NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved OMB No. 2040-0004

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

VALUE ***** ***** ***** ***** ***** ****	****** ****** ****** ****** ******	UNITS ****** ****** ****** ******	* 7.89 6.5 MINIMUM ***** ****** ******	VALUE ****** 14 30 30DA AVG ****** ******	VALUE * 7.98 9 MAXIMUM 19 45 MX 7D AV < 0.020 Req. Mon. DAILY MX	SU SU mg/L mg/L mg/L mg/L	EX	Twice Per Month Twice Per Month Twice Per Month	GRAB GRAB
*****	****** ****** ****** ******	*****	6.5 MINIMUM ****** ******	14 30 30DA AVG ******	9 MAXIMUM 19 45 MX 7D AV <0.020 Req. Mon.	mg/L mg/L mg/L		Month Twice Per Month Twice Per	GRAB
*****	***** ***** ****** ******	******	MINIMUM ***** ****** ******	14 30 30DA AVG ******	MAXIMUM 19 45 MX 7D AV < 0 . 0 2 0 Req. Mon.	mg/L mg/L		Month Twice Per Month Twice Per	GRAB
*****	*****	*****	*****	30 30DA AVG ******	45 MX 7D AV < 0 . 0 2 0 Req. Mon.	mg/L		Month Twice Per	
*****	****	*****	*****	30DA AVG ******	MX 7D AV < 0 . 0 2 0 Req. Mon.	mg/L		Month Twice Per	
*****	*****	*****	*****	*****	Req. Mon.	L			GRAB
****	*****					mg/L			GRAB
		*****	****	*****				Month	
*****	*****				.19	mg/L		, i	
		*****	****	*****	Req. Mon. DAILY MX	mg/L		Twice Per Month	GRAB
****	*****	*****	*****	*****	<5	ug/L			
*****	****	*****	*****	*****	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
****	*****	****	*****	<25	*****	ug/L			
*****	*****	*****	*****	Req. Mon. 30DA AVG	*****	ug/L		Twice Per Month	GRAB
****	*****	****	*****	<50	<50	ug/L			
****	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon.	ug/L		Twice Per Month	GRAB
dance with a system des	signed to assure that qualifi	ied personnel properly	gather and	1			TEL	EPHONE	DATE
ti	***** ***** ***** ***** ***** *****	***** ***** ***** ***** ***** *****	***** ***** ***** ***** ***** *****	***** ***** ***** ***** ***** *****	****** ***** ***** ***** ***** ****	****** ***** ***** ****** Req. Mon. 30DA AVG ****** ***** ***** ***** ****** ******	****** ***** ***** ***** ****** ****** ****	****** ***** ***** ***** ***** ***** ****	****** ***** ***** ***** ***** ***** ****

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.

REVISED

TYPED OR PRINTED

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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						
MONITO	RING PERIOD					
MONITO MM/DD/YYYY	RING PERIOD MM/DD/YYYY					

DMR Mailing ZIP CODE:

67226-2328

MINOR

Unnamed tributary to Vega Creek tributary to South Plat

External Outfall

No Discharge

		QUAN	ITITY OR LOADII	NG		QUALITY OR CONC	ENTRATION	1	NO.	FREQUENCY	SAMPLE
PARAMETER		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS	EX	OF ANALYSIS	TYPE
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
lickel, 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
NAME/TITLE PRINCIPAL EXECUTIVE	supervision in a	accordance with a system of	ment and all attachments we esigned to assure that qualif	ied personnel properly ga	ather and		$\overline{}$		TEL	EPHONE	DATE
John Nieunberger	supervision in a evaluate the int system, or thos to the best of m	accordance with a system of formation submitted. Based se persons directly responsi ny knowledge and belief, tru alties for submitting false in		ied personnel properly go or persons who manage tion, the information sub- am aware that there are	ather and the mitted is,	TORE OF PRINCIPAL AUTHORIZE			TEL	G29-1P.	9- MM/DI

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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Wichita, KS 67226-2328

FACILITY: ANN ALLISON #1 LOCATION: NEAR TOWN

LINDON, CO 00000

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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

		QUAN	ITITY OR LOADIN	NG		QUALITY OR CON	CENTRATION		NO.	FREQUENCY	SAMPLE TYPE
PARAMETER		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS	EX	OF ANALYSIS	
Oil and grease	SAMPLE MEASUREMENT	*****	*****	****	****	*****	11.6	mg/L			
3582 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			
1503 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	****	*****	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	pCi/L		Twice Per Month	GRAB
,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.	ug/L		Twice Per Month	GRAB
NAME/TITLE PRINCIPAL EXECUTIVE	supervision in a	ccordance with a system d	ment and all attachments we esigned to assure that qualif	ied personnel properly ga	ther and				TEL	EPHONE	DATE
John Newberger	system, or those	e persons directly responsi y knowledge and belief, tru	on my inquiry of the person ble for gathering the informa- te, accurate, and complete. I formation, including the possi	tion, the information subr am aware that there are	nitted is,	TURE OF PRINCIPAL	EXECUTIVE OFFICE	ER OR	1/ -1	91-950	9-15-1
Production Mounou	knowing violation		, , , , , , , , , , , , , , , , , , , ,	,		AUTHORIZI			REA Cod		MM/DD/YY

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.

