NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

Received 09/03/2014

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-A
PERMIT NUMBER	**DISCHARGE NUMBER**

MONITORING PERIOD	
MM/DD/YYYY	**MM/DD/YYYY**
07/01/2014	07/31/2014

DMR Mailing ZIP CODE: 67226-2328
MINOR

Unnamed tributary to Vega Creek tributary to South Plat
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	******	******	******	7.78	******	7.86	SU			
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	6.5 MINIMUM	******	9 MAXIMUM	SU		Twice Per Month	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	******	******	******	******	14	19	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	******	******	******	******	******	<0.020	mg/L			
00615 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	Req. Mon. DAILY MX	mg/L		Twice Per Month	GRAB
Nitrogen, nitrate total [as N]	SAMPLE MEASUREMENT	******	******	******	******	******	.19	mg/L			
00620 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	Req. Mon. DAILY MX	mg/L		Twice Per Month	GRAB
Cyanide, weak acid, dissociable	SAMPLE MEASUREMENT	******	******	******	******	******	<5	ug/L			
00718 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Arsenic, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<25	******	ug/L			
00978 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 30DA AVG	******	ug/L		Twice Per Month	GRAB
Selenium, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	<50	<50	ug/L			
00981 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 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		8-27-2014
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. Beginning 9-1-16 report "ANALYSIS NOT REQUIRED" for monitoring period and report on 001AA.

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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	******	******	******	******	Req. Mon. 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	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Zinc, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	24.2	48.4	ug/L			
01094 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 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	******	******	******	******	Req. Mon. 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	******	******	******	******	Req. Mon. 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	******	******	******	******	Req. Mon. 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	******	******	******	******	Req. Mon. 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	******	******	******	******	******	11.6	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	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Radium 226 + radium 228, total	SAMPLE MEASUREMENT	******	******	******	******	.425	1.3	pCi/L			
11503 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	pCi/L		Twice Per Month	GRAB
1,2-Dichloroethane	SAMPLE MEASUREMENT	******	******	******	******	ND	ND	ug/L			
32103 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Toluene	SAMPLE MEASUREMENT	******	******	******	******	******	2.9	ug/L			
34010 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	17500 DAILY MX	ug/L		Twice Per Month	GRAB
Benzene	SAMPLE MEASUREMENT	******	******	******	******	******	3.2	ug/L			
34030 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	5300 DAILY MX	ug/L		Twice Per Month	GRAB
Naphthalene, dry weight	SAMPLE MEASUREMENT	******	******	******	******	3.3	3.3	ug/L			
34445 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB

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		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
2,4-Dimethylphenol	SAMPLE MEASUREMENT	******	******	******	******	******	ND	ug/L			
34606 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Phenol	SAMPLE MEASUREMENT	******	******	******	******	ND	ND	ug/L			
34694 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Ethylbenzene	SAMPLE MEASUREMENT	******	******	******	******	******	3.1	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	.015	.020	MGD	******	******	******	******			
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	.0076 30DA AVG	Req. Mon. DAILY MX	MGD	******	******	******	******		Continuous	RCORDR
Solids, total dissolved	SAMPLE MEASUREMENT	******	******	******	******	2995	******	mg/L			
70295 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 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	******	******	******	******	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
Xylene [mix of m+o+p]	SAMPLE MEASUREMENT	******	******	******	******	******	15.8	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	******	******	******	******	3165	******	ug/L			
82057 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. 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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Oil and grease - see D.24, pg 14. Beginning 9-1-16 report "ANALYSIS NOT REQUIRED" for monitoring period and report on 001AA.

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

Ann Allison Lse

Date	7/2	7/10*	7/16	7/23*	7/29
Cal. Time	6:00am	6:00am	6:00am	6:00am	6:00am
Calibration	4.62/4.00	4.75/4.01	7.66/7.00	4.73/4.00	4.69/4.00
	7.58/7.01	9.68/10.00	9.70/10.01	7.49/7.01	9.72/10.01
Grab Sample Time	8:00am	8:00am	8:00am	8:00am	n/d
Ph Reading Time	9:00am	9:00am	9:00am	9:00am	n/d
Ph Reading	7.98	7.89	7.95	7.92	n/d
Visual Observation of Oil					
Discharge Rage/gpm	1.32	5.89	6.66	0.50	n/d

samples due second and fourth week of every month

* indicates date of sample process and delivered to lab.

Anderson Lse

	7/2	7/10	7/16	7/23*	7/29
	6:00am	6:00am	6:00am	6:00am	6:00am
	4.62/4.00	4.75/4.01	7.66/7.00	4.73/4.00	4.69/4.00
	7.58/7.01	9.68/10.00	9.70/10.01	7.49/7.01	9.72/10.01
	8:00am	8:00am	8:00am	8:00am	8:00am
	9:00am	9:00am	9:00am	9:00am	9:00am
	7.8	7.86	7.82	7.78	7.82
	9.08	13.99	11.41	8.78	9.85

Samples due fourth week of each month.

* indicates date of sample process and delivered to lab.

Mountain States ACCUTEST LABORATORIES

08/01/14

Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D59594X

Sampling Date: 07/10/14

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)

Sections: 1 2 3

Table of Contents

Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Job No: D59594X

Ann Allison Lease

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D59594-1X	07/10/14	08:00	ET	07/10/14	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	July 31, 2014
HRI PROJECT	009-93
HRI SERIES NO	G262/14
DATE REC'D.	7/11/2014
CUST. P.O.#	None Rec'd

2

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

REPORT OF ANALYSIS

SAMPLE NO. G262/14-1

SAMPLE IDENTIFICATION: D59594X-1 - Sampled 07/10/2014 @ 0800

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/l (T)	0.4(+-0.4)	0.2	SM 7500-Ra B	7/18/2014 @ 0903	LD
Radium-228 (+-Precision*), pCi/l (T)	0.0(+-1.2)	1.3	EPA Ra-05	7/21/2014 @ 0807	FW/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 09/03/2014

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 07/22/2014

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: TMP

Calculation: $\frac{(49.1)(1.0) - (0.3)(1.0)}{46.0} \times 100 =$ 106 %

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:

G297|14
G318|14
G321|14
G322|14
G323|14
G325|14
G328|14
G326|14
G347|14
G343|14
G344|14
G262|14

Evaluator: DLS DS

07/24/2014
Date

Received 09/03/2014

2

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 07/23/2014

Batch QC Evaluation Form

Analyte: Ra-228

Control Standard: ID: NBL 7A pCi/ml: 11.8 (use 2 ml diluted)

Spike Solution: ID: NBL 7A pCi/ml: 11.8 (use 2 ml)

Spike Recovery Calculation: Sample: TAP

Calculation: $\frac{(21.3)(1.0)-(0.0)(1.0)}{23.6} \times 100 =$ 90 %

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:

