

**Ritchie Exploration, Inc.
Carpenter 18B No.1
400' FNL and 335' FWL
70'S and 5'E of NW NW
Sec 18 T16S R31W
Scott County, Kansas**

**Geological Report
by**

**Macklin M. Armstrong, P.G.
License Number 743**

Scale 1:240 Imperial

Well Name:	Carpenter 18B No. 1	
Surface Location:	Sec 18 T16S R31W	
Bottom Location:	400' FNL and 335' FWL	
API:	15-171-21007	
License Number:	4767	
Spud Date:	11/29/2013	Time: 1:45 PM
Region:	Scott County, Kansas	
Drilling Completed:	12/8/2013	Time: 5:19 AM
Surface Coordinates:		
Bottom Hole Coordinates:		
Ground Elevation:	2936.00ft	
K.B. Elevation:	2941.00ft	
Logged Interval:	3400.00ft	To: 4755.00ft
Total Depth:	4750.00ft	
Formation:	Mississippi	
Drilling Fluid Type:	Chemical/Fresh Water Gel	

OPERATOR

Company:	Ritchie Exploration, Inc.	
Address:	8100 East 22nd Street North, No. 700 Wichita, Kansas 67278	
Contact Geologist:	Mike Engelbrecht	
Contact Phone Nbr:	316-691-9500	
Well Name:	Carpenter 18B No. 1	
Location:	Sec 18 T16S R31W	API: 15-171-21007
Pool:	Oil	Field: Wildcat
State:	Kansas	Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: 100° 47' 47.309" Latitude: 38° 40' 13.089"
N/S Co-ord:
E/W Co-ord:

CONTRACTOR

Contractor:	WW Drilling, LLC	
Rig #:	2	
Rig Type:	mud rotary	
Spud Date:	11/29/2013	Time: 1:45 PM
TD Date:	12/8/2013	Time: 5:19 AM
Rig Release:	12/9/2013	Time: 3:30 AM

ELEVATIONS

K.B. Elevation: 2941.00ft Ground Elevation: 2936.00ft
K.B. to Ground: 5.00ft

NOTES

Date	Depth at 7 am	Activity	
11-29-13		MIRU	Spud at 1:45 pm
11-30-13	905	Drilling	
12-01-13	2770	Drilling	
12-02-13	3465	Drilling	
12-03-13	4040	CTOH for DST No. 1	
12-04-13	4214	CFS	
12-05-13	4344	TIH after DST No. 2	
12-06-13	4465	Drilling	
12-07-13	4583	TOH for DST No. 6	
12-08-13	4750	CTOH for Log	
12-09-13	4750	P & A	

Surface casing: 8 5/8" 23# at 232'
Production casing: None set

Deviation: 232' - 3/4°
4024' - 1 1/2°
4750' - 1°

Bit Record:	Make	Size	Type	Depth In	Depth Out	Hours
	SM	12 1/4"	F27	Surface	232	2/3/4
	SM	7 7/8"	F27	232	4750	103 1/2

Drill Stem Tests:

DST No. 1 4008 to 4040 Lansing D Zone
30-45-45-60
Recovery: 360' WCM (20%W, 80%M)
1135' MCW (5%M, 95%W - Chi 65,000 ppm)
IHP 1948 FHP 1936
IFP 56-376 FFP 390-684
ISIP 1031 FSP 1031
Temp 122°

DST No. 2 4256 to 4344 Lansing L Zone, Pleasanton, Marmaton
30-45-45-60
Recovery: 65' MOCW (30%M, 30%O, 40%W)
540' MW with oil spots (10%M, 90%W)
IHP 2118 FHP 2078
IFP 40-160 FFP 164-305
ISIP 1094 FSP 1073
Temp 123°

DST No. 3 4374 to 4456
Misrun due to packer failure

DST No. 4 4368 to 4456
Misrun due to packer failure

DST No. 5 4330 to 4468 Altamont, Pawnee
30-45-45-60
Recovery: 60' Mud with oil spots
IHP 2159 FHP 2143
IFP 22-33 FFP 36-47
ISIP 1010 FSP 978
Temp 110°

