NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

Received 10/06/2014

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME: Ritchie Exploration Inc
ADDRESS: 8100 E 22 St N Ste 700
Wichita, KS 67226-2328
FACILITY: ANN ALLISON #1
LOCATION: NEAR TOWN
LINDON, CO 00000
ATTN: John Niernberger, Prod Mgr

COG840016	001-AA
PERMIT NUMBER	**DISCHARGE NUMBER**

MONITORING PERIOD	
MM/DD/YYYY	**MM/DD/YYYY**
08/01/2014	08/31/2014

DMR Mailing ZIP CODE: 67226-2328
MINOR

Uunnamed tributary to Vega Creek tributary to South Pla
External Outfall

No Discharge ☐

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
pH	SAMPLE MEASUREMENT	******	******	******	7.96	******	8.03	SU			
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	6.5 MINIMUM	******	9 MAXIMUM	SU		Twice Per Month	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	******	******	******	******	11.0	11.0	mg/L			
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	30 30DA AVG	45 MX 7D AV	mg/L		Twice Per Month	GRAB
Nitrogen, nitrite total [as N]	SAMPLE MEASUREMENT	******	******	******	******	******	<0.040	mg/L			
00615 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	10 DAILY MX	mg/L		Twice Per Month	GRAB
Nitrogen, nitrate total [as N]	SAMPLE MEASUREMENT	******	******	******	******	******	<0.10	mg/L			
00620 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	100 DAILY MX	mg/L		Twice Per Month	GRAB
Cyanide, weak acid, dissociable	SAMPLE MEASUREMENT	******	******	******	******	******	<5	ug/L			
00718 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	200 DAILY MX	ug/L		Twice Per Month	GRAB
Arsenic, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<25	******	ug/L			
00978 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	100 30DA AVG	******	ug/L		Twice Per Month	GRAB
Selenium, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<50	<50	ug/L			
00981 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	20 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE
John Niernberger Production Manager	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	316-691-9500		9-29-14
TYPED OR PRINTED			AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Oil and grease - see D.24, pg 14. From 8-1-14 through 8-31-16 report "ANALYSIS NOT REQUIRED" for monitoring period. Starting 9-1-16, report results on DMR.

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		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Beryllium, total recoverable [as Be]	SAMPLE MEASUREMENT	******	******	******	******	<10	<10	ug/L			
00998 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	100 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Nickel, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<30	<30	ug/L			
01074 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	200 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Zinc, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<30	<30	ug/L			
01094 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	2000 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Cadmium, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<10	<10	ug/L			
01113 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	10 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Lead, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<50	<50	ug/L			
01114 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	100 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Copper, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<10	<10	ug/L			
01119 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	200 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Antimony, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<30	<30	ug/L			
01268 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	5.6 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB

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		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Oil and grease	SAMPLE MEASUREMENT	******	******	******	******	******	<4.8	mg/L			
03582 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	35 INST MAX	mg/L		Twice Per Month	GRAB
Chromium, trivalent total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<20	<20	ug/L			
04262 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	100 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Radium 226 + radium 228, total	SAMPLE MEASUREMENT	******	******	******	******	0	0				
11503 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 30DA AVG	5 DAILY MX	pCi/L		Twice Per Month	GRAB
1,2-Dichloroethane	SAMPLE MEASUREMENT	******	******	******	******	ND	ND				
32103 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	20000 30DA AVG	118000 DAILY MX	ug/L		Twice Per Month	GRAB
Toluene	SAMPLE MEASUREMENT	******	******	******	******	******	0.85	ug/L			
34010 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	17500 DAILY MX	ug/L		Monthly	GRAB
Benzene	SAMPLE MEASUREMENT	******	******	******	******	******	ND				
34030 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	5300 DAILY MX	ug/L		Twice Per Month	GRAB
Naphthalene, dry weight	SAMPLE MEASUREMENT	******	******	******	******	ND	ND				
34445 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	620 30DA AVG	2300 DAILY MX	ug/L		Twice Per Month	GRAB

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ND = Not Detected

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		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
2,4-Dimethylphenol	SAMPLE MEASUREMENT	******	******	******	******	******	ND				
34606 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	2120 DAILY MX	ug/L		Twice Per Month	GRAB
Phenol	SAMPLE MEASUREMENT	******	******	******	******	ND	ND				
34694 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	2560 30DA AVG	10200 DAILY MX	ug/L		Twice Per Month	GRAB
Ethylbenzene	SAMPLE MEASUREMENT	******	******	******	******	******	0.58	ug/L			
37371 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	32000 DAILY MX	ug/L		Twice Per Month	GRAB
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	.0052	.0052	MGD	******	******	******	******			
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	.0076 30DA AVG	Req. Mon. DAILY MX	MGD	******	******	******	******		Continuous	RCORDR
Solids, total dissolved	SAMPLE MEASUREMENT	******	******	******	******	3390	******	mg/L			
70295 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	3500 30DA AVG	******	mg/L		Twice Per Month	GRAB
Chromium, hexavalent tot recoverable	SAMPLE MEASUREMENT	******	******	******	******	<10	<10	ug/L			
78247 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	100 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Xylene [mix of m+o+p]	SAMPLE MEASUREMENT	******	******	******	******	******	3.4	ug/L			
81551 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB

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		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Boron, total	SAMPLE MEASUREMENT	******	******	******	******	3640	******	ug/L			
82057 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	.75 30DA AVG	******	ug/L		Twice Per Month	GRAB
Oil and grease visual	SAMPLE MEASUREMENT	******	N	0	******	******	******	******			
84066 1 0 Effluent Gross	PERMIT REQUIREMENT	******	Req. Mon. INST MAX	Y=1;N=0	******	******	******	******		Twice Per Month	VISUAL

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WATER SAMPLING FOR ANN ALLISON AND ANDERSON Lse. In Washington County, Colorado -AUG-2014

Ann Allison Lse

Date	8/6	8/13	*8/20	8/27
Cal. Time	6:00am	6:00am	6:00am	6:00am
Calibration	4.28/4.01	4.76/4.00	7.43/7.00	4.21/4.00
	7.32/7.00	9.54/10.01	9.36/10.00	7.37/7.01
Grab Sample Time	N/D	N/D	8:00am	8:00am
Ph Reading Time	9:00am	9:00am	9:00am	9:00am
Ph Reading	N/D	N/D	7.96	8.03
Visual Observation of Oil				
Discharge Rage/gpm	N/D	N/D	3.62	3.56

samples due second and fourth week of every month

* indicates date of sample process and delivered to lab.

Anderson Lse

	8/6	8/13	*8/20	8/27
	6:00am	6:00am	6:00am	6:00am
	4.28/4.01	4.76/4.00	7.43/7.00	4.21/4.00
	7.32/7.00	9.54/10.01	9.36/10.00	7.37/7.01
	8:00am	8:00am	8:00am	8:00am
	9:00am	9:00am	9:00am	9:00am
	7.93	7.96	7.99	7.94
	12	11.87	11.53	11.45

Samples due fourth week of each month.

* indicates date of sample process and delivered to lab.

Received 10/06/2014

e-Hardcopy 2.0
Automated Report

Mountain States ACCUTEST LABORATORIES

09/26/14

Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D61210X

Sampling Date: 08/20/14

Report to:

Ritchie Exploration, Inc.
PO Box 783188
Wichita, KS 67278-3188
john@ritchie-exp.com; palisadestech@gmail.com

ATTN: John Niernberger

Total number of pages in report: **10**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

Received 10/06/2014

Sections: 1 2 3

Table of Contents

-1-

Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Job No: D61210X

Ann Allison Lease

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D61210-1X	08/20/14	08:00	ET	08/20/14	AQ	Water	ANN ALLISON LSE. WASH CO COLO

Subcontract Lab Data

Report of Analysis

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

DATE	September 26, 2014
HRI PROJECT	009-93
HRI SERIES NO	H349/14
DATE REC'D.	8/22/2014
CUST. P.O.#	D61210X

2

Accutest Mountain States
Kaila Gaither
4036 Youngfield St
Wheat Ridge, CO 80033

REPORT OF ANALYSIS

SAMPLE NO. H349/14-1

SAMPLE IDENTIFICATION: D61210X-1 - Sampled 08/20/2014 @ 0800

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/l (T)	0.0(+-0.2)	0.1	SM 7500-Ra B	8/28/2014 @ 1440	LD
Radium-228 (+-Precision*), pCi/l (T)	0.0(+-0.5)	0.5	EPA Ra-05	9/16/2014 @ 0751	BS

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
RI LAO00284; TX T104704256-11-2; WI 998376610

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.

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

By: _____
Robert Rostad
Technical Director, Analytical Services

Received 10/06/2014

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 08/28/14

2

Batch QC Evaluation Form

Analyte: Ra-226

Control Standard: ID: NBL 6A pCi/ml: 23.0 (use 2 ml diluted)

Spike Solution: ID: NBL 6A pCi/ml: 23.0 (use 2 ml)

Spike Recovery Calculation: Sample: TAP

Calculation: $\frac{(40.0)(1.0)-(0.0)(1.0)}{46.0}$ X 100 = 87 %

Batch QC Evaluation:

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

* Required for batch size greater than 10 samples.

