	4.0		EPA 300	0.04
Chloride		mg/L		250	EPA 300	0.1
Nitrite-N	BDL	mg/L	1.0		EPA 300	0.2
Bromide		mg/L				0.2
Nitrate-N	< 0.2	mg/L	10.0		EPA 300	0.2
Orthophosphate-P		mg/L	no limit established		EPA 300	0.3
Sulfate		mg/L		250	EPA 300	0.3

BDL - Below Detection Limit
 MRL - Minimum Reporting Limit

MCL - Maximum Contamination Unit per EPA
 MSL - Maximum Secondary Unit per EPA
 Q - Quality Control Limit Exceeded

H - Holding Time Exceeded
 NT - No Test

STANDARD BACTERIOLOGICAL WATER TEST METHOD:SM-9223B

El Paso County Public Health Laboratory EPA ID# CO00025

1675 West Garden of the Gods Road, Suite 2044, Colorado Springs, CO 80907 - (719) 578-3120

PWSID

- Raw
- Finished
- LT2
- Quantitative

Sample Point ID:

Sample Taken Date: 09/08/2020 Time: 0850

Name of Supply:

Address where sample was taken: 10620 Vollmer

Sample site location: Hydrant

Sampler: Stephanie Schwe Chlorine: mg/L

- Community Supply
- Private
- Well
- City
- Non-Community
- EHS
- Surface/Spring
- Cistern

Results to: Stephanie Schwenke-JDS-Hydro

Phone: (719) 227-0072

Mailing address: 5540 Tech Center Drive

City/State/Zip: COLORADO SPRINGS, CO. 8019

Fax/Email: sschwenke@jdsjhydro.com

Comments:

Date 09/08/2020 Time 1350 Rc'd EE0000728

Date 09/08/2020 Time 1541 Tested EE0000742

Date 09/09/2020 Time 0953 Comp EE0000742

Lab Sample #21797

Coliart Results Per 100ml

- Absence: Absence of coliform bacteria
- Presence: Presence of coliform bacteria & non-compliance with drinking water standards.

MPN/100 ml:

- Absence: E. Coli: Escherichia coli bacteria
- Presence:

MPN/100 ml:

Analytical Results

TASK NO: 200910111

Report To: Stephanie Schwenke

Company: JDS Hydro Consultants

5540 Tech Center Dr.

Suite 100

Colorado Springs CO 80919

Bill To: Stephanie Schwenke

Company: JDS Hydro Consultants

5540 Tech Center Dr.

Suite 100

Colorado Springs CO 80919

Task No.: 200910111

Client PO:

Client Project:

Date Received: 9/10/20

Date Reported: 9/23/20

Matrix: Water - Drinking

Customer Sample ID Retreat Test

Sample Date/Time: 9/8/20 8:35 AM

Lab Number: 200910111-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
Bicarbonate	70.0 mg/L as CaCO ₃	SM 2320-B	4	9/11/20	ECM
Calcium as CaCO ₃	60.2 mg/L	EPA 200.7	0.1	9/15/20	MBN
Carbonate	< 4 mg/L as CaCO ₃	SM 2320-B	4	9/11/20	ECM
Hydroxide	< 4 mg/L as CaCO ₃	SM 2320-B	4	9/11/20	ECM
Langelier Index	-1.19 units	SM 2330-B		9/23/20	SAN
pH	7.03 units	SM 4500-H-B	0.01	9/8/20	Sampler
Temperature	16 °C	SM 4500-H-B	1	9/8/20	Sampler
Total Alkalinity	70.0 mg/L as CaCO ₃	SM 2320-B	4	9/11/20	ECM
Total Dissolved Solids	141 mg/L	SM 2540-C	5	9/15/20	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

10411 Heinz Way / Commerce City, CO 80640 / 303-659-2313

Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507

Analytical Results

TASK NO: 200910111

Report To: Stephanie Schwenke
Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Bill To: Stephanie Schwenke
Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Task No.: 200910111
Client PO:
Client Project:

Date Received: 9/10/20
Date Reported: 9/23/20
Matrix: Water - Drinking

Customer Sample ID Retreat Test
Sample Date/Time: 9/8/20 8:35 AM
Lab Number: 200910111-01