G324/14
G262/14

Evaluator: RLS

07/29/2014
Date

2

CHAIN OF CUSTODY

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

Accutest Job #:	D59594X
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information			Analytical Information
Name: Accutest Mountain States (AMS)			Name: Hazen (Radiological)			
Address: 4036 Youngfield St.			Address: 4601 Indiana Street			
City: Wheat Ridge,	State: CO	Zip: 80033	City: Golden	State: CO	Zip: 80403	
Send Report to: Scott Heideman			Contact: Sample Management			
Any questions contact: Renea Jackson						
Phone/Fax #: (303) 425-6021; (303)425-6854			Phone: (303) 279-4501			

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2So4	None	Radium 226/228					Comments
D59594X -1	7/10/14	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"
- [ ] Commercial "B"
- [ ] Commercial "BN"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] PDF
- [ ] Compact Disk Deliverable
- [ ] Electronic Delivery: _____
- [ ] State Forms
- [ ] 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		7/10/14 1230		7-11-14 1230
2				
3				

For Subcontract Laborartory Use Only

Seal #: Headspace: Yes [ ] No [ ] NA [ ]

Preserved where applicable: [ ]

Temperature °C _____ On Ice [ ]

Received 09/03/2014

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 # D59594

Client / Reporting Information
Company Name: Ritchie Exp. Inc.
Street Address: PO Box 783188
City / State / Zip: Wichita KS. 67278-3188
Project Contact / E-mail: John Niernberger Johnr@ritchie-exp.com / Also to Patricolestech@gmail.com
Phone # / Fax #: 316-691-9500 316-691-9550
Sampler(s) Name(s) / Phone #: EP Thomas 720-841-9550

Project Information
Project Name: Ann Allison Lse. 1st Bi Weekly July
Street:
City:
Project#:
Client PO#:
Project Manager:

Billing Information (If different from Report to)
Company Name:
Street Address:
City / State / Zip:
Attention: / PO#

Requested Analysis (see TEST CODE sheet): ABG25SI, CN(AD), Metals, NO2,NO3O, OCI44, RA226, RA228, TDS,TSS, VOC,BTEX,NAL,HEM+SVOC, XCR (Total)

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 #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	LAB USE ONLY
	Ann Allison Lse. Wld. Co. Colo.		7-10-14	8:AM	ET.ASA												01
																	TD-02
																	7/10/14
																	7/10/14

Turnaround Time (Business days)
- [ ] 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

Approved By (Accutest PM): / Date:

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
List No3, No2 Sep.
all AR-to Metal List

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]	10:15 AM 7-10-14	1 [signature] 7/10/14 1015	2		2
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 ☒ T186	On Ice ☒ Cooler Temp. 1.0

D59594X: Chain of Custody
Page 1 of 1

Mountain States ACCUTEST LABORATORIES

08/06/14

Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D60036

Sampling Date: 07/23/14

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: **40**

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)

Table of Contents

Sections: 1 2 3 4 5 6 7 8 9

Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Job No: D60036

Ann Allison Lease

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D60036-1	07/23/14	08:00	ET	07/23/14	AQ	Water	ANN ALLISON LSE. WASH CO COLO
D60036-1A	07/23/14	08:00	ET	07/23/14	AQ	Water	ANN ALLISON LSE. WASH CO COLO

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Ritchie Exploration, Inc. **Job No** D60036

Site: Ann Allison Lease **Report Date** 8/6/2014 11:05:39 AM

On 07/23/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 0.9 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D60036 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:** V6V1481

- All samples were analyzed within the recommended method holding time.
- Sample(s) D60013-1MS, D60013-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D60036-1: 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:** OP10303

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D59888-13MS 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:** MP13526

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60036-1AMS, D60036-1AMSD, D60036-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Antimony, Cadmium, Chromium, Copper, Nickel, Zinc are outside control limits for sample MP13526-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method EPA 1664A

Matrix AQ **Batch ID:** GP13188

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60036-1MS were used as the QC samples for the HEM Oil and Grease analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP13115

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59997-1MS, D59997-1MSD were used as the QC samples for the Nitrogen, Nitrate, Nitrogen, Nitrite, Nitrogen, Nitrate analysis.
- D60036-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix AQ **Batch ID:** GN25761

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59997-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 2540D-2011

Matrix AQ **Batch ID:** GN25762

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60069-1DUP were used as the QC samples for the Solids, Total Suspended analysis.

Wet Chemistry By Method SM 3500CR B-2011

Matrix AQ **Batch ID:** GN25711

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59882-1FDUP, D59994-1AMS, D59994-1AMSD were used as the QC samples for the Chromium, Hexavalent analysis.
- D60036-1A for Chromium, Hexavalent: Sample preserved within 24hrs. to extend the hold time.

Wet Chemistry By Method SM 4500CN N-2011

Matrix AQ **Batch ID:** GP13206

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60062-2MS 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:** R22848

- The data for SW846 6010C/7196A M meets quality control requirements.
- D60036-1A 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: D60036
Account: Ritchie Exploration, Inc.
Project: Ann Allison Lease
Collected: 07/23/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D60036-1	ANN ALLISON LSE. WASH CO COLO					
Benzene [a]		0.0032	0.0010	0.00025	mg/l	EPA 624
Toluene [a]		0.0029	0.0020	0.0010	mg/l	EPA 624
Ethylbenzene [a]		0.0031	0.0020	0.00031	mg/l	EPA 624
Xylene (total) [a]		0.0158	0.0030	0.0015	mg/l	EPA 624
Naphthalene [a]		0.0033 J	0.0050	0.0020	mg/l	EPA 624
HEM Oil and Grease		11.6	4.8		mg/l	EPA 1664A
Nitrogen, Nitrate		0.16	0.050		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		2610	10		mg/l	SM 2540C-2011
Solids, Total Suspended		9.0	5.0		mg/l	SM 2540D-2011
D60036-1A	ANN ALLISON LSE. WASH CO COLO					
Boron		2680	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:	D60036-1	Date Sampled:	07/23/14
Matrix:	AQ - Water	Date Received:	07/23/14
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]	6V26228.D	1	07/25/14	BR	n/a	n/a	V6V1481
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	0.0032	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.0029	0.0020	0.0010	mg/l	
100-41-4	Ethylbenzene	0.0031	0.0020	0.00031	mg/l	
1330-20-7	Xylene (total)	0.0158	0.0030	0.0015	mg/l	
91-20-3	Naphthalene	0.0033	0.0050	0.0020	mg/l	J
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	120%		70-130%
17060-07-0	1,2-Dichloroethane-D4	111%		70-130%
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	98%		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:	D60036-1	Date Sampled:	07/23/14
Matrix:	AQ - Water	Date Received:	07/23/14
Method:	EPA 625 EPA 625	Percent Solids:	n/a
Project:	Ann Allison Lease		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G120622.D	1	07/24/14	DC	07/24/14	OP10303	E1G1376
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