ND = Not Detected

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Wichita, KS 67226-2328

FACILITY: ANN ALLISON #1 LOCATION: NEAR TOWN

LINDON, CO 00000

REVISED

COG840016 001-A DISCHARGE NUMBER PERMIT NUMBER **MONITORING PERIOD** MM/DD/YYYY MM/DD/YYYY 07/31/2014 07/01/2014

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Unnamed tributary to Vega Creek tributary to South Plat

External Outfall

No Discharge

		QUA	NTITY OR LOADIN	G	(QUALITY OR CON	CENTRATION	6	NO.	FREQUENCY	
PARAMETER		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS	EX	OF ANALYSIS	TYPE
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
henol	SAMPLE MEASUREMENT	****	*****	*****	*****	ND	ND	ug/L			
4694 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	******	*****	*****	Req. Mon. 30DA AVG	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
thylbenzene	SAMPLE MEASUREMENT	****	****	*****	****	*****	3.1	ug/L			
7371 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	******	*****	*****	*****	32000 DAILY MX	ug/L		Twice Per Month	GRAB
low, in conduit or thru treatment pla	nt SAMPLE MEASUREMENT	* .005	* .010	MGD	****	*****	****	****			
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	.0076 30DA AVG	Req. Mon. DAILY MX	MGD	*****	*****	*****	*****		Continuous	RCORDI
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 recoverab	E 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
(ylene [mix of m+o+p]	SAMPLE MEASUREMENT	*****	*****	****	****	*****	15.8	ug/L			
31551 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	****	****	*****	Req. Mon. DAILY MX	ug/L		Twice Per Month	GRAB
NAME/TITLE PRINCIPAL EXECUTIVE	supervision	in accordance with a system	cument and all attachments were	ed personnel properly ga	ther and		1		TEL	EPHONE.	DATE
John Dunbuger Production Maine TYPED OR PRINTED	evaluate the system, or t to the best of	e information submitted. Base hose persons directly respor of my knowledge and belief, the enalties for submitting false	or designed to assure that qualified on my inquiry of the person of sible for gathering the informatitude, accurate, and complete. I information, including the possil	or persons who manage on, the information sub- am aware that there are	the nitted is,	TURE OF PRINCIPAL AUTHORIZE		/	3/le	691-950)	9-15 MM/DD/YY

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		QUANTITY OR LOADING			(QUALITY OR CON	CENTRATION		NO.		
PARAMETER		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS	EX	OF ANALYSIS	TYPE
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

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER TYPED OR PRINTED

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

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR **AUTHORIZED AGENT**

TELEPHONE DATE AREA Code

NUMBER

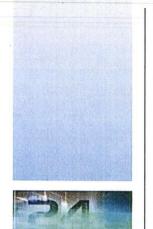
MM/DD/YYYY

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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



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

Seed with

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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Mountain States • 4036 Youngfield St. • Wheat Ridge, CO 80033-3862 • tel: 303-425-6021 • fax: 303-425-6854 • http://www.accutest.com





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Sample Summary

Ritchie Exploration, Inc.

Ann Allison Lease

Job No:

D59594X

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.





Subcontract Lab Data		
Donart of Analysis		
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

None Rec'd

CUST. P.O.#



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/I (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 \sim Less Than

Robert Rostad Technical Director, Analytical Services

Page 1 of 1

HAZEN RESEARCH, INC. RADIOCHEMISTRY LABORATORY

Date: 07/22/2014

2

Batch QC Evaluation Form

Analyte:	Ra-226						
Control S	tandard:	ID:	NB	l			

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: 779

Calculation: $(49.1)(1.0) - (0.3)(1.0) \times 100 = 106$ %

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:

Batcl	n Passes n Fails n Passes, with exceptions:	
*	Reruns Required:	y
	Narrative:	

Batch Listing by Lab Control Number:

G297/14	G-328 14
G-318 14	G-326 14
G321/14	G347 14
G322 14	G343 14
G323 14	G344/14
G325 14	G-262/14

Evaluator:

07/24/2014

Date



,	HAZEN RESEARC RADIOCHEMISTR			Date:	07/23/2	2014
-	Batch QC Evaluati	on 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_r	nl)		
	Spike Recovery Cald	culation: Sample: TAP	-			
	Calculation	on: $(21.3)(1.0)-(0.0)(1.0)$	<u>/. 6)</u> X	100 =	90	_%
	Batch QC Evaluation					
-	Parameter	Criteria	Pass	Fail	IN/A	_
-	Control Std.	+/ 20 %	-		-	
	Spike Recovery	80 - 120 %	-	1		1
-	Blank	< or = 2 x MDL	-			
	Duplicate 1 Duplicate 2 *	95% confidence interval overlap 95% confidence interval overlap				
	Conclusions: Batch Batch Batch	Passes, with exceptions:				
	13	Reruns Required:				
	- 1	Narrative:				
	-					
`Ba	atch Listing by Lab Co	ntrol Number:				
	G324/14					
	G262 14	Standard Annual Conference of the Conference of				
		Military and the second				
	-	A Commence of the Commence of				
	Wild company of a direct contract contr	F	valuator:	1	1	
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07/29/2014



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MAIN

STOD CHAIN OF CUSTODY

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 :		