Test	Result	Method	ML	Date Analyzed	Analyzed By	MCL
Chloride	2.1 mg/L	EPA 300.0	0.1 mg/L	9/11/20	MAT	
Fluoride	0.30 mg/L	EPA 300.0	0.09 mg/L	9/11/20	MAT	4
Sulfate	10.4 mg/L	EPA 300.0	0.1 mg/L	9/11/20	MAT	
Cyanide-Total	< 0.005 mg/L	EPA 335.4	0.005 mg/L	9/15/20	CES	0.02
<i>Total</i>						
Iron	0.005 mg/L	EPA 200.7	0.005 mg/L	9/15/20	MBN	0.3
Aluminum	0.007 mg/L	EPA 200.8	0.001 mg/L	9/16/20	IPC	0.05
Antimony	< 0.0012 mg/L	EPA 200.8	0.0012 mg/L	9/16/20	IPC	0.006
Arsenic	0.0008 mg/L	EPA 200.8	0.0006 mg/L	9/16/20	IPC	0.01
Barium	0.1151 mg/L	EPA 200.8	0.0007 mg/L	9/16/20	IPC	2
Beryllium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	9/16/20	IPC	0.004
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	9/16/20	IPC	0.005
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	9/16/20	IPC	0.1
Manganese	0.0081 mg/L	EPA 200.8	0.0008 mg/L	9/16/20	IPC	0.05
Mercury	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	9/16/20	IPC	0.002
Selenium	< 0.0008 mg/L	EPA 200.8	0.0008 mg/L	9/16/20	IPC	0.05
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	9/16/20	IPC	
Thallium	< 0.0002 mg/L	EPA 200.8	0.0002 mg/L	9/16/20	IPC	0.002
Zinc	0.118 mg/L	EPA 200.8	0.001 mg/L	9/16/20	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



DATA APPROVED FOR RELEASE BY

October 06, 2020

Report to:

Stephanie Schwenke
JDS Hydro Consultants, Inc.
5540 Tech Center Drive

Colorado Springs, CO 80919

cc: John McGinn

Bill to:

Stephanie Schwenke
JDS Hydro Consultants, Inc.
545 E. Pikes Peak Ave.

Suite 300
Colorado Springs, CO 80903

Project ID:

ACZ Project ID: L61347

Stephanie Schwenke:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 09, 2020. This project has been assigned to ACZ's project number, L61347. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L61347. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 05, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Sue Webber has reviewed and approved this report.



JDS Hydro Consultants, Inc.

Project ID:

Sample ID: #1-#3 RETREAT TEST

Locator:

ACZ Sample ID: **L61347-01**

Date Sampled: 09/08/20 8:42

Date Received: 09/09/20

Sample Matrix: *Drinking Water*

Gross Alpha & Beta, total

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	09/28/20 0:23		1.1	1.2	1.2	pCi/L		fdw
Gross Beta	09/28/20 0:23		6	2.1	1.8	pCi/L	*	fdw

Radium 226, total

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, total	09/23/20 0:27		1.4	0.18	0.08	pCi/L	*	djc

Radium 228, total

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, total	10/03/20 14:40		5	0.72	0.53	pCi/L	*	fdw

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>REr</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
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Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

JDS Hydro Consultants, Inc.

ACZ Project ID: L61347

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Units: pCi/L

M900.0

Alpha

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG505597																
WG505597PBW	PBW	09/28/20				0.19	0.79	-49	0.19	0.79			1.58			
WG505597LCSWA	LCSW	09/28/20	PCN60283	66.67		6	0.88	73	6	0.88	110	67	144			
L61267-01DUP	DUP-RER	09/28/20			1.1	1.6	1.7	2.7	1.9	1.6			0.64	2		
L61267-01DUP	DUP-RPD	09/28/20			1.1	1.6	1.7	2.7	1.9	1.6			84	20		RG
L61319-04MSA	MS	09/28/20	PCN60283	131.58	-0.54	1.7	3.1	100	14	3.7	76	67	144			
L61535-05DUP	DUP-RPD	09/28/20			8.1	5.7	15	8	5.6	29				1	20	

Units: pCi/L

M900.0

Beta

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG505597																
WG505597PBW	PBW	09/28/20				1.7	1.9	-1.6	1.7	1.9			3.8			
WG505597LCSWB	LCSW	09/28/20	RC200602-10	66.6		4	1.7	61	4	1.7	92	82	122			
L61267-01DUP	DUP-RPD	09/28/20			2.6	1.9	1.8	2.8	2.1	2				7	20	
L61267-01MSB	MS	09/28/20	RC200602-10	66.6	2.6	1.9	1.8	64	4.3	1.9	92	82	122			
L61535-05DUP	DUP-RER	09/28/20			-1.9	5.7	19	2.2	5.5	24			0.52	2		
L61535-05DUP	DUP-RPD	09/28/20			-1.9	5.7	19	2.2	5.5	24			2733	20		RG