625 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.0047	0.00050	mg/l	
108-95-2	Phenol	ND	0.0047	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	60%		10-120%
4165-62-2	Phenol-d5	41%		9-120%
118-79-6	2,4,6-Tribromophenol	94%		19-125%
4165-60-0	Nitrobenzene-d5	74%		35-120%
321-60-8	2-Fluorobiphenyl	84%		35-120%
1718-51-0	Terphenyl-d14	90%		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:	D60036-1	Date Sampled:	07/23/14
Matrix:	AQ - Water	Date Received:	07/23/14
		Percent Solids:	n/a
Project:	Ann Allison Lease		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
HEM Oil and Grease	11.6	4.8	mg/l	1	08/05/14	SWT	EPA 1664A
Nitrogen, Nitrate	0.16	0.050	mg/l	5	07/23/14 16:46	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	<0.020	0.020	mg/l	5	07/23/14 16:46	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	2610	10	mg/l	1	07/29/14	JD	SM 2540C-2011
Solids, Total Suspended	9.0	5.0	mg/l	1	07/29/14	BF	SM 2540D-2011
Weak Acid Dissociable Cn	<0.0050	0.0050	mg/l	1	08/05/14 14:50	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:	D60036-1A	Date Sampled:	07/23/14
Matrix:	AQ - Water	Date Received:	07/23/14
		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	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 25	25	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Beryllium	< 10	10	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Boron	2680	50	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 10	10	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	07/25/14	07/29/14	KV	SW846 6010C [2]	SW846 3010A [3]
Lead	< 50	50	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Nickel	< 30	30	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Selenium	< 50	50	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]
Zinc	< 30	30	ug/l	1	07/25/14	07/28/14	KV	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA5029
(2) Instrument QC Batch: MA5039
(3) Prep QC Batch: MP13526

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE. WASH CO COLO		
Lab Sample ID:	D60036-1A	Date Sampled:	07/23/14
Matrix:	AQ - Water	Date Received:	07/23/14
		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	07/24/14 08:40	JD	SM 3500CR B-2011
Chromium, Trivalent [b]	<0.020	0.020	mg/l	1	07/28/14 12:02	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

Received 09/03/2014

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

PAGE ___ OF ___

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D60036

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 Niernberger Jdwe@ritchie-exp.com / Also to palisadestech@gmail.com
Phone # / Fax #	316-691-9500 316-691-9850
Sampler(s) Name(s) / Phone #	ED Thomas 720-841-9850

Project Information

Project Name	Ann Allison Lse 2nd + 4th week Monthly
Street	
City	
Project#	
Client PO#	
Project Manager	

Billing Information (If different from Report to)

Company Name	
Street Address	
City / State / Zip	
Attention / PO#	

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	AB625SL	CNWAD	Metals	NO2 NO3O	OG1664	RA226	RA228	TDSTSS	V624BTXN, VMSTDDCE	XCR (Total)		LAB USE ONLY
	Ann Allison Lse. Wash. Co. Colo		7-23-14	8am	E.T.	AQ											X	X	Y	Y	X	X	Y	X	X	X		01
																												02 TB

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)

- [ ] 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

Approved By (Accutest PM): / Date:

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

List No2 No3 sep.
ADD RA to metal List

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]	7-23-14 12:40PM	1	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4 [signature] 12:40 7-23-14
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # ND	Intact / Not intact X	Preserved where applicable X / On Ice X / Cooler Temp. 0.9

D60036: Chain of Custody
Page 1 of 1

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: D60036
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1481-MB	6V26201A.D	1	07/24/14	BR	n/a	n/a	V6V1481

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

D60036-1

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	2.0	0.31	ug/l	
91-20-3	Naphthalene	ND	5.0	2.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.5	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	70-130%
17060-07-0	1,2-Dichloroethane-D4	117%	70-130%
2037-26-5	Toluene-D8	99%	70-130%
460-00-4	4-Bromofluorobenzene	96%	70-130%

Blank Spike Summary

Job Number: D60036
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1481-BS	6V26216.D	1	07/24/14	BR	n/a	n/a	V6V1481

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

D60036-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	17.9	90	70-130
107-06-2	1,2-Dichloroethane	20	19.4	97	70-130
100-41-4	Ethylbenzene	20	17.8	89	70-130
91-20-3	Naphthalene	20	14.4	72	70-130
108-88-3	Toluene	20	18.3	92	70-130
1330-20-7	Xylene (total)	60	53.6	89	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	109%	70-130%
17060-07-0	1,2-Dichloroethane-D4	103%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	105%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D60036
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D60013-1MS	6V26222.D	10	07/25/14	BR	n/a	n/a	V6V1481
D60013-1MSD	6V26223.D	10	07/25/14	BR	n/a	n/a	V6V1481
D60013-1	6V26220.D	1	07/24/14	BR	n/a	n/a	V6V1481
D60013-1	6V26221.D	10	07/24/14	BR	n/a	n/a	V6V1481

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

D60036-1

CAS No.	Compound	D60013-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		200	183	92	200	200	100	9	70-130/30
107-06-2	1,2-Dichloroethane	ND		200	222	111	200	235	118	6	70-130/30
100-41-4	Ethylbenzene	ND		200	186	93	200	198	99	6	70-130/30
91-20-3	Naphthalene	ND		200	137	69	200	150	75	9	57-130/30
108-88-3	Toluene	ND		200	186	93	200	203	102	9	70-130/30
1330-20-7	Xylene (total)	ND		600	562	94	600	607	101	8	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D60013-1	D60013-1	Limits
1868-53-7	Dibromofluoromethane	119%	117%	120%	123%	70-130%
17060-07-0	1,2-Dichloroethane-D4	110%	108%	117%	116%	70-130%
2037-26-5	Toluene-D8	99%	103%	95%	96%	70-130%
460-00-4	4-Bromofluorobenzene	107%	106%	89%	91%	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: D60036
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10303-MB	1G120616.D	1	07/24/14	DC	07/24/14	OP10303	E1G1376

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

D60036-1

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	51%	10-120%
4165-62-2	Phenol-d5	36%	9-120%
118-79-6	2,4,6-Tribromophenol	76%	19-125%
4165-60-0	Nitrobenzene-d5	61%	35-120%
321-60-8	2-Fluorobiphenyl	79%	35-120%
1718-51-0	Terphenyl-d14	91%	32-122%

Blank Spike Summary

Job Number: D60036
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10303-BS	1G120617.D	1	07/24/14	DC	07/24/14	OP10303	E1G1376

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

D60036-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
105-67-9	2,4-Dimethylphenol	50	36.4	73	61-120
108-95-2	Phenol	50	18.5	37	24-120

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	51%	10-120%
4165-62-2	Phenol-d5	30%	9-120%
118-79-6	2,4,6-Tribromophenol	87%	19-125%
4165-60-0	Nitrobenzene-d5	73%	35-120%
321-60-8	2-Fluorobiphenyl	80%	35-120%
1718-51-0	Terphenyl-d14	77%	32-122%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D60036
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10303-MS	1G120619.D	1	07/24/14	DC	07/24/14	OP10303	E1G1376
D59888-13	1G120618.D	1	07/24/14	DC	07/24/14	OP10303	E1G1376

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

D60036-1

CAS No.	Compound	D59888-13 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
105-67-9	2,4-Dimethylphenol	ND		50	32.9	66	10-120
108-95-2	Phenol	ND		50	20.8	42	16-120