Name		Client Inform	ation		Sı	bcontract L	aborato	ory Info	rmat	ion :		T	Analytical Information										
## 4036 Youngfield St.	Name Accutest N				Name	Hazen (R	adiolog	gical)		à E	N 15"	1				#,55000		~	÷ .,	as the state			
City	Address				Address																		
City Wheat Ridge, CO 80033	4036 Youn	gfield St.	•			4601 India	na Stre	eet															
Send Report to:	City	Stat	te Z	ip ~~	City	. 1						1	1		3 / 3								
D59594X -1 7/10/14 8:00 AM AQ 4 X X X X X X X X X X X X X X X X X X	Wheat Rid	ge, CO	8	0033	L Library	Golden		CO	8	3040	3		_										
D59594X -1 7/10/14 8:00 AM AQ 4 X X X X X X X X X X X X X X X X X X	Send Report to:	Sco	ott Heidem	nan	Contact:								228										
D59594X -1 7/10/14 8:00 AM AQ 4 X X X X X X X X X X X X X X X X X X	Any questions con	tact: Ren	nea Jacks	on				ment					/9:										
D59594X -1 7/10/14 8:00 AM AQ 4 X X X X X X X X X X X X X X X X X X	Phone/Fax #:	303) 425-602	1; (303)4	25-6854	Phone:	(303) 279-	4501						22										
D59594X -1 7/10/14 8:00 AM AQ 4 X X X X X X X X X X X X X X X X X X					Collection						_	n	Ę										
D59594X -1 7/10/14 8:00 AM AQ 4 X X X X X X X X X X X X X X X X X X							1	# of	. ;	2 2	904	0	dig										
D59594X -1 7/10/14 8:00 AM AQ 4	Field ID / P	oint of Collecti	ion	Date	Time		Matrix	bottles	오	I N	H25	Non	8					Con	nments				
Turnaround Information Data Deliverable Information Data Deliverable Information Comments / Remarks 10 Business Day Standard Approved By: Commercial "A" PDF Please use Colorado regulations and RLs. 10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously Reduced Tier 1 State Forms State Forms Please use Colorado regulations and RLs. 10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously Full Tier 1 Other (Specify) Pull Tier 1 Other (Specify) Data & Time: Data & Time: Preserved winer explicable: Preserved winer ex	DEGEGAY	1		7/10/14	8.00 AM		AO	Δ					X										
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Misc. Forms	

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

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D59594X: Chain of Custody

Page 1 of 1





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



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

Seed walk

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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Mountain States • 4036 Youngfield St. • Wheat Ridge, CO 80033-3862 • tel: 303-425-6021 • fax: 303-425-6854 • http://www.accutest.com

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D60036

Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Job No:

Ann Allison Lease

Sample Number	Collected Date	Time By	Received	Matr Code		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







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 AO

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 AO

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)

2

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:

Project:

Ritchie Exploration, Inc. Ann Allison Lease

Collected:

07/23/14

Page 1 of 1

Lab Sample ID Client Sample II	Result/				
Analyte	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.



4

Sample	Results		

Report of Analysis

Report of Analysis

Page 1 of 1

Client Sample ID: ANN ALLISON LSE. WASH CO COLO

Lab Sample ID:

D60036-1

Date Sampled: 07/23/14

Matrix: Method: AQ - Water **EPA 624**

Date Received: 07/23/14

Project:

Ann Allison Lease

Percent Solids:

Analytical Batch File ID DF Analyzed Prep Date Prep Batch By Run #1 a 6V26228.D 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
71-43-2 108-88-3 100-41-4 1330-20-7 91-20-3 107-06-2	Benzene Toluene Ethylbenzene Xylene (total) Naphthalene 1,2-Dichloroethane	0.0032 0.0029 0.0031 0.0158 0.0033 ND	0.0010 0.0020 0.0020 0.0030 0.0050 0.0020	0.00025 0.0010 0.00031 0.0015 0.0020 0.00025	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	120% 111% 95% 98%		70-13 70-13 70-13 70-13	30% 30%	

⁽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



Report of Analysis

Ву

DC

Page 1 of 1

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

DF

Percent Solids: n/a

Project:

Ann Allison Lease

Run #1

File ID 1G120622.D Analyzed 07/24/14

Prep Date 07/24/14

Prep Batch OP10303

Analytical Batch E1G1376

Run #2

Initial Volume

1060 ml

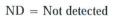
Final Volume

1.0 ml

Run #1 Run #2

625 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	ND ND	$0.0047 \\ 0.0047$	$0.00050 \\ 0.00071$		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	ts	
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	60% 41% 94% 74% 84% 90%		10-12 9-120 19-12 35-12 35-12 32-12	9% 25% 20% 20%	



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





Report of Analysis

Page 1 of 1

Client Sample ID: ANN ALLISON LSE. WASH CO COLO

Lab Sample ID: Matrix:

Project:

D60036-1

Ann Allison Lease

AQ - Water

Date Sampled: 07/23/14

Date Received: 07/23/14

Percent Solids: n/a



General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
HEM Oil and Grease Nitrogen, Nitrate Nitrogen, Nitrite ^a Solids, Total Dissolved Solids, Total Suspended Weak Acid Dissociable Cn	11.6 0.16 < 0.020 2610 9.0 < 0.0050	4.8 0.050 0.020 10 5.0 0.0050	mg/l mg/l mg/l mg/l mg/l	1 5 5 1 1	08/05/14 07/23/14 16:46 07/23/14 16:46 07/29/14 07/29/14 08/05/14 14:50	JB JD BF	EPA 1664A EPA 300.0/SW846 9056 EPA 300.0/SW846 9056 SM 2540C-2011 SM 2540D-2011 SM 4500CN N-2011

⁽a) Elevated detection limit due to matrix interference.

