

Scale 1:240 (5"=100') Imperial  
 Measured Depth Log

Well Name: #1 Luebbers Unit  
 Well Id:  
 Location: 95' FSL, 1,580' FEL, SECTION 26-155-36W  
 License Number: API: 15-109-21478 Region: Logan County  
 Spud Date: 08/31/2016 Drilling Completed: 09/10/2016  
 Surface Coordinates: LAT 38.7160198  
 LONG -101.2857350  
 Bottom Hole Coordinates: Vertical hole  
 1 Degree Deviation  
 Ground Elevation (ft): 3271' K.B. Elevation (ft): 3276'  
 Logged Interval (ft): 3700' To: RTD Total Depth (ft): 4860'  
 Formation: Mississippian at RTD  
 Type of Drilling Fluid: Chemical  
 Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

**OPERATOR**

Company: Ritchie Exploration Inc.  
 Address: 8100 E. 22nd St. N. Bldg. #700  
 Wichita, KS 67278-3188  
 (316) 691-9500

**GEOLOGIST**

Name: John Goldsmith  
 Company: Website Services LLC  
 Address: 427 Roosevelt St  
 Cheney, KS 67025  
 (316) 640-0236

**RIG AND BIT RECORDS**

Contractor: WW Drilling Rig #2 Collar Tally: 475'  
 Pusher: Lonnie Lang Pump: National K-380  
 Liner & Stroke: 6 x 14

**Bit Record**

Size	Type	Footage	Condition	Hours	Serial #
12 1/4	Sm-tooth	0-229'	RR	2.5	RD 6072
7/8	Sm-F 27	229'-4860'	New	115.5	RH 5179

**COMMENTS**

Surface Casing: 5 joints of 8 5/8" set at 229'  
 Production Casing: After multiple formation tests, no production casing was installed.  
 Mud by: MudCo  
 DST's by: Diamond Testing  
 Logs by: Pioneer Energy Services (DIL, CN-CD, ML)  
 RTD=4860' LTD=4857'

**FORMATION TOPS**

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Heebner Shale	3957'	-681	3955'	-679
Toronto	3972'	-696	3969'	-693
Lansing	4007'	-731	4004'	-728
Muncie Creek Shale	4178'	-902	4174'	-898
Stark Shale	4269'	-993	4265'	-989
Hushpuckney Shale	4309'	-1033	4307'	-1031
Marmaton	4354'	-1078	4350'	-1074
Altamont	4398'	-1122	4397'	-1121
Altamont	4412'	-1136	4410'	-1134
Pawnee	4483'	-1207	4481'	-1205
Myrick Station	4528'	-1252	4524'	-1248
Fi Scott	4544'	-1268	4540'	-1264
Cherokee Shale	4570'	-1294	4567'	-1291
Johnson Zone	4635'	-1359	4632'	-1356
Morrow	4708'	-1432	4704'	-1428
Mississippian	4800'	-1504	4777'	-1501
RTD	4860'	-1584		
LTD			4857'	-1581

**ROCK TYPES**

Anhy	Dol	Siltst	Gry sh
Cht	Lmst	Ss	Sandylms
Congl	Shale	Carb sh	Siltyls

**ACCESSORIES**

Circ	Foram	MINERAL	Chalky
Conn	Fossil	Calc	Crslxn
FOSSIL	Gastro	Chltd	Chltn
Brach	Oolite	Glau	Finexln
Bryozoa	Ostra	Nodule	Microxln
Crin	Plant	Pyr	
	Fuss	Sil	
	Oomold		

**DSTs**

**DST #1 "Toronto" 3938'-3992' 9-4-16 30-45-45-60**  
 1st Blw: 1/4" blw bit to BOB in 15min (No BB)  
 2nd Blw: Wk surf blw bit to BOB in 18.5min (No BB)  
 IFP: 16-144# ISIP: 1054# FFP: 148-271# FSP: 1024#  
 Hyd: 1840-1839#  
 Rec: 65'HMCWw/trO (59%Wtr), 350'MCW (71%Wtr), 50'SMCW (90%Wtr).

**DST #2 "LKC C" 4032'-4060' 9-5-16 30-45-45-60**  
 1st Blw: 1/4" blw bit to BOB in 21min (No BB)  
 2nd Blw: Wk surf blw bit to BOB in 23.5min (No BB)  
 IFP: 13-126# ISIP: 1087# FFP: 129-238# FSP: 1046#  
 Hyd: 1897-1892#  
 Rec: 5'HMCWw/trO (56%Wtr), 190'MCW (68%Wtr), 310'SMCW (96%Wtr).