CAS No.	Surrogate Recoveries	MS	D59888-13	Limits
367-12-4	2-Fluorophenol	41%	38%	10-120%
4165-62-2	Phenol-d5	34%	31%	9-120%
118-79-6	2,4,6-Tribromophenol	68%	53%	19-125%
4165-60-0	Nitrobenzene-d5	91%	70%	35-120%
321-60-8	2-Fluorobiphenyl	99%	85%	35-120%
1718-51-0	Terphenyl-d14	85%	98%	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: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	41		
Antimony	30	2.1	19	0.50	<30
Arsenic	25	3.8	5.6	-1.1	<25
Barium	10	.2	1.4		
Beryllium	10	.9	1.2	0.10	<10
Boron	50	.8	6.6	-5.7	<50
Cadmium	10	.2	.36	0.20	<10
Calcium	400	2.4	41		
Chromium	10	.3	.4	-0.10	<10
Cobalt	5.0	.5	.57		
Copper	10	.8	1.9	-0.50	<10
Iron	70	1.5	9.5		
Lead	50	2.1	21	0.30	<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	0.30	<30
Phosphorus	100	15	20		
Potassium	1000	99	270		
Selenium	50	7.1	11	-0.10	<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	1.4	<30

Associated samples MP13526: D60036-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	D60036-1A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	2.7	474	500	94.2	75-125
Arsenic	0.0	1120	1000	112.0	75-125
Barium	anr				
Beryllium	0.0	484	500	96.8	75-125
Boron	2680	3750	1000	107.0	75-125
Cadmium	0.30	528	500	105.5	75-125
Calcium	anr				
Chromium	0.50	503	500	100.5	75-125
Cobalt	anr				
Copper	4.1	571	500	113.4	75-125
Iron	anr				
Lead	0.0	1000	1000	100.0	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	0.80	478	500	95.4	75-125
Phosphorus					
Potassium	anr				
Selenium	0.0	1130	1000	113.0	75-125
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	3.6	547	500	108.7	75-125

Associated samples MP13526: D60036-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	D60036-1A Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	D60036-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	2.7	478	500	95.0	0.8	20
Arsenic	0.0	1140	1000	114.0	1.8	20
Barium	anr					
Beryllium	0.0	491	500	98.2	1.4	20
Boron	2680	3700	1000	102.0	1.3	20
Cadmium	0.30	530	500	105.9	0.4	20
Calcium	anr					
Chromium	0.50	508	500	101.5	1.0	20
Cobalt	anr					
Copper	4.1	575	500	114.2	0.7	20
Iron	anr					
Lead	0.0	1010	1000	101.0	1.0	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	0.80	484	500	96.6	1.2	20
Phosphorus						
Potassium	anr					
Selenium	0.0	1140	1000	114.0	0.9	20
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	3.6	554	500	110.1	1.3	20

Associated samples MP13526: D60036-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	D60036-1A Original MSD	Spikelot ICPALL2 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2

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SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	493	1000	98.6	80-120
Arsenic	1100	1000	110.0	80-120
Barium	anr			
Beryllium	501	500	100.2	80-120
Boron	1020	1000	102.0	80-120
Cadmium	518	500	103.6	80-120
Calcium	anr			
Chromium	518	500	103.6	80-120
Cobalt	anr			
Copper	484	500	96.8	80-120
Iron	anr			
Lead	1040	1000	104.0	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	493	500	98.6	80-120
Phosphorus				
Potassium	anr			
Selenium	1130	1000	113.0	80-120
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	526	500	105.2	80-120

Associated samples MP13526: D60036-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	D60036-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	2.70	0.00	100.0(a)	0-10
Arsenic	0.00	0.00	NC	0-10
Barium	anr			
Beryllium	0.00	0.00	NC	0-10
Boron	2680	2630	1.8	0-10
Cadmium	0.300	0.00	100.0(a)	0-10
Calcium	anr			
Chromium	0.500	0.00	100.0(a)	0-10
Cobalt	anr			
Copper	4.10	0.00	100.0(a)	0-10
Iron	anr			
Lead	0.00	13.5	NC	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	0.800	4.50	462.5(a)	0-10
Phosphorus				
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	3.60	3.00	16.7 (a)	0-10

Associated samples MP13526: D60036-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13526
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/25/14

Metal	D60036-1A Original SDL 1:5	%DIF	QC Limits

(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

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: D60036
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	GP13115/GN25708	0.050	0.0	mg/l	0.5	0.522	104.4	90-110%
Chloride	GP13115/GN25708	0.50	0.0	mg/l	5	4.99	99.8	90-110%
Chromium, Hexavalent	GN25711	0.010	0.0	mg/l	0.1	0.10	102.0	90-110%
Fluoride	GP13115/GN25708	0.10	0.0	mg/l	1	0.998	99.8	90-110%
HEM Oil and Grease	GP13188/GN25826	5.0	0.0	mg/l	40	33.1	82.8	78-114%
Nitrogen, Nitrate	GP13115/GN25708	0.010	0.0	mg/l	0.1	0.103	103.0	90-110%
Nitrogen, Nitrite	GP13115/GN25708	0.0040	0.0	mg/l	0.05	0.0503	100.6	90-110%
Phosphate, Ortho	GP13115/GN25708	0.050	0.0	mg/l	0.5	0.512	102.4	90-110%
Solids, Total Dissolved	GN25761	10	0.0	mg/l	400	399	99.8	90-110%
Solids, Total Suspended	GN25762	5.0	0.0	mg/l	300	288	96.0	90-110%
Sulfate	GP13115/GN25708	0.50	0.0	mg/l	5	4.96	99.2	90-110%
Weak Acid Dissociable Cn	GP13206/GN25862	0.0050	0.0	mg/l	0.1	0.103	103.0	90-110%

Associated Samples:
Batch GN25711: D60036-1A
Batch GN25761: D60036-1
Batch GN25762: D60036-1
Batch GP13115: D60036-1
Batch GP13188: D60036-1
Batch GP13206: D60036-1
(*) Outside of QC limits

9.1
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BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP13188/GN25826	mg/l	40	34.6	4.4	20%

Associated Samples:
Batch GP13188: D60036-1
(*) Outside of QC limits

9.2
9

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60036
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN25711	D59882-1F	mg/l	0.028	0.028	0.0	0-20%
Solids, Total Dissolved	GN25761	D59997-1	mg/l	568	584	2.8	0-20%
Solids, Total Suspended	GN25762	D60069-1	mg/l	56.7	60.0	5.7	0-20%

Associated Samples:
Batch GN25711: D60036-1A
Batch GN25761: D60036-1
Batch GN25762: D60036-1
(*) Outside of QC limits