Report of Analysis

Page 1 of 1

Client Sample ID: ANN ALLISON LSE. WASH CO COLO

Lab Sample ID:

D60036-1A

Date Sampled: 07/23/14

Matrix:

Project:

AQ - Water

Date Received: 07/23/14

Ann Allison Lease

Percent Solids: n/a

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

Report of Analysis

Page 1 of 1

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 0.01007/24/14 08:40 JD mg/l 1 SM 3500CR B-2011 Chromium, Trivalent b < 0.020 0.020 mg/l07/28/14 12:02 KV 1 SW846 6010C/7196A M

(a) Sample preserved within 24hrs. to extend the hold time.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

· Chain of Custody

Date Time:

Roceived By:

EACCUTEST.		C	HAIN Acco	itesi Lubo	tutories M	lounteln St	alus					FED-EX	Trocking	•		_			PA(OF		1
			TEL. 30	FAX 3	2I 8 03-425-6	77-737-45						Accutest	Quote #					Accutest .	Job #) (20	6:	36	
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City State Zip	City:			Comp	illing Inf	ormation	(If d	lfferen	t fron	Repo	ort to)									OCI			WW - Water SW - Surface Water SO - Soil	
Project Contact Project Contact E-mail	Project#	18450	to.	Street	Address	1					-									MA			SL- Sludge SED-Sediment OI - Oil	
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D60036: Chain of Custody Page 1 of 1





GC/MS Volatiles

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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.

DF

Project:

Ann Allison Lease

Sample V6V1481-MB File ID 6V26201A.D 1 Analyzed 07/24/14

Ву BR Prep Date n/a

Prep Batch n/a

Analytical Batch V6V1481

Page 1 of 1

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

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

The QC reported here applies to the following samples:

Method: EPA 624

D60036-1

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	%	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	Lit	nits	
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%	



Page 1 of 1

^{* =} Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary Job Number: D60036

RITEKSW Ritchie Exploration, Inc. Account:

Project: Ann Allison Lease Page 1 of 1

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

		D60013-1	Spike	MS N	MS Spike	MSD	MSD		Limits
CAS No.	Compound	ug/l	Q ug/1	ug/1 9	% ug/l	ug/l	%	RPD	Rec/RPD
71-43-2	Benzene	ND	200	183 9	200	200	100	9	70-130/30
107-06-2	1,2-Dichloroethane	ND	200	222 1	11 200	235	118	6	70-130/30
100-41-4	Ethylbenzene	ND	200	186 9	3 200	198	99	6	70-130/30
91-20-3	Naphthalene	ND	200	137	9 200	150	75	9	57-130/30
108-88-3	Toluene	ND	200	186 9	3 200	203	102	9	70-130/30
1330-20-7	Xylene (total)	ND	600	562 9	04 600	607	101	8	70-130/30
CAS No.	Surrogate Recoveries	MS	MSD	D6001	13-1 D600	13-1 Li	mits		
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.



GC/MS Semi-volatiles

QC Data Summaries

7

Includes the following where applicable:

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

Page 1 of 1

Method Blank Summary Job Number: D60036

Account:

RITEKSW Ritchie Exploration, Inc.

Project:

Ann Allison Lease

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

The QC reported here applies to the following samples:

Method: EPA 625

D60036-1

CAS No.	Compound	Result	RL	MDL	Units Q
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	ND ND	5.0 5.0	0.53 0.75	ug/l ug/l
CAS No.	Surrogate Recoveries		Limits		
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	51% 36% 76% 61% 79% 91%	10-120% 9-120% 19-125% 35-120% 35-120% 32-122%		

Blank Spike Summary

Job Number:

D60036

Account:

RITEKSW Ritchie Exploration, Inc.

Project:

Ann Allison Lease

Sample File ID DF Analyzed OP10303-BS 1G120617.D 1 07/24/14

By DC Prep Date 07/24/14

Prep Batch OP10303

Analytical Batch

Page 1 of 1

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
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	50 50	36.4 18.5	73 37	61-120 24-120
CAS No.	Surrogate Recoveries	BSP	Lim	iits	
367-12-4	2-Fluorophenol	51%	10-1	120%	
4165-62-2	Phenol-d5	30%	9-12	20%	
118-79-6	2,4,6-Tribromophenol	87%	19-1	125%	
4165-60-0	Nitrobenzene-d5	73%	35-1	120%	
321-60-8	2-Fluorobiphenyl	80%	35-1	120%	
1718-51-0	Terphenyl-d14	77%	32-1	122%	



D60036

^{* =} Outside of Control Limits.

Matrix Spike Summary Job Number: D60036

Account: RITEKSW Ritchie Exploration, Inc.

Project:

Ann Allison Lease

Sample File ID DF Analytical Batch Analyzed Ву Prep Date Prep Batch OP10303-MS 1G120619.D 07/24/14 DC OP10303 E1G1376 07/24/14 1 D59888-13 07/24/14 1G120618.D 07/24/14 DC 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
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	ND ND	5 0 50	32.9 20.8	66 42	10-120 16-120
CAS No.	Surrogate Recoveries	MS	D59888	-13 Lin	nits	
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	41% 34% 68% 91% 99% 85%	38% 31% 53% 70% 85% 98%	9-1 19- 35- 35-	120% 20% 125% 120% 120% 122%	

Page 1 of 1

^{* =} Outside of Control Limits.