Conclusions:

✓ Batch Passes
___ Batch Fails
___ Batch Passes, with exceptions:

Reruns Required: _____

Narrative: _____

_____

Batch Listing by Lab Control Number:

H308/14
H330/14
H345/14
H348/14
H349/14
H353/14
H354/14
H373/14
H379/14
H391/14
H395/14
H396/14
H400/14
H401/14

Evaluator: [signature]

09/05/2014
Date

Received 10/06/2014

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 09/17/2014

Batch QC Evaluation Form

Analyte: Ra-228

Control Standard: ID: NBL7a pCi/ml: 11.5 (use 2 ml diluted)

Spike Solution: ID: NBL7a pCi/ml: 11.5 (use 2 ml)

Spike Recovery Calculation: Sample: I102-2e

Calculation: $\frac{(19.9)(1.0) - (0.0)(1.0)}{23.0} \times 100 = 87$ %

Batch QC Evaluation:

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

* Required for batch size greater than 10 samples.

Conclusions:

/ Batch Passes
___ Batch Fails
___ Batch Passes, with exceptions:

Reruns Required: _____

Narrative: _____

_____

Batch Listing by Lab Control Number:

H349|14
I67|14
I73|14
I84|14
I86|14
I102|14

Evaluator: [signature]
09/25/2014

CHAIN OF CUSTODY

ACCUTEST
4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D61210X
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information

Name: Accutest Mountain States (AMS)
Address: 4036 Youngfield St.
City: Wheat Ridge, State: CO Zip: 80033
Send Report to: Scott Heideman
Any questions contact: Renea Jackson
Phone/Fax #: (303) 425-6021; (303)425-6854

Subcontract Laboratory Information

Name: Hazen (Radiological)
Address: 4601 Indiana Street
City: Golden State: CO Zip: 80403
Contact: Sample Management
Phone: (303) 279-4501

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2So4	None	Analytical Information: Radium 226/228					Comments
D61210X -1	8/20/14	8:00 AM		AQ	4						X					

Turnaround Information

[X] 10 Business Day Standard — Approved By:
[ ] Other _____ (Days)

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

[ ] Commercial "A" [ ] PDF
[ ] Commercial "B" [ ] Compact Disk Deliverable
[ ] Commercial "BN" [ ] Electronic Delivery:
[ ] Reduced Tier 1 [ ] State Forms
[ ] Full Tier 1 [ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs.

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date & Time:	Received By:	Date & Time:
1		8/22/14 1337	1	08/22/2014 1337
2			2	2
3			3	3

For Subcontract Laborartory Use Only

Seal #: Headspace: Yes [ ] No [ ] NA [ ]
Preserved where applicable: [ ]
Temperature °C _____ On Ice [ ]

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Received 10/06/2014

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D61210

Client / Reporting Information	Project Information	
Company Name: Ritchie Exploration Inc.	Project Name: Ann Allison Lse 2nd. 4th week Monthly Avg.	
Street Address: PO Box 783188	Street:	Billing Information (If different from Report to)
City / State / Zip: Wichita KS. 67278-3188	City:	Company Name:
Project Contact: John Niernberger / E-mail: Jow@ritchie-exp.com / Also to: palisadestech@gmail.com	Project#:	Street Address:
Phone #: 316-691-9500 / Fax #: 316-691-9550	Client PO#:	City / State / Zip:
Sampler(s) Name(s): ED Thomas / Phone #: 720-841-9550	Project Manager:	Attention: / PO#:

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	ABL2551	CN WAD	Metals	NO2 NO30	OG 1664	RA-226	RA-228	TDS, TSS	V624 BTXP, VMST12DX4	XCR		LAB USE ONLY
	Ann Allison Lse, Wash. Co. Colo		8-20-14	8am	ET	AQ											X	X	X	X	X	X	X	X	X	X		01
																												TB-02

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL- Sludge, SED-Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB-Field Blank, EB- Equipment Blank, RB- Rinse Blank, TB-Trip Blank

Turnaround Time (Business days) — Approved By (Accutest PM): / Date:

- ☐ Std. 10 Business Days
- ☐ Std. 5 Business Days (By Contract only)
- ☐ 5 Day RUSH
- ☐ 3 Day EMERGENCY
- ☐ 2 Day EMERGENCY
- ☐ 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- ☐ Commercial "A" (Level 1)
- ☐ Commercial "B" (Level 2)
- ☐ Commercial "B" +Narrative
- ☐ FULLT1 (Level 3+4)
- ☐ State Forms
- ☐ EDD Format ______
- ☐ PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	8-20-14 1:20 PM	1	2		2 [signature] 8/20/14 13:20
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # HD ☐ Intact ☐ Not intact	Preserved where applicable ☐	On Ice ☐ Cooler Temp. 12.8

3.1

3

D61210X: Chain of Custody
Page 1 of 1

Received 10/06/2014

e-Hardcopy 2.0
Automated Report

Mountain States ACCUTEST LABORATORIES

09/03/14

Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D61210

Sampling Date: 08/20/14

Report to:

Ritchie Exploration, Inc.
PO Box 783188
Wichita, KS 67278-3188
john@ritchie-exp.com; palisadestech@gmail.com

ATTN: John Niernberger

Total number of pages in report: 41

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

Sections: 1 2 3 4 5 6 7 8 9

Table of Contents

Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Job No: D61210

Ann Allison Lease

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D61210-1	08/20/14	08:00	ET	08/20/14	AQ	Water	ANN ALLISON LSE. WASH CO COLO
D61210-1A	08/20/14	08:00	ET	08/20/14	AQ	Water	ANN ALLISON LSE. WASH CO COLO

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Ritchie Exploration, Inc. **Job No** D61210

Site: Ann Allison Lease **Report Date** 9/3/2014 4:28:19 PM

On 08/20/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 12.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D61210 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method EPA 624

Matrix AQ **Batch ID:** V7V1527

- All samples were analyzed within the recommended method holding time.
- Sample(s) D61161-1DUP, D61184-1MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D61210-1: The pH of the sample aliquot for VOA analysis was >2 at time of analysis.

Extractables by GCMS By Method EPA 625

Matrix AQ **Batch ID:** OP10489

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D60519-13MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP13809

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61160-4SDL, D61160-4MS, D61160-4MSD, D61160-4SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) and matrix spike duplicate (MSD) recovery(s) of Antimony, Selenium are outside control limits. Spike recovery indicates possible matrix interference.
- The RPD(s) for the MS and MSD recoveries of Selenium are outside control limits for sample MP13809-S2. High RPD due to possible sample matrix or nonhomogeneity.
- The serial dilution RPD(s) for Antimony, Boron, Chromium, Copper, Lead, Nickel, Zinc are outside control limits for sample MP13809-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP13809-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method EPA 1664A

Matrix AQ **Batch ID:** GP13425

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61147-1MS were used as the QC samples for the HEM Oil and Grease analysis.
- The matrix spike (MS) recovery(s) of HEM Oil and Grease are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP13334

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61177-1MS, D61177-1MSD were used as the QC samples for the Nitrogen, Nitrate, Nitrogen, Nitrite, Nitrogen, Nitrate analysis.
- D61210-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- D61210-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix AQ **Batch ID:** GN26118

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61210-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 2540D-2011

Matrix AQ **Batch ID:** GN26135

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61098-2DUP were used as the QC samples for the Solids, Total Suspended analysis.

Wet Chemistry By Method SM 3500CR B-2011

Matrix AQ **Batch ID:** GN26120

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61112-1FDUP, D61209-1MS, D61209-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- D61210-1A for Chromium, Hexavalent: Sample preserved within 24hrs. to extend the hold time.

Wet Chemistry By Method SM 4500CN N-2011

Matrix AQ **Batch ID:** GP13394

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D61148-1MS were used as the QC samples for the Weak Acid Dissociable Cn analysis.

Wet Chemistry By Method SW846 6010C/7196A M

Matrix AQ **Batch ID:** R23324

- The data for SW846 6010C/7196A M meets quality control requirements.
- D61210-1A for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D61210
Account: Ritchie Exploration, Inc.
Project: Ann Allison Lease
Collected: 08/20/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D61210-1	ANN ALLISON LSE. WASH CO COLO					
Toluene [a]		0.00085 J	0.0010	0.00080	mg/l	EPA 624
Ethylbenzene [a]		0.00058 J	0.0010	0.00031	mg/l	EPA 624
Xylene (total) [a]		0.0034	0.0020	0.00089	mg/l	EPA 624
Solids, Total Dissolved		3390	10		mg/l	SM 2540C-2011
Solids, Total Suspended		11.0	5.0		mg/l	SM 2540D-2011
D61210-1A	ANN ALLISON LSE. WASH CO COLO					
Boron		3640	50		ug/l	SW846 6010C

(a) The pH of the sample aliquot for VOA analysis was >2 at time of analysis.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE. WASH CO COLO		
Lab Sample ID:	D61210-1	Date Sampled:	08/20/14
Matrix:	AQ - Water	Date Received:	08/20/14
Method:	EPA 624	Percent Solids:	n/a
Project:	Ann Allison Lease		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	7V27982.D	1	08/21/14	JL	n/a	n/a	V7V1527
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Naphthalene

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00085	0.0010	0.00080	mg/l	J
100-41-4	Ethylbenzene	0.00058	0.0010	0.00031	mg/l	J
1330-20-7	Xylene (total)	0.0034	0.0020	0.00089	mg/l	
91-20-3	Naphthalene	ND	0.0020	0.0010	mg/l	
107-06-2	1,2-Dichloroethane	ND	0.0020	0.00025	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	92%		70-130%
2037-26-5	Toluene-D8	96%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