DST No. 6 4500 to 4583 Cherokee Lime, Johnson Zone
30-45-45-60
Recovery: 140' OCM (30%O, 70%M)
IHP 2273 FHP 2221
IFP 18-48 FFP 59-72
ISIP 1021 FSP 976
Temp 120°

Formation	Sample	E-Log	Datum	Well 1	Well 2	Well 3
Anhydrite	2349	2349	+592	-4	-7	-16
E/Anhydrite	2369	2369	+572	-4	-6	-17
Stoller	3537	3540	-599	-5	-10	-11
Heebner	3916	3920	-979	-5	-12	-9
Toronto	3936	3941	-1000	-3	-13	-3
Lansing	3955	3960	-1019	-6	-14	-6
Muncie Creek	4113	4118	-1177	+4	-9	+6
Stark	4220	4227	-1286	-2	-13	-5
Hushpuckney	4256	4264	-1323	+3	-8	-2
B/Kansas City	4301	4306	-1365	+1	-10	-9
Pleasanton	4307	4312	-1371	+1	-10	-8
Marmaton	4329	4334	-1393	+1	-11	-2
Altamont	4345	4351	-1410	+6	-11	+7
Pawnee	4427	4432	-1491	+7	-10	-7
Myrick Station	4464	4464	-1519	+13	-2	+1
Fort Scott	4478	4484	-1543	+6	-9	-8
Cherokee Shale	4505	4510	-1569	+4	-13	-10
Johnson Zone	4546	4550	-1609	+7	-12	-10
Morrow	4581	4585	-1644	+7	-14	-12
Mississippi	4598	4604	-1663	+9	-18	+3
Total Depth	4750	4755	-1814			

Well 1: Ritchie Exploration, Inc. Carpenter 18A No. 1 NE NE NE Sec 13 T16S R32W
Well 2: Mull Drilling Company Brown Trust No. 1-12 922' FSL and 494' FEL Sec 12 T16S R32W
Well 3: Berexco, Inc. Minda No. 1 C SW Sec 13 T16S R32W

Due to the results of the Drill Stem Tests and the electric log calculations, it was decided to plug this test well.