Metals Analysis

QC Data Summaries

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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

ricp bace.					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

				MB		
Metal	RL	IDL	MDL	raw	final	

(anr) Analyte not requested

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

Prep Date:				07/25/1	4			
Metal	D60036- Origina		Spikelot ICPALL2		QC Limits	7		- 2
Aluminum	anr				à.		8	
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 sa	amples MP	13526: D6	0036-1A					

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

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

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

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

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

QC Batch ID: MP13526 Matrix Type: AQUEOUS

Associated samples MP13526: D60036-1A

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

Methods: SW846 6010C Units: ug/l

Prep Date:

07/25/14

riep Date:					07/25/	14
Metal	D60036- Origina		Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr		101111111	- 1.00	1122	Jane 6
Antimony	2.7	478	500	95.0	0.8	20
Arsenic	0.0	1140	1000	114.0	1.8	20
Barium	anr	1110	1000	114.0	1.0	20
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		20
Calcium	anr	330	300	105.9	0.4	20
Chromium	0.50	508	500	101 5	1 0	20
Cobalt		300	300	101.5	1.0	20
	anr	E7E	E00	114 0	0.7	20
Copper	4.1	575	500	114.2	0.7	20
Iron	anr	1010	1000	101 0	1.0	
Lead	0.0	1010	1000	101.0	1.0	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	0.00		500	0.5		
Nickel	0.80	484	500	96.6	1.2	20
Phosphorus						
Potassium	anr	1110	1000			
Selenium	0.0	1140	1000	114.0	0.9	20
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr	le e v				
Zinc	3.6	554	500	110.1	1.3	20

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

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

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



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

Prep Date:			07/25/14							
Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits		8	 27			
Aluminum	anr				- 1					
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						2

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

1						
	BSP	Spikelot			QC	
Metal	Result	ICPALL2	00	Rec	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

Prep Date:			07/25/14							
Metal	D60036-1 Original	A SDL 1:5	%DIF	QC Limits						4
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 s	amples MP13	3526: D60	036-1A							

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits $% \left(\frac{1}{2}\right) =0$

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

	D60036-1A			ОС
Metal	Original S	DT 1.5	& DT E	Limits
Metal	Offidinal S.	DT 1:2	PULL	LIMITES

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



General	Chemistr	V
		J

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

ASSOC:	lated	Samp	oles	:
Batch	GN257	11:	D60	036-1F
Batch	GN257	61:	D60	036-1
Batch	GN257	62:	D60	036-1
Batch	GP131	15:	D60	036-1
Batch	GP131	88:	D60	036-1
Batch	GP132	06:	D60	036-1
(*) OI	itside	of	OC	limits

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

2.2

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

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	85-1158
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	78-1148
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	80-1208

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

MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

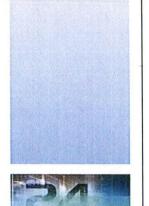
Login Number: D60036 Account: RITEKSW - Ritchie Exploration, Inc. Project: Ann Allison Lease

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



07/24/14



Technical Report for

Ritchie Exploration, Inc.

Ann Allison Lease

Accutest Job Number: D59594

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: 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

Sepel wall

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)

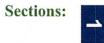
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Sample Summary

Ritchie Exploration, Inc.

Ann Allison Lease

Job No:

D59594

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

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

MP13401 Batch ID:

- 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.

Received N9/22/2014

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AO

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

Page 1 of 1

Lab Sample ID Client Samp Analyte	ole ID Result/ Oual	RL	MDL	Units	Method
	SON LSE WASH				
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 ALLIS	SON LSE WASH	CO. COLO.			
Boron	3650	50		ug/l	SW846 6010C
Zinc	48.4	30		ug/l	SW846 6010C



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Report of Analysis

Sample Results

Report of Analysis

Page 1 of 1

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	Limi	ts	
1868-53-7	Dibromofluoromethane	127%		70-13	30%	
17060-07-0	1,2-Dichloroethane-D4	123%		70-13	30%	
2037-26-5	Toluene-D8	95%		70-13	30%	
460-00-4	4-Bromofluorobenzene	90%		70-13	30%	

(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



Report of Analysis

Page 1 of 1

Client Sample ID: ANN ALLISON LSE WASH CO. COLO.