9.3
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MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60036
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	GP13115/GN25708	D59997-1	mg/l	0.0	2.5	2.7	108.0	80-120%
Bromide	GP13115/GN25708	D59997-1	mg/l	0.0	2.5	2.7	108.0	80-120%
Chloride	GP13115/GN25708	D59997-1	mg/l	108	250	364	102.4	80-120%
Chloride	GP13115/GN25708	D59997-1	mg/l	106	250	364	102.4	80-120%
Chromium, Hexavalent	GN25711	D59994-1A	mg/l	0.0	0.1	0.098	97.0	85-115%
Fluoride	GP13115/GN25708	D59997-1	mg/l	0.0	5	5.6	101.0	80-120%
Fluoride	GP13115/GN25708	D59997-1	mg/l	0.55	5	5.6	101.0	80-120%
HEM Oil and Grease	GP13188/GN25826	D60036-1	mg/l	11.6	40	47.2	89.0	78-114%
Nitrogen, Nitrate	GP13115/GN25708	D59997-1	mg/l	15.3	5	20.2	114.0	80-120%
Nitrogen, Nitrate	GP13115/GN25708	D59997-1	mg/l	14.5	5	20.2	114.0	80-120%
Nitrogen, Nitrite	GP13115/GN25708	D59997-1	mg/l	0.85	0.25	1.1	100.0	80-120%
Nitrogen, Nitrite	GP13115/GN25708	D59997-1	mg/l	0.71	0.25	1.1	100.0	80-120%
Phosphate, Ortho	GP13115/GN25708	D59997-1	mg/l	5.0	2.5	7.8	112.0	80-120%
Sulfate	GP13115/GN25708	D59997-1	mg/l	94.3	25	118	103.6	80-120%
Sulfate	GP13115/GN25708	D59997-1	mg/l	92.1	25	118	103.6	80-120%
Weak Acid Dissociable Cn	GP13206/GN25862	D60062-2	mg/l	0.0	0.1	0.098	98.0	80-120%

Associated Samples:
Batch GN25711: D60036-1A
Batch GP13115: D60036-1
Batch GP13188: D60036-1
Batch GP13206: D60036-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60036
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	GP13115/GN25708	D59997-1	mg/l	0.0	2.5	2.7	0.0	20%
Bromide	GP13115/GN25708	D59997-1	mg/l	0.0	2.5	2.7	0.0	20%
Chloride	GP13115/GN25708	D59997-1	mg/l	108	250	368	1.1	20%
Chloride	GP13115/GN25708	D59997-1	mg/l	106	250	368	1.1	20%
Chromium, Hexavalent	GN25711	D59994-1A	mg/l	0.0	0.1	0.091	7.4	20%
Fluoride	GP13115/GN25708	D59997-1	mg/l	0.0	5	5.5	1.8	20%
Fluoride	GP13115/GN25708	D59997-1	mg/l	0.55	5	5.5	1.8	20%
Nitrogen, Nitrate	GP13115/GN25708	D59997-1	mg/l	14.5	5	19.5	3.5	20%
Nitrogen, Nitrate	GP13115/GN25708	D59997-1	mg/l	15.3	5	19.5	3.5	20%
Nitrogen, Nitrite	GP13115/GN25708	D59997-1	mg/l	0.85	0.25	1.1	0.0	20%
Nitrogen, Nitrite	GP13115/GN25708	D59997-1	mg/l	0.71	0.25	1.1	0.0	20%
Phosphate, Ortho	GP13115/GN25708	D59997-1	mg/l	5.0	2.5	7.6	6.4	20%
Sulfate	GP13115/GN25708	D59997-1	mg/l	92.1	25	118	0.0	20%
Sulfate	GP13115/GN25708	D59997-1	mg/l	94.3	25	118	0.0	20%

Associated Samples:
Batch GN25711: D60036-1A
Batch GP13115: D60036-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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Mountain States ACCUTEST LABORATORIES

07/24/14

Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D59594

Sampling Date: 07/10/14

Report to:

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ATTN: John Niernberger

Total number of pages in report: **40**

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)

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Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Job No: D59594

Ann Allison Lease

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D59594-1	07/10/14	08:00	ET	07/10/14	AQ	Water	ANN ALLISON LSE WASH CO. COLO.
D59594-1A	07/10/14	08:00	ET	07/10/14	AQ	Water	ANN ALLISON LSE WASH CO. COLO.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Ritchie Exploration, Inc. **Job No** D59594

Site: Ann Allison Lease **Report Date** 7/24/2014 4:27:05 PM

On 07/10/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D59594 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:** V6V1468

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59639-1MS, D59655-1DUP were used as the QC samples indicated.
- The blank spike (BS) recovery(s) of Naphthalene are outside control limits.
- D59594-1: 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:** OP10221

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59273-31MS were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP13401

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59594-1AMS, D59594-1AMSD, D59594-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Antimony, Arsenic, Chromium, Lead, Nickel are outside control limits for sample MP13401-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method EPA 1664A

Matrix AQ **Batch ID:** GP13120

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59594-1MS were used as the QC samples for the HEM Oil and Grease analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP13015

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59610-6MS, D59610-6MSD were used as the QC samples for the Nitrogen, Nitrate, Nitrogen, Nitrite, Nitrogen, Nitrate analysis.
- D59594-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix AQ **Batch ID:** GN25531

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59594-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 2540D-2011

Matrix AQ **Batch ID:** GN25608

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59697-2DUP were used as the QC samples for the Solids, Total Suspended analysis.

Wet Chemistry By Method SM 3500CR B-2011

Matrix AQ **Batch ID:** GN25625

- All method blanks for this batch meet method specific criteria.
- Sample(s) D59639-1FDUP, D59639-1FMS, GN25625-S3MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The following samples were preserved within 24hrs. to extend the hold time for method SM 3500CR B-2011: D59594-1A

Wet Chemistry By Method SM 4500CN N-2011

Matrix AQ **Batch ID:** GP13088

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59596-1MS 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:** R22711

- The data for SW846 6010C/7196A M meets quality control requirements.
- D59594-1A 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: D59594
Account: Ritchie Exploration, Inc.
Project: Ann Allison Lease
Collected: 07/10/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D59594-1	ANN ALLISON LSE WASH CO. COLO.					
Nitrogen, Nitrate		0.19	0.10		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		3380	10		mg/l	SM 2540C-2011
Solids, Total Suspended		19.0	5.0		mg/l	SM 2540D-2011
D59594-1A	ANN ALLISON LSE WASH CO. COLO.					
Boron		3650	50		ug/l	SW846 6010C
Zinc		48.4	30		ug/l	SW846 6010C

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:	D59594-1	Date Sampled:	07/10/14
Matrix:	AQ - Water	Date Received:	07/10/14
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]	6V25967.D	1	07/15/14	BR	n/a	n/a	V6V1468
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	ND	0.0020	0.0010	mg/l	
100-41-4	Ethylbenzene	ND	0.0020	0.00031	mg/l	
1330-20-7	Xylene (total)	ND	0.0030	0.0015	mg/l	
91-20-3	Naphthalene	ND	0.0050	0.0020	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	127%		70-130%
17060-07-0	1,2-Dichloroethane-D4	123%		70-130%
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	90%		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:	D59594-1	Date Sampled:	07/10/14
Matrix:	AQ - Water	Date Received:	07/10/14
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	1G120454.D	1	07/11/14	DC	07/10/14	OP10221	E1G1366
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