(a) The pH of the sample aliquot for VOA analysis was >2 at time of analysis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE. WASH CO COLO		
Lab Sample ID:	D61210-1	Date Sampled:	08/20/14
Matrix:	AQ - Water	Date Received:	08/20/14
Method:	EPA 625 SW846 3510C	Percent Solids:	n/a
Project:	Ann Allison Lease		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G121212.D	1	08/27/14	DC	08/26/14	OP10489	E1G1406
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

625 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.0048	0.00050	mg/l	
108-95-2	Phenol	ND	0.0048	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%		10-120%
4165-62-2	Phenol-d5	32%		9-120%
118-79-6	2,4,6-Tribromophenol	111%		19-125%
4165-60-0	Nitrobenzene-d5	75%		35-120%
321-60-8	2-Fluorobiphenyl	93%		35-120%
1718-51-0	Terphenyl-d14	99%		32-122%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE. WASH CO COLO		
Lab Sample ID:	D61210-1	Date Sampled:	08/20/14
Matrix:	AQ - Water	Date Received:	08/20/14
		Percent Solids:	n/a
Project:	Ann Allison Lease		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
HEM Oil and Grease	<4.8	4.8	mg/l	1	09/03/14	SWT	EPA 1664A
Nitrogen, Nitrate [a]	<0.10	0.10	mg/l	10	08/20/14 15:50	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	<0.040	0.040	mg/l	10	08/20/14 15:50	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	3390	10	mg/l	1	08/21/14	AK	SM 2540C-2011
Solids, Total Suspended	11.0	5.0	mg/l	1	08/22/14	AK	SM 2540D-2011
Weak Acid Dissociable Cn	<0.0050	0.0050	mg/l	1	08/28/14 13:06	GH	SM 4500CN N-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE. WASH CO COLO		
Lab Sample ID:	D61210-1A	Date Sampled:	08/20/14
Matrix:	AQ - Water	Date Received:	08/20/14
		Percent Solids:	n/a
Project:	Ann Allison Lease		

Total Recoverable Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	< 30	30	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Arsenic	< 25	25	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Beryllium	< 10	10	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Boron	3640	50	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Cadmium	< 10	10	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Chromium	< 10	10	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Copper	< 10	10	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Lead	< 50	50	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Nickel	< 30	30	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Selenium	< 50	50	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]
Zinc	< 30	30	ug/l	1	08/25/14	08/26/14	KV	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5159
(2) Prep QC Batch: MP13809

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE. WASH CO COLO		
Lab Sample ID:	D61210-1A	Date Sampled:	08/20/14
Matrix:	AQ - Water	Date Received:	08/20/14
		Percent Solids:	n/a
Project:	Ann Allison Lease		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	< 0.010	0.010	mg/l	1	08/21/14 09:30	JD	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.020	0.020	mg/l	1	08/26/14 00:25	KV	SW846 6010C/7196A M

(a) Sample preserved within 24hrs. to extend the hold time.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking # | Bottle Order Control #

Accutest Quote # | Accutest Job # D61210

Client / Reporting Information

Company Name: Ritchie Exploration Inc.
Street Address: PO Box 783188
City State Zip: Wichita KS. 67278-3188
Project Contact E-mail: John Wienberger Jwon@ritchie-exp.com / Also to, palisadestech@gmail.com
Phone # Fax #: 316-691-9500 316-691-9550
Sampler(s) Name(s) Phone #: E.P Thomas 720-841-9550

Project Information

Project Name: Ann Allison Lse. 2nd, 4th week Monthly Avg.
Street:
City:
Project#:
Client PO#:
Project Manager:
Attention: PO#

Billing Information (If different from Report to)

Company Name:
Street Address:
City State Zip:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB- Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Preserved: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	FRX25SL	CNMAD	Metals	NO2 NO3 30	OG 1664	RA-226	RA 228	TDS, TSS	VOA24 BTEX, VMS+12DCA	XCR	LAB USE ONLY
	Ann Allison Lse. Wash. Co. Colo		8-20-14	8am	ET	AQ											X	X	X	X	X	X	X	X	X	X	01
																											FB-02

Data Deliverable Information

- Commercial "A" (Level 1)
- Commercial "B" (Level 2)
- Commercial "B" +Narrative
- FULLT1 (Level 3+4)
- State Forms
- EDD Format
- PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- Std. 10 Business Days
- Std. 5 Business Days (By Contract only)
- 5 Day RUSH
- 3 Day EMERGENCY
- 2 Day EMERGENCY
- 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Labfax

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	8:20-14 1200PM	1	2		2 8/20/14 13:20
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal # HD	Intact / Not intact	Preserved where applicable	On Ice	Cooler Temp. 12 6
5		5					