Lab Sample ID:

D59594-1

Date Sampled:

07/10/14

Matrix:

Date Received:

07/10/14

Method:

AQ - Water EPA 625 SW846 3510C

Project:

Ann Allison Lease

Percent Solids: n/a

Analytical Batch By Prep Date Prep Batch File ID DF Analyzed 07/10/14 OP10221 E1G1366 07/11/14 DC Run #1 1G120454.D Run #2

Initial Volume

Final Volume

1060 ml

1.0 ml

Run #1 Run #2

625 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	ND ND	$0.0047 \\ 0.0047$	$0.00050 \\ 0.00071$	O	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	ts	
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	49% 36% 91% 64% 77% 76%		10-12 9-120 19-12 35-12 35-12	0% 25% 20% 20%	

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



Report of Analysis

Page 1 of 1

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

Project:

Ann Allison Lease

Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
HEM Oil and Grease Nitrogen, Nitrate Nitrogen, Nitrite ^a Solids, Total Dissolved Solids, Total Suspended Weak Acid Dissociable Cn	< 4.8 0.19 < 0.040 3380 19.0 < 0.0050	4.8 0.10 0.040 10 5.0 0.0050	mg/l mg/l mg/l mg/l mg/l mg/l	1 10 10 1 1	07/24/14 07/10/14 11:20 07/10/14 11:20 07/14/14 07/17/14 07/21/14 14:18	JB AK AK	EPA 1664A EPA 300.0/SW846 9056 EPA 300.0/SW846 9056 SM 2540C-2011 SM 2540D-2011 SM 4500CN N-2011

⁽a) Elevated detection limit due to matrix interference.



Report of Analysis

Page 1 of 1

Client Sample ID: ANN ALLISON LSE WASH CO. COLO.

Lab Sample ID:

D59594-1A AQ - Water

Date Sampled: 07/10/14

Date Received: 07/10/14

Project:

Matrix:

Ann Allison Lease

Percent Solids: n/a



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

Report of Analysis

Page 1 of 1

Client Sample ID: ANN ALLISON LSE WASH CO. COLO.

Lab Sample ID: Matrix:

D59594-1A AQ - Water

Date Sampled: 07/10/14

Date Received: 07/10/14

Percent Solids: n/a

Project:

Ann Allison Lease

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Chromium, Hexavalent ^a Chromium, Trivalent ^b	< 0.010 < 0.020	$0.010 \\ 0.020$	mg/l mg/l	1 1	07/17/14 09:00 07/17/14 09:00		SM 3500CR B-2011 SW846 6010C/7196A M

(a) Sample preserved within 24hrs. to extend the hold time.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)



Misc. Forms			
Custody Documents and	Other Forms		

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316-6919500 316-6919550	Client PO# •	,		City	7		310	ne		Zip		1	0		3				1	1	WP - Wipe	1
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Accutast Sample # Field ID / Point of Collection				Sumpled			HON	HINO3	NONE	DI Water MEOH	ENCORE	186255	COCA	-8	2	9/	12	6	_9	4		
A 11.	MEOH/DI Vial #	Date	Time	by	Matrix	# of bottles	P S	主当	N	o M	回图	6	U	Com !	CA !	ya	- Comm		-	7	LAB USE OF	LY
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D59594: Chain of Custody Page 1 of 1



GC/MS Volatiles

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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 V6V1468-MB File ID 6V25955.D DF 1

Analyzed By BR 07/14/14

n/a

Prep Date Prep Batch

Q

n/a

Analytical Batch V6V1468

Page 1 of 1

The QC reported here applies to the following samples:

Method: EPA 624

D59594-1

CAS No.	Compound	Result	RL	MDL	Units
71-43-2 107-06-2 100-41-4 91-20-3 108-88-3	Benzene 1,2-Dichloroethane Ethylbenzene Naphthalene Toluene	ND ND ND ND ND	1.0 2.0 2.0 5.0 2.0	0.25 0.25 0.31 2.0	ug/l ug/l ug/l ug/l 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 Analytical Batch File ID DF Analyzed By Prep Date Prep Batch V6V1468 V6V1468-BS 07/14/14 6V25954.D 1 BR n/a n/a

The QC reported here applies to the following samples:

Method: EPA 624

D59594-1

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	%	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%	70-1	30%	
17060-07-0	1,2-Dichloroethane-D4	109%	70-1	30%	
2037-26-5	Toluene-D8	101%	70-1	30%	
460-00-4	4-Bromofluorobenzene	106%	70-1	30%	

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

6.2.1

Page 1 of 1

^{* =} Outside of Control Limits.

Matrix Spike Summary Job Number: D59594

Account:

RITEKSW Ritchie Exploration, Inc.

Project:

Ann Allison Lease

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

		D59639-	-1	Spike	MS		MS	
CAS No.	Compound	ug/l	Q	ug/l	ug/	1	%	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	Lim	its	
1868-53-7	Dibromofluoromethane	114%		112%		70-1	30%	
17060-07-0	1,2-Dichloroethane-D4	111%		107%		70-1	30%	
2037-26-5	Toluene-D8	104%		97%		70-1	30%	
460-00-4	4-Bromofluorobenzene	106%		89%		70-1	30%	

Page 1 of 1



^{* =} Outside of Control Limits.

Duplicate Summary Job Number: D59594

Account:

RITEKSW Ritchie Exploration, Inc.

Project:

Ann Allison Lease

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

		D59655	D59655-1					
CAS No.	Compound	ug/l	Q	ug/l	9	RPD	Limits	
71-43-2	Benzene	ND		ND]	nc	30	
107-06-2	1,2-Dichloroethane	ND		ND	1	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	1%	
17060-07-0	1,2-Dichloroethane-D4	122%		121%		70-130	1%	
2037-26-5	Toluene-D8	98%		96%		70-130	1%	
460-00-4	4-Bromofluorobenzene	88%		89%		70-130	1%	



Page 1 of 1

^{* =} Outside of Control Limits.



GC/MS Semi-volatiles

QC Data Summaries

7

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.

