eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

Laboratory Job ID: 160-43845-1
Client Project/Site: 21J0961

For:
Basic Laboratory, Inc
2218 Railroad Avenue
Redding, California 96001

Attn: Report Email

Rhonda Ridenhower

Authorized for release by:
11/17/2021 11:48:42 PM

Rhonda Ridenhower, Client Service Manager
(314)298-8566
Rhonda.Ridenhower@Eurofinset.com

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Case Narrative

Client: Basic Laboratory, Inc
Project/Site: 21J0961

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Laboratory: Eurofins TestAmerica, St. Louis

Narrative

Job Narrative
160-43845-1

Receipt
The sample was received on 11/1/2021 11:15 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved. The temperature of the cooler at receipt was 18.0º C.

RAD
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Radium 228 batch 535434
The method blank (MB) has activity above the MDC and RL. The associated samples are below the reporting limit for the contaminant, therefore, re-analysis is not required. The data have been reported. (MB 160-535434/8-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SUBCONTRACT ORDER

Basic Laboratory Inc

21J0961

SENDING LABORATORY:	RECEIVING LABORATORY:
Basic Laboratory Inc	EUROFINS TEST AMERICA - EARTH CITY
2218 Railroad Avenue	13715 RIDER TRAIL NORTH
Redding, CA 96001-2504	EARTH CITY, MO 63045-1205
Phone: (530) 243-7234	Phone :(314) 298-8566
Fax: (530) 243-6204	Fax:
Jennifer McCurdy	jmccurdy@basiclab.com

Please use standard TAT unless specific due date is requested. Email results & Element transfer file to reporting@basiclab.com.

Analysis	Laboratory ID	Comments
Sample ID: 21J0961-01 WELL 1 Drinking Water Sampled: 10/21/21 07:45		
Radium 228 SUB		
Containers Supplied:		

System Name: Breese II water System
PS Clip #: CA5200008
Source Name: _001_001
User I.D. 52C
Sampled By: Tony Casados
Employed By: Basic Lab

160-43845 Chain of Custody

Released By	Date	Received By	Date
P. Ocl	10.25.21		
Released By	Date	Received By	Date

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Login Sample Receipt Checklist

Client: Basic Laboratory, Inc

Job Number: 160-43845-1

Login Number: 43845
List Number: 1
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Method	Method Description	Protocol	Laboratory
904.0	Radium-228 (GFPC)	EPA	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-43845-1	21J0961-01	Water	10/21/21 07:45	11/01/21 11:15

Client Sample Results

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Client Sample ID: 21J0961-01

Date Collected: 10/21/21 07:45
Date Received: 11/01/21 11:15

Lab Sample ID: 160-43845-1

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0393	U	0.226	0.226	1.00	0.399	pCi/L	11/08/21 11:58	11/15/21 14:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*11/08/21 11:58*	*11/15/21 14:26*	*1*
Y Carrier	*83.0*		*40 - 110*	*11/08/21 11:58*	*11/15/21 14:26*	*1*

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-535434/8-A
Matrix: Water
Analysis Batch: 536652

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 535434

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.193		0.429	0.474	1.00	0.471	pCi/L	11/08/21 11:58	11/15/21 14:32	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.4*		*40 - 110*	*11/08/21 11:58*	*11/15/21 14:32*	*1*
Y Carrier	*84.1*		*40 - 110*	*11/08/21 11:58*	*11/15/21 14:32*	*1*

Lab Sample ID: LCS 160-535434/1-A
Matrix: Water
Analysis Batch: 536662

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 535434

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.14	8.292		1.08	1.00	0.567	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*78.5*		*40 - 110*
Y Carrier	*85.2*		*40 - 110*

QC Association Summary

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Rad

Prep Batch: 535434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-43845-1	21J0961-01	Total/NA	Water	PrecSep_0	
MB 160-535434/8-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-535434/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Tracer/Carrier Summary

Client: Basic Laboratory, Inc
Project/Site: 21J0961

Job ID: 160-43845-1

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
160-43845-1	21J0961-01	102	83.0
LCS 160-535434/1-A	Lab Control Sample	78.5	85.2
MB 160-535434/8-A	Method Blank	88.4	84.1

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

BASIC LABORATORY, INC. - CHAIN OF CUSTODY (STANDARD)

☑ 2218 Railroad Avenue, Redding, CA 96001 (530) 243-7234 FAX (530) 243-7494
☐ 3860 Morrow Lane, Suite F Chico, CA 95928 (530) 894-8966 FAX: (530) 894-5143

LABORATORY WORK ORDER # 21J0961 (21J0961)
PAGE 1 OF 1

basic laboratory

CLIENT NAME	PROJECT NAME	PROJECT / PO #	PWS # (If Applicable)
BREESE II WATER SYSTEM	DRINKING WATER MONITORING		5200008 TEHAMA

MAILING ADDRESS: PO BOX 9062, RED BLUFF, CA 96080

REPORT TO ☑ Email ☐ Mail Hardcopy
NAME / ATTENTION: SHELBY CARVER
PHONE: 541-778-1447