Respectfully submitted,
Macklin M. Armstrong

ROCK TYPES

	Lmst tw>7		shale, gry		shale, red		Ss
	shale, grn		Carbon Sh		Siltst		

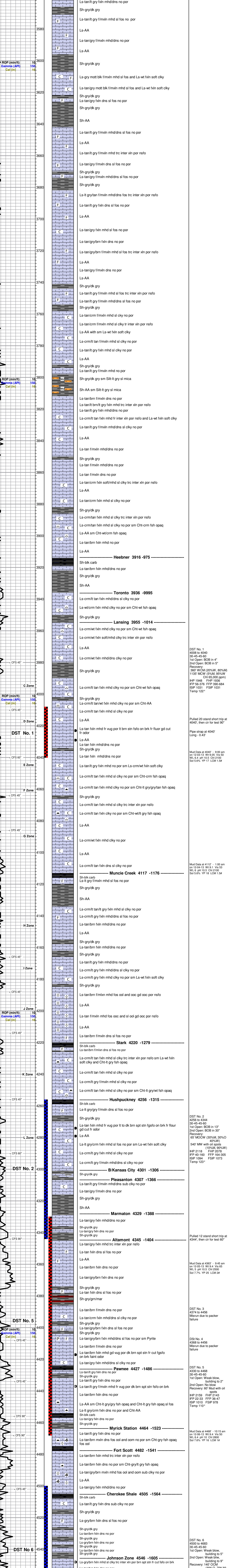
ACCESSORIES

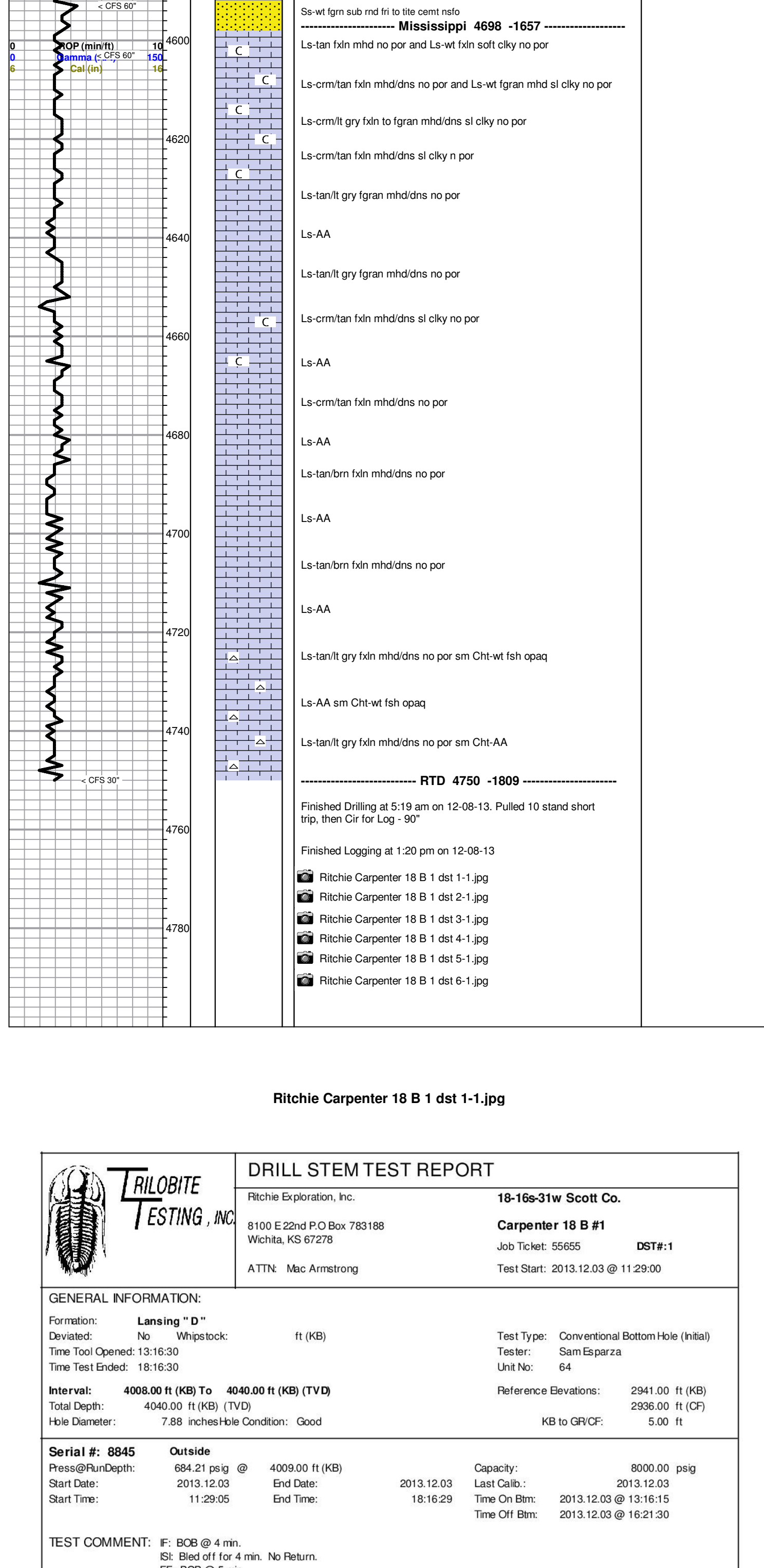
MINERAL	FOSSIL	STRINGER	TEXTURE
▲ Chert dark ▲ Glauconite ▲ Pyrite ▲ Siltstone ▲ Chert White ▲ Mica	F Fossils < 20% ▲ Coils ▲ Oolomold	▲ Sandstone ▲ Siltstone ▲ Shale	C Chaiky

OTHER SYMBOLS

MISC	DST
BR Daily Report Digital Photo Document Folder Link Vertical Log File Horizontal Log File Core Log File Drill Cuttings Rpt	DST Int DST alt Core

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.garsl.ca)