DF

Project:

Ann Allison Lease

Sample OP10221-MB File ID 1G120449.D 1

Analyzed 07/11/14

By DC

Prep Date 07/10/14

Prep Batch OP10221

Analytical Batch

Page 1 of 1

E1G1366

The QC reported here applies to the following samples:

Method: EPA 625

D59594-1

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	ND ND	5.0 5.0	0.53 0.75	ug/l ug/l	
CAS No.	Surrogate Recoveries		Limits			
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	52% 40% 90% 77% 80% 104%	10-120 9-120% 19-125 35-120 35-120 32-122	% % %		

Blank Spike Summary

Job Number:

D59594

Account:

RITEKSW Ritchie Exploration, Inc.

Project:

Ann Allison Lease

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

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
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	50 50	38.8 15.8	78 32	61-120 24-120
CAS No.	Surrogate Recoveries	BSP	Lin	nits	
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	58% 40% 94% 83% 83% 91%	9-1 19- 35- 35-	120% 20% 125% 120% 120% 122%	

Page 1 of 1

^{* =} 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 07/11/14 DC 07/10/14 E1G1366 1G120452.D OP10221 1 D59273-31 07/11/14 07/10/14 OP10221 E1G1366 1G120451.D 1 DC

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
105-67-9 108-95-2	2,4-Dimethylphenol Phenol	ND ND	50 50	22.0 15.8	44 32	10-120 16-120
CAS No.	Surrogate Recoveries	MS	D59273	-31 Lim	nits	
367-12-4 4165-62-2 118-79-6 4165-60-0 321-60-8 1718-51-0	2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	34% 36% 62% 93% 90% 101%	35% 30% 50% 67% 71% 98%	9-12 19-1 35-1 35-1	120% 20% 125% 120% 120% 122%	

Page 1 of 1

^{* =} Outside of Control Limits.



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

α

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

riep bate.					0//11/14		12.0	
Metal	RL	IDL	MDL	MB raw	final			 _
Aluminum	100	11	41	1411	TINGI			
Antimony	30	2.1	19	1.4	<30			
Arsenic	25	3.8	5.6	0.90	<25			
Barium	10	.2	1.4		120			
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	0.0	110			
Chromium	10	.3	. 4	-0.10	<10			
Cobalt	5.0	.5	.57	-0.10	<10			
Copper	10	.8	1.9	-0.60	<10			
Iron	70	1.5	9.5	-0.60	<10			
Lead	50	2.1	21	1.5	<50			
Lithium	5.0	. 4	2.7	1.5	230			
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	0.20	<30			
Potassium	1000	99	270					
Selenium	50	7.1	11	-1.1	<50			
Silicon	50	4.7	5.2	-1.1	230			
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			
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			5.2	1.1	100			

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

				MB		
Metal	RL	IDL	MDL	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

Prep Date:				07/11/1	4			
Metal	D59594- Origina		Spikelot ICPALL2	% Rec	QC Limits			
Aluminum					ÇC.			
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			

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

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

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

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

Prep Date:					07/11/	L4			
Metal	D59594- Origina		Spikelot ICPALL2		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			
	mnles MD	13401: D5	9594-1D						

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

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

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

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

Date - Date

07/11/14

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								
lin.								
Titanium								
Jranium								
/anadium								
Zinc	583	500	116.6	80-120				
Associated sa								

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

	BSP	Spikelot	QC	
Metal	Result	ICPALL2 % Rec	Limits	

(anr) Analyte not requested

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

Prop Date:

07/11/14

Prep Date:			07/11/14					
Metal	D59594- Origina	-1A al 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 sa	amples MP1	3401: D595	594-1A					

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

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

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).



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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		1	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				30 110
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

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

9.2

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

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

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



08/15/14





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



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

Seed a SK

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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Section 3: Misc. Forms	
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Accutest Laboratories

Sample Summary

Ritchie Exploration, Inc.

Ann Allison Lease

Job No:

D60036X

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





Subcontract Lab Data	a		
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 HRI SERIES NO DATE REC'D.

CUST. P.O.#

009-93 G410/14 7/24/2014

D60036X

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	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/I (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.

(T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable (PD) = Potentially Dissolved \sim = Less Than

Robert Rostad

Technical Director, Analytical Services

Page 1 of 1

В		
В	•	

HAZEN	RESEARCH, INC.
RADIO	CHEMISTRY LABORATORY

Date: 07 31 2014

Batch QC Evaluation Form

	The state of the s			
Analyte: RA-23				
Allalyte.				
Control Standard:	ID: NBL 6A pCil	ml: 23.0 (use 2	ml diluted)	
Spike Solution:	ID: NBL GA pCi	ml: 23.0 (use 2	ml)	
Spike Recovery Cal	culation: Sample:	TAP.		
Calculati	on: (44.1)(1.0) -	(0.2)(1.0)	(100 =	95 %
Batch QC Evaluation		,,0		
Parameter	Criteria	Pass	Fail	N/A
Control Std.	+/ 20 %			

80 - 120 %

 $< or = 2 \times MDL$

95% confidence interval overlap

95% confidence interval overlap

Conclusions:

Duplicate 1

Duplicate 2 *

Spike Recovery

Blank

	Passes		
-	n Fails n Passes, with exceptions:		
batci	reasses, with exceptions.		
2	Reruns Required:		
	Narrative:	1	

Batch Listing by Lab Control Number:

G375 14	G425/14 G468/14
G376/14	G46814 G471/14
G377/14	G48614
G409/14	G487/14
G410/14	
G426 14	

Lasen Lugman

8-6-14 ate

^{*} Required for batch size greater than 10 samples.