5.1 5

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1527-MB	7V27976.D	1	08/21/14	JL	n/a	n/a	V7V1527

The QC reported here applies to the following samples: Method: EPA 624

D61210-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.89	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	91%	70-130%
2037-26-5	Toluene-D8	93%	70-130%
460-00-4	4-Bromofluorobenzene	94%	70-130%

Blank Spike Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1527-BS	7V27977.D	1	08/21/14	JL	n/a	n/a	V7V1527

The QC reported here applies to the following samples: Method: EPA 624

D61210-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.4	97	70-130
107-06-2	1,2-Dichloroethane	20	16.8	84	70-130
100-41-4	Ethylbenzene	20	19.7	99	70-130
91-20-3	Naphthalene	20	20.3	102	70-130
108-88-3	Toluene	20	19.5	98	70-130
1330-20-7	Xylene (total)	60	60.8	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	93%	70-130%
2037-26-5	Toluene-D8	93%	70-130%
460-00-4	4-Bromofluorobenzene	94%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D61184-1MS	7V27978.D	1	08/21/14	JL	n/a	n/a	V7V1527
D61184-1	7V27979.D	1	08/21/14	JL	n/a	n/a	V7V1527

The QC reported here applies to the following samples: Method: EPA 624

D61210-1

CAS No.	Compound	D61184-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	ND		20	17.5	88	70-130
107-06-2	1,2-Dichloroethane	ND		20	15.2	76	70-130
100-41-4	Ethylbenzene	ND		20	18.2	91	70-130
91-20-3	Naphthalene	ND		20	18.6	93	57-130
108-88-3	Toluene	ND		20	17.5	88	70-130
1330-20-7	Xylene (total)	ND		60	56.2	94	70-130

CAS No.	Surrogate Recoveries	MS	D61184-1	Limits
1868-53-7	Dibromofluoromethane	92%	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	94%	94%	70-130%
2037-26-5	Toluene-D8	94%	93%	70-130%
460-00-4	4-Bromofluorobenzene	95%	93%	70-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D61161-1DUP	7V27981.D	1	08/21/14	JL	n/a	n/a	V7V1527
D61161-1	7V27980.D	1	08/21/14	JL	n/a	n/a	V7V1527

The QC reported here applies to the following samples: Method: EPA 624

D61210-1

CAS No.	Compound	D61161-1 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	30
107-06-2	1,2-Dichloroethane	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	30
91-20-3	Naphthalene	ND		ND		nc	30
108-88-3	Toluene	ND		ND		nc	30
1330-20-7	Xylene (total)	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	D61161-1	Limits
1868-53-7	Dibromofluoromethane	93%	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	95%	92%	70-130%
2037-26-5	Toluene-D8	93%	94%	70-130%
460-00-4	4-Bromofluorobenzene	94%	94%	70-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10489-MB	1G121198.D	1	08/27/14	DC	08/26/14	OP10489	E1G1406

The QC reported here applies to the following samples: Method: EPA 625

D61210-1

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	5.0	0.53	ug/l	
108-95-2	Phenol	ND	5.0	0.75	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	57%	10-120%
4165-62-2	Phenol-d5	28%	9-120%
118-79-6	2,4,6-Tribromophenol	81%	19-125%
4165-60-0	Nitrobenzene-d5	83%	35-120%
321-60-8	2-Fluorobiphenyl	75%	35-120%
1718-51-0	Terphenyl-d14	101%	32-122%

Blank Spike Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10489-BS	1G121199.D	1	08/27/14	DC	08/26/14	OP10489	E1G1406

The QC reported here applies to the following samples: Method: EPA 625

D61210-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
105-67-9	2,4-Dimethylphenol	50	42.7	85	61-120
108-95-2	Phenol	50	22.6	45	24-120

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	63%	10-120%
4165-62-2	Phenol-d5	34%	9-120%
118-79-6	2,4,6-Tribromophenol	115%	19-125%
4165-60-0	Nitrobenzene-d5	89%	35-120%
321-60-8	2-Fluorobiphenyl	101%	35-120%
1718-51-0	Terphenyl-d14	104%	32-122%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D61210
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10489-MS	1G121209.D	1	08/27/14	DC	08/26/14	OP10489	E1G1406
D60519-13	1G121208.D	1	08/27/14	DC	08/26/14	OP10489	E1G1406

The QC reported here applies to the following samples: Method: EPA 625

D61210-1

CAS No.	Compound	D60519-13 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
105-67-9	2,4-Dimethylphenol	ND		50	19.5	39	10-120
108-95-2	Phenol	ND		50	12.8	26	16-120