Ritchie Carpenter 18 B 1 dst 1-1.jpg

	DRILL STEM TEST REPORT Ritchie Exploration, Inc. 8100 E22nd P.O. Box 783188 Wichita, KS 67278 ATTN: Mac Armstrong		18-166-31w Scott Co. Carpenter 18 B #1 Job Ticket: 55655 DST#1 Test Start: 2013.12.03 @ 11:29:00																																				
	GENERAL INFORMATION: Formation: Lansing "D" Deviated: No Whipstock: ft (KB) Time Tool Opened: 13:16:30 Time Test Ended: 18:16:30 Interval: 4008.00 ft (KB) To 4040.00 ft (KB) (TVD) Total Depth: 4040.00 ft (KB) (TVD) Hole Diameter: 7.88 inchesHole Condition: Good																																						
Serial #: 8845 Outside Press@RunDepth: 684.21 psig @ 4008.00 ft (KB) Start Date: 2013.12.03 End Date: 2013.12.03 Start Time: 11:29:05 End Time: 18:16:29		Capacity: 8000.00 psig Last Calib.: 2013.12.03 Time On Btm: 2013.12.03 @ 13:16:15 Time Off Btm: 2013.12.03 @ 16:21:30																																					
TEST COMMENT: F: COB @ 4 min. IS: Bled off for 4 min. No Return. FF: COB @ 5 min. FSI: Bled off for 5 min. No Return.																																							
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Tribbte Testing, Inc		Ref. No: 55655																																					
Printed: 2013.12.04 @ 08:44:51																																							

Ritchie Carpenter 18 B 1 dst 2-1.jpg

	DRILL STEM TEST REPORT Ritchie Exploration, Inc. 8100 E22nd P.O. Box 783188 Wichita, KS 67278 ATTN: Mac Armstrong		18-166-31w Scott Co. Carpenter 18 B #1 Job Ticket: 55656 DST#2 Test Start: 2013.12.04 @ 21:57:00																																				
	GENERAL INFORMATION: Formation: Lansing "L" Pleasa Deviated: No Whipstock: ft (KB) Time Tool Opened: 00:00:00 Time Test Ended: 05:18:00 Interval: 4256.00 ft (KB) To 4344.00 ft (KB) (TVD) Total Depth: 4344.00 ft (KB) (TVD) Hole Diameter: 7.88 inchesHole Condition: Good																																						
Serial #: 8845 Outside Press@RunDepth: 159.63 psig @ 4257.00 ft (KB) Start Date: 2013.12.04 End Date: 2013.12.05 Start Time: 21:57:05 End Time: 05:17:59		Capacity: 8000.00 psig Last Calib.: 2013.12.05 Time On Btm: 2013.12.04 @ 23:59:45 Time Off Btm: 2013.12.05 @ 03:08:15																																					
TEST COMMENT: F: COB @ 13 min. IS: Bled off for 2 min. No Return. FF: COB @ 30 min. FSI: Bled off for 2 min. No Return.																																							
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Tribbte Testing, Inc		Ref. No: 55656																																					
Printed: 2013.12.05 @ 08:22:12																																							

Ritchie Carpenter 18 B 1 dst 3-1.jpg

	DRILL STEM TEST REPORT Ritchie Exploration, Inc. 8100 E22nd P.O. Box 783188 Wichita, KS 67278 ATTN: Mac Armstrong		18-166-31w Scott Co. Carpenter 18 B #1 Job Ticket: 55657 DST#3 Test Start: 2013.12.05 @ 19:37:00																																				
	GENERAL INFORMATION: Formation: Altamont-Pawnee Deviated: No Whipstock: ft (KB) Time Tool Opened: 23:24:00 Time Test Ended: 03:03:15 Interval: 4374.00 ft (KB) To 4456.00 ft (KB) (TVD) Total Depth: 4456.00 ft (KB) (TVD) Hole Diameter: 7.88 inchesHole Condition: Good																																						
Serial #: 8845 Outside Press@RunDepth: 159.63 psig @ 4375.00 ft (KB) Start Date: 2013.12.05 End Date: 2013.12.05 Start Time: 19:37:05 End Time: 23:24:00		Capacity: 8000.00 psig Last Calib.: 2013.12.05 Time On Btm: 2013.12.05 @ 23:59:45 Time Off Btm: 2013.12.05 @ 03:08:15																																					
TEST COMMENT: F: IS: MSRUN PACKER FAILURE FF: FSI:																																							
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Printed: 2013.12.06 @ 03:57:15																																							