- 1	STEEL SELECT
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- 1	
- 1	
- 1	

	RY LABORATORY		Date:	08/07/2	2014
Batch QC Evalua	tion Form				
Analyte: R	a-228				
Control Standard:	ID: NBL 7A pCi/ml: 11.8	_(use_2	_ml diluted)	
Spike Solution:	ID: NBL 7A pCi/ml: 11.8	_(use_Z	_ml)		
Spike Recovery Ca	alculation: Sample: TAP	_			
	()(-) (->(10.1	
Calcula	tion: $(23.9)(1.0) - (0.0)(1$.0))	X 100 =	101	_%
	23.6				
Batch QC Evaluatio	n:				
_					
Parameter	Criteria	Pass	Fail	N/A	
Control Std.	+/ 20 %	-			
Spike Recovery	80 - 120 %				
Blank	<pre>< or = 2 x MDL</pre>	-			1
Duplicate 1	95% confidence interval overlap	-			1
Duplicate 2 *	95% confidence interval overlap				-
zapilodio Z	13070 Confidence interval overlap				
Required for batch	size greater than 10 samples.				
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Conclusions:					
Conclusions:					
	h Passes	,			

Conc	usi	or	IS	

Bato	ch Passes, with exception	ıs:			
	Reruns Required:				
	Narrative:				
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Batch Listing by Lab	Control Number:				
G248/14					
G442 11	I				
G410/14					
G496 14					
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CHAIN OF CUSTODYCHAIN OF CUSTODY

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

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

Client	Information	a to the second	Subcontract Laboratory Information Analytical Information								ormation						
Name Accutest Mountain	n States (AM	IS)	Name	Hazen (R	adiolo	gical)		:1			1				PASSES.		
Address 4036 Youngfield S	t.		Address	4601 India	ana Str	eet											
City Wheat Ridge,	State CO	Zip 80033	City	Golden		State		Zip 80	403		1	,			2		
Send Report to: Any questions contact:	Scott Heide Renea Jac		Contact:	Sample M	anage	ment						Radium 226/228					
Phone/Fax #: (303) 425	5-6021; (303	425-6854	Phone:	(303) 279-	4501							22					
-			Collection		T	I	P	res	erva	ation		Ē					
Field ID / Point of C	ollection	Date	Time		Matrix	# of bottles	HCL	NaOH	HN03	H2S04	None	Radiu				Λ	Comments
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Sample Custody must					posses	sion, in	clu	ding					sy Uso C		Subcontr		tory Use Only
Relinquished by 7-24	-19	Date & Time:		Received By:	neT	1,2)	C	1	1			7-24-	14.	Seal #:		Headspace:	No NA
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• Chain of Custody

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TACCUTEST:	CHAIN	OF CUST	ODY			PAGE	_OF
LABORATORIES	Acces 4036 Young	test Laboratories Monniel field Street Wheat Ridge,	States Co. 80033	FED-EX Tracking	,	Bottle Order Control #	
	TEL. 30	3-425-6021 877-737 FAX 303-425-6021	-4521	Acculest Quote ₱		Accutest Job # 1) (5C	0531
Chient / Reporting information Project Name Project Name	Proj		Breeks and Albertain	Requ	ested Analysis (see		Matrix Codes
Ritche Exploration Tree Assay	lismo Lee Dal 44	that hard	1			a	DW - Drinking Water
Street: Street:		A STATE AND STREET	The contract of the contract o	85		1 8	GW - Ground Water WW - Water
City State Zip City:		Company Name	ion (If different from Report to)	+		1 3	SW - Surface Water SO - Soil SL- Sludge
Project Contact E-mail Project#	1845070	Street Address		-		M. M.	SED-Sediment OI - Oil
Phone # Fox# Client PO	steelisation / mu	gradus;	Com				LIQ - Other Liquid AIR - Air
5)6-691.9500 316-6918650	.,	City	State Zip			1 3	SOL - Other Solid WP - Wipe
Sampler(s) Name(s) Phone # Project Manager		Attention:	PO#	SXS	100 mg 10	28 ISS KTXN VMSF12DCB (SAR)	
	Collection		Number of preserved Bottles	9 5	4335	SKY S	TB-Trip Blank
Acculest Sample # Field ID / Point of Collection MEOH/DI Viol. #	Dote Time	Sampled by Matrix # of bot	HCI NoOH HZSO4 NONE DI Water MEOH ENCORE	92	12 2 3	14.4.7	
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Turnaround Time (Business days) Approved By (Acc	All State of the s	Commercial "A"	ta Deliverable Information (Level 1) State Forms	a demografi		ents / Special Instruction	Same Comparation and appeals
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1 Day EMERGENCI			erolal "B" = Results + QC Summary ·				
Emergency & Rush T/A data available VIA Lablink	aple Custody must be docum	ented below each time	samples change possession, in	cluding courier	delivery.	and the second of the	$-\rho$
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Relinquished by: Date Time:	Roceived By:		Custody Sqal #	Intoct F	reserved whele applicable	Jarles	7-23-14

D60036X: Chain of Custody Page 1 of 1