CAS No.	Surrogate Recoveries	MS	D60519-13	Limits
367-12-4	2-Fluorophenol	30%	59%	10-120%
4165-62-2	Phenol-d5	21%	27%	9-120%
118-79-6	2,4,6-Tribromophenol	63%	80%	19-125%
4165-60-0	Nitrobenzene-d5	58%	81%	35-120%
321-60-8	2-Fluorobiphenyl	72%	89%	35-120%
1718-51-0	Terphenyl-d14	85%	106%	32-122%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	41		
Antimony	30	2.1	19	-0.80	<30
Arsenic	25	3.8	5.6	-1.5	<25
Barium	10	.2	1.4		
Beryllium	10	.9	1.2	0.30	<10
Boron	50	.8	6.6	-0.20	<50
Cadmium	10	.2	.36	0.10	<10
Calcium	400	2.4	41		
Chromium	10	.3	.4	-0.10	<10
Cobalt	5.0	.5	.57		
Copper	10	.8	1.9	-0.70	<10
Iron	70	1.5	9.5		
Lead	50	2.1	21	0.20	<50
Lithium	5.0	.4	2.7		
Magnesium	200	6.8	19		
Manganese	5.0	.5	.46		
Molybdenum	10	.4	.84		
Nickel	30	.5	.87	0.50	<30
Phosphorus	100	15	20		
Potassium	1000	99	270		
Selenium	50	7.1	11	-1.5	<50
Silicon	50	4.7	5.2		
Silver	30	.3	.6		
Sodium	400	7.3	170		
Strontium	5.0	.01	.12		
Thallium	10	1.8	4		
Tin	50	12	16		
Titanium	10	.1	2.1		
Uranium	50	2.9	5.5		
Vanadium	10	.4	.4		
Zinc	30	.4	3.2	0.80	<30

Associated samples MP13809: D61210-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	D61160-4 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	3.5	348	500	69.0N(a)	75-125
Arsenic	6060	6990	1000	93.0	75-125
Barium	anr				
Beryllium	0.0	485	500	97.0	75-125
Boron	17.4	1090	1000	107.3	75-125
Cadmium	52.8	566	500	102.6	75-125
Calcium	anr				
Chromium	2.4	492	500	97.9	75-125
Cobalt					
Copper	4.3	504	500	99.9	75-125
Iron					
Lead	11.4	1000	1000	98.9	75-125
Lithium					
Magnesium	anr				
Manganese					
Molybdenum					
Nickel	1.9	469	500	93.4	75-125
Phosphorus					
Potassium	anr				
Selenium	0.0	327	1000	32.7N(a)	75-125
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	196	686	500	98.0	75-125

Associated samples MP13809: D61210-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	D61160-4 Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	D61160-4 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	3.5	361	500	71.6N(a)	3.7	20
Arsenic	6060	7100	1000	104.0	1.6	20
Barium	anr					
Beryllium	0.0	496	500	99.2	2.2	20
Boron	17.4	1120	1000	110.3	2.7	20
Cadmium	52.8	579	500	105.2	2.3	20
Calcium	anr					
Chromium	2.4	502	500	99.9	2.0	20
Cobalt						
Copper	4.3	517	500	102.5	2.5	20
Iron						
Lead	11.4	1030	1000	101.9	3.0	20
Lithium						
Magnesium	anr					
Manganese						
Molybdenum						
Nickel	1.9	478	500	95.2	1.9	20
Phosphorus						
Potassium	anr					
Selenium	0.0	417	1000	41.7N(a)	24.2 (b)	20
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	196	696	500	100.0	1.4	20

Associated samples MP13809: D61210-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	D61160-4 Original MSD	Spikelot ICPALL2 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.
(b) High RPD due to possible sample matrix or nonhomogeneity.

8.1.2
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SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	510	500	102.0	80-120
Arsenic	1060	1000	106.0	80-120
Barium	anr			
Beryllium	488	500	97.6	80-120
Boron	1000	1000	100.0	80-120
Cadmium	490	500	98.0	80-120
Calcium	anr			
Chromium	498	500	99.6	80-120
Cobalt				
Copper	481	500	96.2	80-120
Iron				
Lead	1030	1000	103.0	80-120
Lithium				
Magnesium	anr			
Manganese				
Molybdenum				
Nickel	475	500	95.0	80-120
Phosphorus				
Potassium	anr			
Selenium	1090	1000	109.0	80-120
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	519	500	103.8	80-120

Associated samples MP13809: D61210-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	D61160-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	3.50	0.00	100.0(a)	0-10
Arsenic	6060	6210	2.5	0-10
Barium	anr			
Beryllium	0.00	0.00	NC	0-10
Boron	17.4	12.0	31.0 (a)	0-10
Cadmium	52.8	52.5	0.6	0-10
Calcium	anr			
Chromium	2.40	0.00	100.0(a)	0-10
Cobalt				
Copper	4.30	0.00	100.0(a)	0-10
Iron				
Lead	11.4	20.0	75.4 (a)	0-10
Lithium				
Magnesium	anr			
Manganese				
Molybdenum				
Nickel	1.90	4.00	110.5(a)	0-10
Phosphorus				
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	196	272	38.5*(b)	0-10