625 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.0047	0.00050	mg/l	
108-95-2	Phenol	ND	0.0047	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%		10-120%
4165-62-2	Phenol-d5	36%		9-120%
118-79-6	2,4,6-Tribromophenol	91%		19-125%
4165-60-0	Nitrobenzene-d5	64%		35-120%
321-60-8	2-Fluorobiphenyl	77%		35-120%
1718-51-0	Terphenyl-d14	76%		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:	D59594-1	Date Sampled:	07/10/14
Matrix:	AQ - Water	Date Received:	07/10/14
		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	07/24/14	SWT	EPA 1664A
Nitrogen, Nitrate	0.19	0.10	mg/l	10	07/10/14 11:20	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 0.040	0.040	mg/l	10	07/10/14 11:20	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	3380	10	mg/l	1	07/14/14	AK	SM 2540C-2011
Solids, Total Suspended	19.0	5.0	mg/l	1	07/17/14	AK	SM 2540D-2011
Weak Acid Dissociable Cn	< 0.0050	0.0050	mg/l	1	07/21/14 14:18	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:	D59594-1A	Date Sampled:	07/10/14
Matrix:	AQ - Water	Date Received:	07/10/14
		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	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 25	25	ug/l	1	07/11/14	07/14/14	KV	SW846 6010C [2]	SW846 3010A [3]
Beryllium	< 10	10	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Boron	3650	50	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 10	10	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	07/11/14	07/14/14	KV	SW846 6010C [2]	SW846 3010A [3]
Lead	< 50	50	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Nickel	< 30	30	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Selenium	< 50	50	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]
Zinc	48.4	30	ug/l	1	07/11/14	07/11/14	KV	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA4983
(2) Instrument QC Batch: MA4985
(3) Prep QC Batch: MP13401

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	ANN ALLISON LSE WASH CO. COLO.		
Lab Sample ID:	D59594-1A	Date Sampled:	07/10/14
Matrix:	AQ - Water	Date Received:	07/10/14
		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	07/17/14 09:00	BF	SM 3500CR B-2011
Chromium, Trivalent [b]	< 0.020	0.020	mg/l	1	07/17/14 09:00	BF	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 # D59594

Client / Reporting Information

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

Project Information

Project Name: Ann Allison Lse. 1st Bi-Weekly July
Street:
City:
Project#: Alreats
Client PO#:
Project Manager:

Billing Information (If different from Report to)
Company Name:
Street Address:
City / State / Zip:
Attention: PO#

Requested Analysis (see TEST CODE sheet): ABL255L, CN(AD), Metals, NO2,NO3O, OGI(4A), RA226, RA228, TDS,TSS, VL624RTXN/XMS+1,2DA, XCR (Total)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	LAB USE ONLY
	Ann Allison Lse. Wld. Co. Colo.		7-10-14	8:AM	ET.	AQ											01
																	TD-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

Lab use notes: 7/10/14; in 7/10/14

Turnaround Time (Business days)
- [ ] 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 Loblink

Approved By (Accutest PM): / Date:

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
List No3, No2 Sep.
add AR-to Metal List

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]	10:15 AM 7-10-14	1 [signature] 7/10/14 1015	2		2
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 ☒ T186 Cooler Temp. 1.0

5.1 5

D59594: Chain of Custody
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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: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1468-MB	6V25955.D	1	07/14/14	BR	n/a	n/a	V6V1468

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

D59594-1

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	2.0	0.31	ug/l	
91-20-3	Naphthalene	ND	5.0	2.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.5	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	114%	70-130%
17060-07-0	1,2-Dichloroethane-D4	115%	70-130%
2037-26-5	Toluene-D8	99%	70-130%
460-00-4	4-Bromofluorobenzene	96%	70-130%

Blank Spike Summary

Job Number: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1468-BS	6V25954.D	1	07/14/14	BR	n/a	n/a	V6V1468

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

D59594-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	18.6	93	70-130
107-06-2	1,2-Dichloroethane	20	20.3	102	70-130
100-41-4	Ethylbenzene	20	17.7	89	70-130
91-20-3	Naphthalene	20	13.8	69* [a]	70-130
108-88-3	Toluene	20	18.3	92	70-130
1330-20-7	Xylene (total)	60	53.6	89	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	111%	70-130%
17060-07-0	1,2-Dichloroethane-D4	109%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	106%	70-130%

(a) Outside control limits on the BS; within control limits in the MS. No further action is required.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59639-1MS	6V25960.D	1	07/14/14	BR	n/a	n/a	V6V1468
D59639-1	6V25959.D	1	07/14/14	BR	n/a	n/a	V6V1468

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

D59594-1

CAS No.	Compound	D59639-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	ND		20	21.9	110	70-130
107-06-2	1,2-Dichloroethane	ND		20	24.1	121	70-130
100-41-4	Ethylbenzene	ND		20	21.1	106	70-130
91-20-3	Naphthalene	ND		20	14.7	74	57-130
108-88-3	Toluene	ND		20	21.8	109	70-130
1330-20-7	Xylene (total)	ND		60	63.7	106	70-130

CAS No.	Surrogate Recoveries	MS	D59639-1	Limits
1868-53-7	Dibromofluoromethane	114%	112%	70-130%
17060-07-0	1,2-Dichloroethane-D4	111%	107%	70-130%
2037-26-5	Toluene-D8	104%	97%	70-130%
460-00-4	4-Bromofluorobenzene	106%	89%	70-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59655-1DUP	6V25969.D	1	07/15/14	BR	n/a	n/a	V6V1468
D59655-1	6V25968.D	1	07/15/14	BR	n/a	n/a	V6V1468

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

D59594-1

CAS No.	Compound	D59655-1 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	D59655-1	Limits
1868-53-7	Dibromofluoromethane	128%	126%	70-130%
17060-07-0	1,2-Dichloroethane-D4	122%	121%	70-130%
2037-26-5	Toluene-D8	98%	96%	70-130%
460-00-4	4-Bromofluorobenzene	88%	89%	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: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10221-MB	1G120449.D	1	07/11/14	DC	07/10/14	OP10221	E1G1366

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

D59594-1

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	52%	10-120%
4165-62-2	Phenol-d5	40%	9-120%
118-79-6	2,4,6-Tribromophenol	90%	19-125%
4165-60-0	Nitrobenzene-d5	77%	35-120%
321-60-8	2-Fluorobiphenyl	80%	35-120%
1718-51-0	Terphenyl-d14	104%	32-122%

Blank Spike Summary

Job Number: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10221-BS	1G120450.D	1	07/11/14	DC	07/10/14	OP10221	E1G1366

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

D59594-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
105-67-9	2,4-Dimethylphenol	50	38.8	78	61-120
108-95-2	Phenol	50	15.8	32	24-120

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	58%	10-120%
4165-62-2	Phenol-d5	40%	9-120%
118-79-6	2,4,6-Tribromophenol	94%	19-125%
4165-60-0	Nitrobenzene-d5	83%	35-120%
321-60-8	2-Fluorobiphenyl	83%	35-120%
1718-51-0	Terphenyl-d14	91%	32-122%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D59594
Account: RITEKSW Ritchie Exploration, Inc.
Project: Ann Allison Lease