Ritchie Carpenter 18 B 1 dst 4-1.jpg

	DRILL STEM TEST REPORT Ritchie Exploration, Inc. 8100 E22nd P.O. Box 783188 Wichita, KS 67278 ATTN: Mac Armstrong		18-166-31w Scott Co. Carpenter 18 B #1 Job Ticket: 55658 DST#4 Test Start: 2013.12.05 @ 23:41:00																																				
	GENERAL INFORMATION: Formation: Altamont-Pawnee Deviated: No Whipstock: ft (KB) Time Tool Opened: 12:40:00 Time Test Ended: 03:03:15 Interval: 4368.00 ft (KB) To 4456.00 ft (KB) (TVD) Total Depth: 4456.00 ft (KB) (TVD) Hole Diameter: 7.88 inchesHole Condition: Good																																						
Serial #: 8845 Outside Press@RunDepth: 46.95 psig @ 4369.00 ft (KB) Start Date: 2013.12.05 End Date: 2013.12.06 Start Time: 23:41:05 End Time: 03:03:15		Capacity: 8000.00 psig Last Calib.: 2013.12.06 Time On Btm: 2013.12.06 @ 12:39:30 Time Off Btm: 2013.12.06 @ 15:51:00																																					
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Tribbte Testing, Inc		Ref. No: 55658																																					
Printed: 2013.12.06 @ 03:56:30																																							

Ritchie Carpenter 18 B 1 dst 5-1.jpg

	DRILL STEM TEST REPORT Ritchie Exploration, Inc. 8100 E22nd P.O. Box 783188 Wichita, KS 67278 ATTN: Mac Armstrong		18-166-31w Scott Co. Carpenter 18 B #1 Job Ticket: 55659 DST#5 Test Start: 2013.12.06 @ 10:47:00																																				
	GENERAL INFORMATION: Formation: Altamont-Pawnee Deviated: No Whipstock: ft (KB) Time Tool Opened: 12:40:00 Time Test Ended: 17:29:30 Interval: 4330.00 ft (KB) To 4468.00 ft (KB) (TVD) Total Depth: 4468.00 ft (KB) (TVD) Hole Diameter: 7.88 inchesHole Condition: Good																																						
Serial #: 8845 Outside Press@RunDepth: 46.95 psig @ 4331.00 ft (KB) Start Date: 2013.12.06 End Date: 2013.12.06 Start Time: 10:47:05 End Time: 17:29:29		Capacity: 8000.00 psig Last Calib.: 2013.12.07 Time On Btm: 2013.12.06 @ 12:39:30 Time Off Btm: 2013.12.06 @ 15:51:00																																					
TEST COMMENT: F: 2" Blow. IS: No Return. FF: No Blow. FSI: No Return.																																							
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Tribbte Testing, Inc		Ref. No: 55659																																					
Printed: 2013.12.06 @ 23:32:05																																							

Ritchie Carpenter 18 B 1 dst 6-1.jpg

	DRILL STEM TEST REPORT Ritchie Exploration, Inc. 8100 E22nd P.O. Box 783188 Wichita, KS 67278 ATTN: Mac Armstrong		18-166-31w Scott Co. Carpenter 18 B #1 Job Ticket: 55660 DST#6 Test Start: 2013.12.07 @ 07:38:00																																				
	GENERAL INFORMATION: Formation: Cherokee lime, Johns Deviated: No Whipstock: ft (KB) Time Tool Opened: 09:45:45 Time Test Ended: 15:05:00 Interval: 4500.00 ft (KB) To 4583.00 ft (KB) (TVD) Total Depth: 4583.00 ft (KB) (TVD) Hole Diameter: 7.88 inchesHole Condition: Good																																						
Serial #: 8845 Outside Press@RunDepth: 72.34 psig @ 4501.00 ft (KB) Start Date: 2013.12.07 End Date: 2013.12.07 Start Time: 07:38:05 End Time: 15:04:59		Capacity: 8000.00 psig Last Calib.: 2013.12.07 Time On Btm: 2013.12.07 @ 09:45:30 Time Off Btm: 2013.12.07 @ 12:55:45																																					
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