Units: pCi/L

M903.1

Radium 226, total

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG505137																
WG505137PBW	PBW	09/23/20				0.1	0.11	.03	0.1	0.11			0.22			
WG505137LCSW	LCSW	09/23/20	PCN61539	20		0.5	0.1	14	0.5	0.1	70	43	148			
L61175-04DUP1	DUP-RER	09/23/20			0.05	0.12	0.13	.1	0.1	0.12				0.32	2	
L61175-04DUP1	DUP-RPD	09/23/20			0.05	0.12	0.13	.1	0.1	0.12				67	20	RG
L61189-01MS	MS	09/23/20	PCN61539	20	0.12	0.12	0.12	16	0.48	0.07	79	43	148			
L61271-01DUP2	DUP-RPD	09/23/20			0.29	0.1	0.39	.38	0.2	0.2				27	20	RG
L61271-01DUP2	DUP-RER	09/23/20			0.29	0.1	0.39	.38	0.2	0.2				0.4	2	

JDS Hydro Consultants, Inc.

ACZ Project ID: L61347

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 228, total M904.0 **Units: pCi/L**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG505781																
L61504-01DUP	DUP-RPD	10/03/20			1.5	1.3	3.2	1.9	1	2.4				24	20	RG
L61504-01DUP	DUP-RER	10/03/20			1.5	1.3	3.2	1.9	1	2.4				0.24	2	
L61267-04DUP	DUP-RER	10/03/20			0.3	0.36	0.36	.87	1.1	1.1				0.49	2	
WG505781LCSW	LCSW	10/03/20	PCN61541	4.82				5.4	0.54	0.35	112	47	123			
WG505781PBW	PBW	10/03/20						.45	0.36	0.36			0.72			
L61267-04DUP	DUP-RPD	10/03/20			0.3	0.36	0.36	.87	1.1	1.1				97	20	RG
L61267-05MS	MS	10/03/20	PCN61541	9.63	0.5	0.54	0.54	13	1.4	0.97	130	47	123			M1

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ACZ Project ID: **L61347**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L61347-01	NG505597	Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
	WG505137	Radium 226, total	M903.1	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
	WG505781	Radium 228, total	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M904.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.

JDS Hydro Consultants, Inc.

ACZ Project ID: **L61347**

No certification qualifiers associated with this analysis

JDS Hydro Consultants, Inc.

ACZ Project ID: L61347
 Date Received: 09/09/2020 12:23
 Received By:
 Date Printed: 9/10/2020

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? ¹	X		
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
4817	5.5	NA	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

JDS Hydro Consultants, Inc.

ACZ Project ID: L61347

Date Received: 09/09/2020 12:23

Received By:

Date Printed: 9/10/2020

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc. L61347

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Stephanie Schwenke
 Company: JDS-Hydro Consultants
 E-mail: SSchwenke@jds-hydro.com

Address: 5540 TechCenter Dr
Colorado Springs, CO 80919
 Telephone: 719-321-5341

Copy of Report to:

Name: John Mc Ginn
 Company: JDS-Hydro

E-mail: jmcginn@jds-hydro.com
 Telephone: 719-227-0072

Invoice to:

Name: Stephanie Schwenke
 Company: JDS-Hydro
 E-mail: SSchwenke@jds-hydro.com

Address: 5540 TechCenter Dr
Colorado
 Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES
 NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring?

Yes No

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: _____ Sampler's Site Information _____ State CO Zip code _____ Time Zone MDT

*Sampler's Signature: _____ I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: DW - RADCLHEM
 PO#: _____
 Reporting state for compliance testing: _____
 Check box if samples include NRC licensed material?

# of Containers	Free/Freeport	Gross alpha/beta								
1										
1										
1										

SAMPLE IDENTIFICATION	DATE:TIME	Matrix
#1 - Retreat Test	9/8/20 8:40am	PAW
#2 - Retreat Test	8:41am	
#3 - Retreat Test	8:42am	

Matrix SW (Surface Water) GW (Ground Water) WW (Waste Water) DW (Drinking Water) SL (Sludge) SO (Soil) OL (Oil) Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
<u>Stephanie Schwenke</u>	<u>9/8/20 9:30am</u>	<u>[Signature]</u>	<u>9/9/20 12:23</u>

61347 Chain of Custody