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10221-MS	1G120452.D	1	07/11/14	DC	07/10/14	OP10221	E1G1366
D59273-31	1G120451.D	1	07/11/14	DC	07/10/14	OP10221	E1G1366

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

D59594-1

CAS No.	Compound	D59273-31 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
105-67-9	2,4-Dimethylphenol	ND		50	22.0	44	10-120
108-95-2	Phenol	ND		50	15.8	32	16-120

CAS No.	Surrogate Recoveries	MS	D59273-31	Limits
367-12-4	2-Fluorophenol	34%	35%	10-120%
4165-62-2	Phenol-d5	36%	30%	9-120%
118-79-6	2,4,6-Tribromophenol	62%	50%	19-125%
4165-60-0	Nitrobenzene-d5	93%	67%	35-120%
321-60-8	2-Fluorobiphenyl	90%	71%	35-120%
1718-51-0	Terphenyl-d14	101%	98%	32-122%

7.3.1

7

* = 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: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	41		
Antimony	30	2.1	19	1.4	<30
Arsenic	25	3.8	5.6	0.90	<25
Barium	10	.2	1.4		
Beryllium	10	.9	1.2	0.30	<10
Boron	50	.8	6.6	1.5	<50
Cadmium	10	.2	.36	0.0	<10
Calcium	400	2.4	41		
Chromium	10	.3	.4	-0.10	<10
Cobalt	5.0	.5	.57		
Copper	10	.8	1.9	-0.60	<10
Iron	70	1.5	9.5		
Lead	50	2.1	21	1.5	<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	0.20	<30
Phosphorus	100	15	20		
Potassium	1000	99	270		
Selenium	50	7.1	11	-1.1	<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	1.7	<30

Associated samples MP13401: D59594-1A

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	D59594-1A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	2.3	490	1000	97.6	75-125
Arsenic	13.2	1200	1000	115.4	75-125
Barium	anr				
Beryllium	0.0	564	500	112.8	75-125
Boron	3650	4770	1000	112.0	75-125
Cadmium	0.0	555	500	111.0	75-125
Calcium	anr				
Chromium	1.9	517	500	103.0	75-125
Cobalt					
Copper	7.3	534	500	106.8	75-125
Iron					
Lead	2.5	1030	1000	102.8	75-125
Lithium					
Magnesium	anr				
Manganese					
Molybdenum	anr				
Nickel	3.6	507	500	100.7	75-125
Phosphorus					
Potassium					
Selenium	0.0	1220	1000	122.0	75-125
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	48.4	624	500	115.1	75-125

Associated samples MP13401: D59594-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	D59594-1A Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	D59594-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	2.3	483	1000	96.2	1.4	20
Arsenic	13.2	1190	1000	114.4	3.3	20
Barium	anr					
Beryllium	0.0	557	500	111.4	1.2	20
Boron	3650	4660	1000	101.0	2.3	20
Cadmium	0.0	547	500	109.4	1.5	20
Calcium	anr					
Chromium	1.9	506	500	100.8	2.2	20
Cobalt						
Copper	7.3	530	500	106.0	6.0	20
Iron						
Lead	2.5	1020	1000	101.8	1.0	20
Lithium						
Magnesium	anr					
Manganese						
Molybdenum	anr					
Nickel	3.6	498	500	98.9	1.8	20
Phosphorus						
Potassium						
Selenium	0.0	1200	1000	120.0	1.7	20
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	48.4	611	500	112.5	2.1	20

Associated samples MP13401: D59594-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	D59594-1A Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2
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SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	486	1000	97.2	80-120
Arsenic	1110	1000	111.0	80-120
Barium	anr			
Beryllium	578	500	115.6	80-120
Boron	1100	1000	110.0	80-120
Cadmium	517	500	103.4	80-120
Calcium	anr			
Chromium	518	500	103.6	80-120
Cobalt				
Copper	481	500	96.2	80-120
Iron				
Lead	1050	1000	105.0	80-120
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	510	500	102.0	80-120
Phosphorus				
Potassium				
Selenium	1170	1000	117.0	80-120
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	583	500	116.6	80-120

Associated samples MP13401: D59594-1A

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	D59594-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	2.30	0.00	100.0(a)	0-10
Arsenic	13.2	34.0	26.1 (a)	0-10
Barium	anr			
Beryllium	0.00	0.00	NC	0-10
Boron	3650	3590	1.6	0-10
Cadmium	0.00	0.00	NC	0-10
Calcium	anr			
Chromium	1.90	0.00	100.0(a)	0-10
Cobalt				
Copper	7.30	10.0	NC	0-10
Iron				
Lead	2.50	16.5	560.0(a)	0-10
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	3.60	5.50	52.8 (a)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	48.4	51.0	5.4	0-10

Associated samples MP13401: D59594-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

QC Batch ID: MP13401
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/11/14

Metal	D59594-1A Original	SDL 1:5	%DIF	QC Limits

(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

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: D59594
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	GP13015/GN25507			mg/l	0.5	0.525	105.0	90-110%
Chloride	GP13015/GN25507	0.50	0.0	mg/l	5	4.96	99.2	90-110%
Chromium, Hexavalent	GN25625	0.010	0.0	mg/l				
Chromium, Hexavalent	GN25625	0.010	0.0	mg/l	0.1	0.10	101.4	90-110%
Chromium, Hexavalent	GN25625			mg/l	0.1	0.098	98.2	90-110%
HEM Oil and Grease	GP13120/GN25713	5.0	0.0	mg/l	40	35.2	88.0	78-114%
Nitrogen, Nitrate	GP13015/GN25507	0.010	0.0	mg/l	0.1	0.102	102.0	90-110%
Nitrogen, Nitrite	GP13015/GN25507	0.0040	0.0	mg/l	0.05	0.0510	102.0	90-110%
Solids, Total Dissolved	GN25531	10	0.0	mg/l	400	418	104.5	90-110%
Solids, Total Suspended	GN25608	5.0	0.0	mg/l	300	301	100.3	90-110%
Sulfate	GP13015/GN25507	0.50	0.0	mg/l	5	5.10	102.0	90-110%
Weak Acid Dissociable Cn	GP13088/GN25655	0.0050	0.0	mg/l	0.1	0.0976	97.6	90-110%

Associated Samples:
Batch GN25531: D59594-1
Batch GN25608: D59594-1
Batch GN25625: D59594-1A
Batch GP13015: D59594-1
Batch GP13088: D59594-1
Batch GP13120: D59594-1
(*) Outside of QC limits

9.1
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BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP13120/GN25713	mg/l	40	33.8	4.1	20%

Associated Samples:
Batch GP13120: D59594-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59594
Account: RITEKSW - Ritchie Exploration, Inc.
Project: Ann Allison Lease

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN25625	D59639-1F	mg/l	0.013	0.012	8.0	0-20%
Solids, Total Dissolved	GN25531	D59594-1	mg/l	3380	3360	0.6	0-20%
Solids, Total Suspended	GN25608	D59697-2	mg/l	118	118	0.0	0-20%

