

# Ritchie Exploration, Inc.

## Ford No. 1

### 1452' FSL and 409' FWL

### 132'N and 79'E of W2 W2 SW

### Sec 3 T28S R22W

### Ford County, Kansas

## Geological Report

### by

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

Scale 1:240 Imperial

Well Name:	Ford No. 1		
Surface Location:	Sec 3 T28S R22W		
Bottom Location:	1452' FSL and 409' FWL		
License Number:	4767	API:	15-057-20908
Spud Date:	11/20/2013	Time:	6:30 PM
Region:	Ford County, Kansas		
Completed:	11/30/2013	Time:	12:37 PM
Drilling Coordinates:			
Bottom Hole Coordinates:			
Ground Elevation:	2361.00ft		
K.B. Elevation:	2371.00ft		
Logged Interval:	3400.00ft	To:	5148.00ft
Total Depth:	5150.00ft		
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:	Adam Eldain		
Contact Phone Nbr:	316-691-9500		
Well Name:	Ford No. 1	API:	15-057-20908
Location:	Sec 3 T28S R22W		
Pool:	Gas, Oil	Field:	
State:	Kansas	Country:	Ford

### CONTRACTOR

Contractor:	Val Energy, Inc.		
Rig #:	1		
Rig Type:	mud rotary		
Spud Date:	11/20/2013	Time:	6:30 PM
TD Date:	11/30/2013	Time:	12:37 PM
Rig Release:	12/1/2013	Time:	10:00 AM

### ELEVATIONS

K.B. Elevation:	2371.00ft	Ground Elevation:	2361.00ft
K.B. to Ground:	10.00ft		

### SURFACE CO-ORDINATES

Well Type:	Vertical	Latitude:	37° 38' 06.339"
Langitude:	99° 43' 14.412"		
N/S Co-ord:			
E/W Co-ord:			

### NOTES

Date                      Depth at 7am                      Activity

11-20-13	MIRU	Spud at 7:30 pm
11-21-13	355	WOC
11-22-13	1410	Drilling
11-23-13	2610	Drilling
11-24-13	3285	Drilling
11-25-13	3880	Drilling
11-26-13	4410	Drilling
11-27-13	4780	Drilling
11-28-13	4984	TOH
11-29-13	5015	OB with DST No. 2
11-30-13	5045	Drilling
12-01-13	5150	P & A

Surface Casing: 8 5/8" 23# at 355'  
Production Casing: None set

Deviation: 359' - 1°  
4984' - 1°  
5150' - 3/4°

Bit Record: Make	Size	Type	Depth In	Depth Out	Hours
JZ	12 1/4" 7 7/8"	RR HA20Q	Surface 359	5150	3 1/2 144 3/4

Drill Stem Tests:

DST No. 1 4952 to 4984 Huck, Atoka  
30-45-60-90  
Gas Flows: IFP: GTS in 4", 10" - 879 mcf, 20" - 951 mcf, 30" - 951 mcf  
FFP: 10" - 908 mcf, 20" - 966 mcf, 30" - 966 mcf, 40" - 966 mcf, 50" - 966 mcf, 60" - 966 mcf  
Recovery: 90' Mud  
IHP 2495                      FHP 2468  
IFP 203-195                FFP 187-191  
ISIP 1586                 FSP 1580  
Temp 110°

DST No. 2 4993 to 5015 Mississippi  
30-45-60-90  
Gas Flows: IFP: GTS in 3.5", 10" - 289 mcf, 20" - 346 mcf, 30" - 363 mcf  
FFP: 10" - 357 mcf, 20" - 375 mcf, 30" - 363 mcf, 40" - 363 mcf, 50" - 363 mcf, 60" - 363 mcf  
Recovery: 95' GCM (5%G, 95%M)  
IHP 2578                      FHP 2462  
IFP 72-110                 FFP 118-120  
ISIP 1593                 FFP 1576  
Temp 115°

DST No. 3 5016 to 5040 Mississippi  
30-45-60-90  
Gas Flows: GTS in 20 seconds of FSIP while bleeding off (low)  
Recovery: 115' GCWM (6%G, 14%W, 80%M)  
IHP 2562                      FHP 2537  
IFP 18-31                 FFP 24-53  
ISIP 1524                 FSP 1492  
Temp 116°