Associated samples MP13809: D61210-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13809
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 08/25/14

Metal	D61160-4 Original	SDL 1:5	%DIF	QC Limits

(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP13334/GN26108	0.050	0.0	mg/l	0.5	0.515	103.0	90-110%
Chloride	GP13334/GN26108	0.50	0.0	mg/l	5	4.77	95.4	90-110%
Chromium, Hexavalent	GN26120	0.010	0.0	mg/l	0.1	0.11	104.8	90-110%
Fluoride	GP13334/GN26108	0.10	0.0	mg/l	1	0.971	97.1	90-110%
HEM Oil and Grease	GP13425/GN26275	5.0	0.0	mg/l	40	34.6	86.5	78-114%
Nitrogen, Nitrate	GP13334/GN26108	0.010	0.0	mg/l	0.1	0.101	101.0	90-110%
Nitrogen, Nitrite	GP13334/GN26108	0.0040	0.0	mg/l	0.05	0.0499	99.8	90-110%
Solids, Total Dissolved	GN26118	10	0.0	mg/l	400	393	98.3	90-110%
Solids, Total Suspended	GN26135	5.0	0.0	mg/l	300	306	102.0	90-110%
Sulfate	GP13334/GN26108	0.50	0.0	mg/l	5	4.94	98.8	90-110%
Weak Acid Dissociable Cn	GP13394/GN26216	0.0050	0.0	mg/l	0.1	0.0988	98.8	90-110%

Associated Samples:
Batch GN26118: D61210-1
Batch GN26120: D61210-1A
Batch GN26135: D61210-1
Batch GP13334: D61210-1
Batch GP13394: D61210-1
Batch GP13425: D61210-1
(*) Outside of QC limits

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BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP13425/GN26275	mg/l	40	37.2	7.2	20%

Associated Samples:
Batch GP13425: D61210-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN26120	D61112-1F	mg/l	0.0	0.0	0.0	0-20%
Solids, Total Dissolved	GN26118	D61210-1	mg/l	3390	3400	0.3	0-20%
Solids, Total Suspended	GN26135	D61098-2	mg/l	28.0	28.0	0.0	0-20%

Associated Samples:
Batch GN26118: D61210-1
Batch GN26120: D61210-1A
Batch GN26135: D61210-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP13334/GN26108	D61177-1	mg/l	0.025 U	0.5	0.51	102.0	80-120%
Chloride	GP13334/GN26108	D61177-1	mg/l	0.82	5	5.3	89.6	80-120%
Chromium, Hexavalent	GN26120	D61209-1	mg/l	0.0	0.1	0.10	103.0	85-115%
Fluoride	GP13334/GN26108	D61177-1	mg/l	0.12	1	1.1	98.0	80-120%
HEM Oil and Grease	GP13425/GN26275	D61147-1	mg/l	306	40	312	15.0(a)	78-114%
Nitrogen, Nitrate	GP13334/GN26108	D61177-1	mg/l	0.025	0.1	0.13	105.0	80-120%
Nitrogen, Nitrite	GP13334/GN26108	D61177-1	mg/l	0.0030 U	0.05	0.048	96.0	80-120%
Sulfate	GP13334/GN26108	D61177-1	mg/l	5.4	5	10.4	100.0	80-120%
Weak Acid Dissociable Cn	GP13394/GN26216	D61148-1	mg/l	0.0	0.1	0.092	92.0	80-120%

Associated Samples:
Batch GN26120: D61210-1A
Batch GP13334: D61210-1
Batch GP13394: D61210-1
Batch GP13425: D61210-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

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MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D61210
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP13334/GN26108	D61177-1	mg/l	0.025 U	0.5	0.51	0.0	20%
Chloride	GP13334/GN26108	D61177-1	mg/l	0.82	5	5.4	1.9	20%
Chromium, Hexavalent	GN26120	D61209-1	mg/l	0.0	0.1	0.11	1.9	20%
Fluoride	GP13334/GN26108	D61177-1	mg/l	0.12	1	1.1	0.0	20%
Nitrogen, Nitrate	GP13334/GN26108	D61177-1	mg/l	0.025	0.1	0.13	0.0	20%
Nitrogen, Nitrite	GP13334/GN26108	D61177-1	mg/l	0.0030 U	0.05	0.049	2.1	20%
Sulfate	GP13334/GN26108	D61177-1	mg/l	5.4	5	10.4	0.0	20%

Associated Samples:
Batch GN26120: D61210-1A
Batch GP13334: D61210-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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