Associated Samples:
Batch GN25531: D59594-1
Batch GN25608: D59594-1
Batch GN25625: D59594-1A
(*) Outside of QC limits

9.3
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MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59594
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	GP13015/GN25507	D59610-6	mg/l	0.0	0.5	0.56	112.0	80-120%
Chloride	GP13015/GN25507	D59610-6	mg/l	1.6	5	6.5	98.0	80-120%
Chromium, Hexavalent	GN25625	D59639-1F	mg/l	0.013	0.1	0.11	94.0	85-115%
HEM Oil and Grease	GP13120/GN25713	D59594-1	mg/l	3.3	40	42.5	97.9	78-114%
Nitrogen, Nitrate	GP13015/GN25507	D59610-6	mg/l	0.23	0.1	0.33	100.0	80-120%
Nitrogen, Nitrite	GP13015/GN25507	D59610-6	mg/l	0.0	0.05	0.053	106.0	80-120%
Sulfate	GP13015/GN25507	D59610-6	mg/l	8.2	5	13.4	104.0	80-120%
Weak Acid Dissociable Cn	GP13088/GN25655	D59596-1	mg/l	0.0	0.1	0.10	100.0	80-120%

Associated Samples:
Batch GN25625: D59594-1A
Batch GP13015: D59594-1
Batch GP13088: D59594-1
Batch GP13120: D59594-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

9.4
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MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59594
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	GP13015/GN25507	D59610-6	mg/l	0.0	0.5	0.55	1.8	20%
Chloride	GP13015/GN25507	D59610-6	mg/l	1.6	5	6.5	0.0	20%
Chromium, Hexavalent	GN25625	D59734-1	mg/l	0.0	0.1	0.097	-1.0	20%
Nitrogen, Nitrate	GP13015/GN25507	D59610-6	mg/l	0.23	0.1	0.33	0.0	20%
Nitrogen, Nitrite	GP13015/GN25507	D59610-6	mg/l	0.0	0.05	0.053	0.0	20%
Sulfate	GP13015/GN25507	D59610-6	mg/l	8.2	5	13.4	0.0	20%

Associated Samples:
Batch GN25625: D59594-1A
Batch GP13015: D59594-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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Mountain States ACCUTEST LABORATORIES

Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D60036X

Sampling Date: 07/23/14

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 09/03/2014

Sections: 1 2 3

Table of Contents

Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Ann Allison Lease

Job No: D60036X

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
D60036-1X	07/23/14	08:00 ET	07/23/14	AQ	Water	ANN ALLISON LSE. WASH CO COLO

Received 09/03/2014

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	August 14, 2014
HRI PROJECT	009-93
HRI SERIES NO	G410/14
DATE REC'D.	7/24/2014
CUST. P.O.#	D60036X

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

REPORT OF ANALYSIS

SAMPLE NO. G410/14-1

SAMPLE IDENTIFICATION: D60036X-1 - Sampled 07/23/2014 @ 0800

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/l (T)	0.7(+-0.3)	0.1	SM 7500-Ra B	7/31/2014 @ 0920	LD
Radium-228 (+-Precision*), pCi/l (T)	0.6(+-0.6)	0.5	EPA Ra-05	8/5/2014 @ 0905	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

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 07/31/2014

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: $\frac{(44.1)(1.0) - (0.2)(1.0)}{46.0} \times 100 = 95$ %

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:

G375|14
G376|14
G377|14
G409|14
G410|14
G426|14
G425|14
G468|14
G471|14
G474|14
G486|14
G487|14

Evaluator: Karen Kruppala

8-6-14
Date

Received 09/03/2014

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 08/07/2014

Batch QC Evaluation Form

Analyte: Ra-228

Control Standard: ID: NBL 7A pCi/ml: 11.8 (use 2 ml diluted)

Spike Solution: ID: NBL 7A pCi/ml: 11.8 (use 2 ml)

Spike Recovery Calculation: Sample: TAP

Calculation: $\frac{(23.9)(1.0) - (0.0)(1.0)}{23.6} \times 100 = 101$ %

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:

G248/14
G442/14
G410/14
G496/14

Evaluator: Steven Knoppala

8-12-14
Date

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CHAIN OF CUSTODY

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

Accutest Job #:	D60036X
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information			Analytical Information
Name: Accutest Mountain States (AMS)			Name: Hazen (Radiological)			
Address: 4036 Youngfield St.			Address: 4601 Indiana Street			
City: Wheat Ridge,	State: CO	Zip: 80033	City: Golden	State: CO	Zip: 80403	
Send Report to: Scott Heideman			Contact: Sample Management			
Any questions contact: Renea Jackson						
Phone/Fax #: (303) 425-6021; (303)425-6854			Phone: (303) 279-4501			

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2So4	None	Radium 226/228					Comments
D60036X -1	7/23/14	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"
- [ ] Commercial "B"
- [ ] Commercial "BN"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] PDF
- [ ] Compact Disk Deliverable
- [ ] Electronic Delivery: _____
- [ ] State Forms
- [ ] 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	7-24-14	15:16	Diane Tipton	7-24-14
2				1516
3				

For Subcontract Laborartory Use Only

Seal #: Headspace: Yes [ ] No [ ] NA [ ]

Preserved where applicable: [ ]

Temperature °C _____ On Ice [ ]

Received 09/03/2014

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

PAGE ___ OF ___

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: D60036

Client / Reporting Information
Company Name: Ritchie Exploration Inc
Street Address: PO Box 783188
City: Wichita State: KS Zip: 67278-3188
Project Contact: John Nienberger E-mail: jnienberger@ritchie-exp.com / palisadestech@gmail.com
Phone #: 316-691-9500 Fax #: 316-691-9550
Sampler(s) Name(s): ED Thomas Phone #: 720-841-9550

Project Information
Project Name: Ann Allison Lse 2nd + 4th Week Monthly
Street:
City:
Project#: Also to
Client PO#:
Project Manager:

Billing Information (If different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention: PO#:

Requested Analysis (see TEST CODE sheet): ABL035L, CNWAD, Metals, NO2 NO3, OG1664, RA226, RA228, TDS TSS, V(624)BTXN VMSPDCO, ALK (Total)

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 #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	ABL035L	CNWAD	Metals	NO2 NO3	OG1664	RA226	RA228	TDS TSS	V(624)BTXN VMSPDCO	ALK (Total)	LAB USE ONLY
	Ann Allison Lse.		7-23-14	8am	E.T.	WW											X	X	X	X	X	X	X	X	X	X	01
	Wash. Co. Colo																										02 TB

Turnaround Time (Business days)
- [ ] 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

Approved By (Accutest PM): / Date:

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
List NO2 NO3 sep.
ADD AR to metal List

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]	7-23-14 12:40PM	1	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4 [signature] 12:40 7-23-14
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # HD	X Intact / Not intact	Preserved where applicable X / On Ice X / Cooler Temp. 0.9

D60036X: Chain of Custody
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