Formation	Sample	E-Log	Datum	Well 1	Well 2	Well 3	Well 4
Anhydrite	1349	1358	+1013	-10	-2	+3	+1
B/Anhydrite	1401	1400	+969	-10	0	+0	+3
Stottler	3503	3502	-1129	-7	-8	+6	-22
Heebner	4164	4163	-1792	-3	-9	+4	-23
Toronto	4181	4181	-1810	-1	-13	+4	-25
Douglas	4240	4240	-1869	-2	-10	+8	-22
Lansing	4302	4301	-1930	-1	-10	+5	-23
Muncie Creek	4482	4481	-2110	-3	-8	+6	-23
Stark	4623	4618	-2247	+4	-8	+18	-22
Hushpuckney	4663	4660	-2269	+3	-12	+18	-22
B/Kansas City	4700	4698	-2327	+4	-12	+13	-26
Marmaton	4766	4764	-2393	+5	-19	+13	-20
Pawnee	4834	4832	-2461	+10	-8	+22	-21
Cherokee Shale	4880	4877	-2506	+10	-9	+20	-22
Huck	4960	4957	-2586	+10	-8	+23	-21
Atoka Shale	4967	4964	-2593	+10	-8	+24	-21
Mississippi	4984	4984	-2513	+9	0	+27	-24
Total Depth	5150	5148	-2777				

Reference Well No. 1: Ritchie Exploration, Inc. Derstein 10BC No.1 1930' FNL and 550' FWL Sec 10 T28S R22W  
Reference Well No. 2: Ritchie Exploration, Inc. Brown 3AB No. 1 730' FNL and 700' FWL Sec 3 T28S R22W  
Reference Well No. 3: Ritchie Exploration, Inc. Maupin-Fisher No. 1 2690' FNL and 2130' FEL Sec 9 T28S R22W  
Reference Well No. 4: Ritchie Exploration, Inc. Stephenson 1-4B No. 1 1026' FNL and 1197' FWL Sec 4 T28S R22W

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

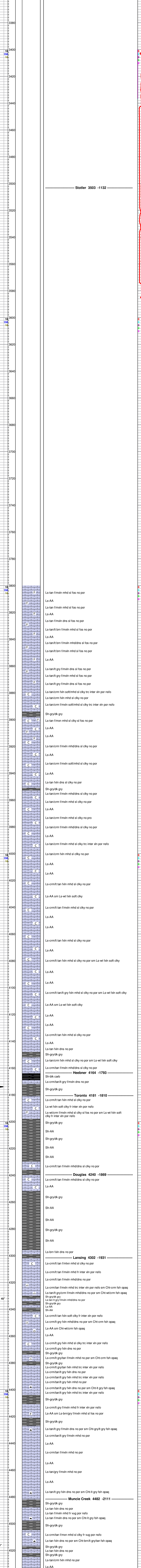
Cht vari	Dolsec	shale, gry
Varicolored chert	Lmst fw>	carbon, Sh
Cht White		

### ACCESSORIES

<b>MINERAL</b> ▲ Chert, dark ▼ Varicolored chert ▲ Chert White	<b>FOSSIL</b> ○ Coral ○ Crinoids F Fossils < 20% ○ Oolite	<b>STRINGER</b> = Shale	<b>TEXTURE</b> C Chalky
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### OTHER SYMBOLS

<b>MISC</b> (DR) Daily Report Digital Photo Folder Link Vertical Log File Horizontal Log File Core Log File Drill Cuttings Rpt	<b>DST</b> ■ DST Int ■ DST alt ■ Core	<b>TG, C1 - C5</b> Total Gas (units) C1 (units) C2 (units) C3 (units) C4 (units)
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**1452' FSL and 409' FWL**  
**132'N and 79'E of W2 W2 SW**  
**Sec 3 T28S R22W**  
**Ford County, Kansas**  
**GL 2361 KB 2371**

**Heebner 4164 -1793**

**Toronto 4181 -1810**

**Douglas 4240 -1869**

**Lansing 4302 -1931**

**Muncie Creek 4482 -2111**