TURN AROUND TIME REQUESTED: ☑ Standard ☐ Rush _____

INVOICE TO: SAME

EMAIL: breesewater@gmail.com

SPECIAL INSTRUCTIONS / PO#: CC REPORTS TO MIKE BUTLER

☑ Regulatory ☐ Non-Regulatory

QC Reported? (check one): ☑ None ☐ STD ☐ Other

Do you require Electronic Data Deliverables (EDD)? ☑ Yes ☐ No What Type? CA-EDT

ID # (Lab Use Only)	DATE SAMPLED	TIME SAMPLED			SAMPLE TYPE*	Comp	Grab	SAMPLE LOCATION / IDENTIFICATION / DESCRIPTION	REGULATORY ID / SOURCE CODE (if Applicable)	NUMBER OF CONTAINERS	ANALYSES REQUESTED: Radium -228
1	10.21.21	0745	AM	PM	DWS		X	WELL 1	CA5200008_001_001	1	✓
			AM	PM							
			AM	PM							
			AM	PM							
			AM	PM							
			AM	PM							
			AM	PM							
			AM	PM							
			AM	PM							
			AM	PM							

SAMPLED BY: (please print) TONY CASADOS / BASIC LAB

RELINQUISHED DATE / TIME: 10.21.21 1220

SAMPLING / ANALYSIS COMMENTS

☐ I authorize Basic Laboratory to perform the indicated tests. By signing I agree to Basic Laboratory's TERMS and CONDITIONS. (www.basiclab.com/terms)

NAME: PER AUTHORIZATION AGREEMENT SIGNATURE DATE

*SAMPLE TYPE CODES

Aqueous
DW = Drinking Water
DWS=Drinking Water Source
WW = Wastewater
GW = Groundwater
STW = Stormwater
SW = Surface Water
RW = Rain Water

Non-Aqueous
SLG = Sludge
SO = Soil
SDW = Solid Waste
OL = Oil
OT = Other (Specify)

RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB	DATE/TIME	LOGGED BY LAB	DATE/TIME
CM	10/21/21 13:02	CM	10/21/21 15:57 ~~15:17~~

For Official Lab Comments Only

CM 10/21/21

IB

21J0961

1

SAMPLE RECEIPT CHECKLIST

basic laboratory

WO NUMBER 21J0961

SHIPPING INFORMATION

			Yes	No
Walk-In	☐			
Courier	☐			
FedEx	☐			
UPS	☐	Cooler Present?	☑	☐
Other	☑			

Samples Received By: CM Date: 10/21/21

	Yes	No	
Samples received on ice?	☑	☐	Ice type? ☐ Wet ☑ Blue ☐ Other
Samples received the same day collected?	☑	☐	

SAMPLE TEMPERATURES AT RECEIPT **Therm. ID (Circle one):** **Therm-36** **Therm-37** **(Therm-59)** **Other:** _____

Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)
-01	8.5	-06		-11		-16	
-02		-07		-12		-17	
-03		-08		-13		-18	
-04		-09		-14		-19	
-05		-10		-15		-20	

SAMPLE CONDITION AND PROCESSING

Samples Processed and Labeled By: CM Date: 10/21/21

	Yes	No	NA	
Custody seals present?	☐	☐	☑	
Samples in proper containers?	☑	☐		
Sample containers damaged?	☐	☑		
Sufficient sample volume for indicated tests?	☑	☐		
Samples received within holding times?	☑	☐		
Are VOA vials free of headspace?	☐	☐	☑	
Dechlor. agent labels present (i.e., colilert, TTHMs)?	☐	☐	☑	

SAMPLE PRESERVATION **NA** ☐

	Yes	No	NA	
Preserved in the field?	☐	☑	☐	
Preserved in the lab?	☑	☐	☐	Lab Preservation Date & Time 10.21.21 15:25

☐ H2SO4 (ID_____) ☑ HNO3 (ID 1I080216) ☐ NaOH (ID_____)
☐ Other (ID_____) ☐ Other (ID_____) ☐ Other (ID_____)

	Yes	No	NA	
H2SO4 preserved samples confirmed to pH <2 (i.e., E350.1, SM5220, SM5310)?	☐	☐	☑	
HNO3 preserved samples confirmed to pH <2 (i.e., E200.7, E200.8, 6010)?	☑	☐	☐	
NaOH preserved samples confirmed to pH >10 (cyanide) or >9 (sulfide)?	☐	☐	☑	
Hexavalent Chromium (DW) preserved samples confirmed to pH >8 & Chlorine <0.1 mg/l?	☐	☐	☑	
Hexavalent Chromium (W) preserved samples confirmed to pH 9.3 - 9.7?	☐	☐	☑	By:_____ Meter ID:_____
Are proper preservation lables present?	☑	☐	☐	

Preservation checked at Lab? Date & Time 10.21.21 15:36 Test Strip (ID 1H20019)

Preservation and Preservation Checks performed by: SMA

COMMENTS, DISCREPANCEIS, ANOMALIES