

**Ritchie Exploration, Inc.
Derstein 8D No. 1
2305' FSL and 1860' FEL
5' S and 120' E of N2 NW SE
Sec 8 T28S R22W
Ford County, Kansas**

**Geological Report
by**

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

Scale 1:240 Imperial

Well Name:	Derstein 8D No. 1	Region:	Ford County, Kansas	Time:	9:00 PM
Surface Location:	Sec 8 T28S R22W	Drilling Completed:	2/12/2013	Time:	2:48 AM
Bottom Location:	2305' FSL and 1860' FEL	Surface Coordinates:			
License Number:	4767	Bottom Hole Coordinates:			
Spud Date:	2/1/2013	Ground Elevation:	2412.00ft		
API:	15-057-20857	K.B. Elevation:	2424.00ft		
Logged Interval:	3400.00ft	Logged Interval:	To: 5234.00ft		
Formation:	Mississippi	Total Depth:	5230.00ft		
Drilling Fluid Type:	Chemical/Fresh Water Gel	Formation:	Mississippi		

OPERATOR

Company:	Ritchie Exploration, Inc.	Contact Geologist:	Pete Fiorini
Address:	8100 East 22nd Street North, No. 700 Wichita, Kansas 67278	Contact Phone Nbr:	316-691-9500
		Well Name:	Derstein 8D No. 1
		Location:	Sec 8 T28S R22W
		Pool:	Gas, Oil
		State:	Kansas
		API:	15-057-20857
		Field:	
		Country:	Ford

CONTRACTOR

Contractor:	Duke Drilling	Time:	9:00 PM
Rig #:	1	Time:	2:48 AM
Rig Type:	mud rotary	Time:	10:15 PM
Spud Date:	2/1/2013		
TD Date:	2/12/2013		
Rig Release:	2/12/2013		

ELEVATIONS

K.B. Elevation:	2424.00ft	Ground Elevation:	2412.00ft
K.B. to Ground:	12.00ft		

SURFACE CO-ORDINATES

Well Type:	Vertical	Latitude:	37° 37' 21.033"
Longitude:	99° 44' 47.429"		
N/S Co-ord:			
E/W Co-ord:			

NOTES

Date	Depth at 7am	Activity
2-01-13	MIRU	Spud at 9:00 pm
2-02-13	336	WOC
2-03-13	830	Drilling
2-04-13	2090	Drilling
2-05-13	2887	Drilling
2-06-13	3500	Drilling
2-07-13	4174	Drilling
2-08-13	4590	Drilling
2-09-13	4950	Drilling
2-10-13	5065	TIH after DST No. 1
2-11-13	5138	CFS
2-12-13	5230	TOH for Log
2-13-13	5230	P & A

Surface Casing: 8 5/8" 23# at 396'
Production Casing: None set

Deviation: 370' - 1°, 1177' - 1°, 1714' - 1°, 2245' - 1°, 2750' - 1°, 3410' - 1°, 4985' - 1°, 5147' - 1°, 5230' - 1°

Bit Record: Make	Size	Type	Depth In	Depth Out	Hours
Varel	7 7/8	HE-21	396	5065	130 1/4
Varel	7 7/8	HE-21	5065	5230	6 3/4

Drill Stem Tests:

DST No. 1 5015 to 5065 Formation: Mississippi
30-45-45-60
2nd Open: GTS in 2" Gauged 7.63 MCFD in 5", 6.89 MCFD in 10", 6.51 MCFD in 15", 5.76 MCFD in 20"
Recovery: 150' GM (5%G, 95%M)
IHP 2435 FHP 2406
IFP 30-74 FFP 67-77
ISIP 1366 FSIP 1493
Temp 125°

DST No. 2 5065 to 5085 Formation: Mississippi
30-60-45-60
2nd Open: GTS in 30" TSTM
Recovery: 25' WM (2%W, 98%M)
IHP 2420 FHP 2408
IFP 10-15 FFP 13-16
ISIP 1439 FSIP 1429
Temp 120°

DST No. 3 5086 to 5160 Formation: Mississippi
30-45-45-60
Recovery: 120' WM (20%W, 80%M)
180' MW (40%M, 60%W) - Chl 85,000 ppm
IHP 2486 FHP 2430
IFP 31-115 FFP 128-229
ISIP 1435 FSIP 1414
Temp 120°

Formation	Sample	E-Log	Datum	Well 1	Well 2	Well 3
Anhydrite		1408	+1016	-5	-7	+6
B/Anhydrite		1450	+974	-2	-1	+5
Stottler	3553	3550	-1126	-23	-5	+9
Heebner	4210	4216	-1792	-32	-5	+4
Toronto	4233	4235	-1811	-33	-7	+3
Douglas	4296	4299	-1875	-33	-6	+2
Brown Lime	4346	4349	-1925	-34	-3	+3
Lansing	4354	4357	-1933	-34	-2	+2
Muncie Creek	4537	4540	-2116	-33	+5	0
Stark	4682	4684	-2260	-39	+7	+5
Hushpuckney	4722	4724	-2300	-37	+9	+7
Ericansas City	4760	4763	-2339	-36	+6	+1
Marmaton	4805	4807	-2383	-28	+30	+23
Pawnee	4882	4885	-2461	-32	+14	+22
Cherokee Shale	4928	4932	-2508	-34	+17	+18
Huck	4996	4999	-2575	-18	+16	+34
Atoka Shale	5006	5009	-2585	-20	+24	+32
Mississippi	5039	5045	-2621	-34	+35	+19
Total Depth	5230	5234	-2810			

Reference Well No. 1: Ritchie Exploration, Inc. Lamb-Lance No. 1 750' FNL and 2250' FEL Sec 8 T28S R22W
Reference Well No. 2: Ritchie Exploration, Inc. Derstein 17A No. 1 1925' FNL and 1730' FEL Sec 17 T28S R22W
Reference Well No. 3: Ritchie Exploration, Inc. Maupin-Fisher No. 1 2690' FNL and 2130' FEL Sec 9 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

Legend: Lmst fw7> shale, gry Carbon Sh

ACCESSORIES

MINERAL
▲ Chert, dark
▲ Varicolored chert
▲ Chert White

FOSSIL
F Fossils <20%
O Oolite

TEXTURE
C Chalky

OTHER SYMBOLS

DST
■ DST Int
■ DST all
■ Core