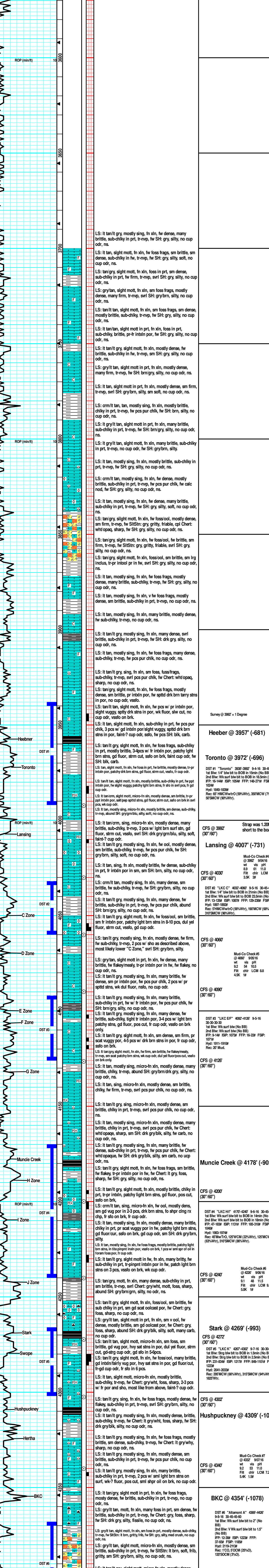
**DST #3 "LKC E/F" 4092'-4126' 9-5-16 30-30-30-30**  
 1st Blw: Wk surf blw bit to BOB (No BB)  
 2nd Blw: Wk surf blw bit to BOB (No BB)  
 IFP: 9-14# ISIP: 1073# FFP: 16-22# FSP: 1071#  
 Hyd: 1911-1910#  
 Rec: 20' Mud.

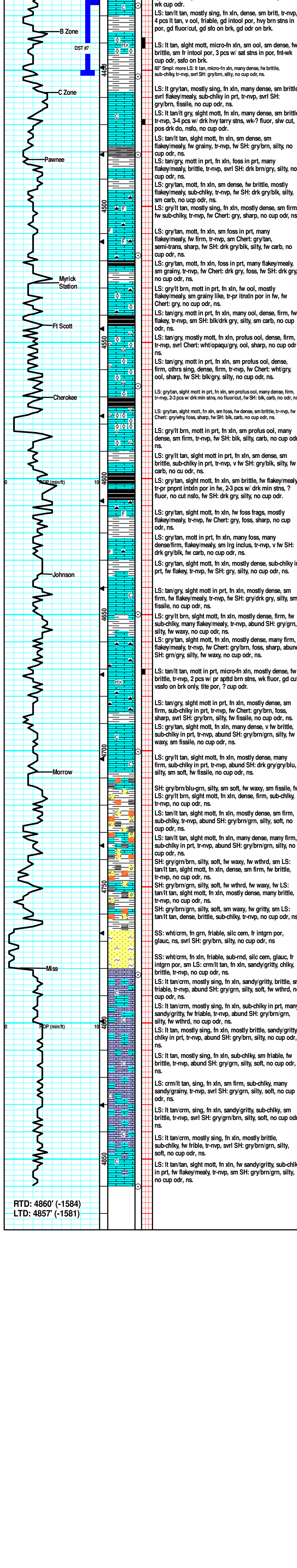
**DST #4 "LKC H/I" 4170'-4240' 9-6-16 30-45-45-60**  
 1st Blw: Wk surf blw bit to BOB in 14min (No BB)  
 2nd Blw: Wk surf blw bit to BOB in 18min (No BB)  
 IFP: 47-183# ISIP: 1131# FFP: 185-310# FSP: 1040#  
 Hyd: 1983-1974#  
 Rec: 45'Mw/TrO, 125'WCM (22%Wtr), 125'MCW (63%Wtr), 310'SMCW (86%Wtr).

**DST #5 "LKC K" 4267'-4302' 9-7-16 30-30-30-30**  
 1st Blw: Strg blw bit to BOB in 1.5min (No BB)  
 2nd Blw: Strg blw bit to BOB in 2.5min (No BB)  
 IFP: 231-834# ISIP: 1217# FFP: 849-1101# FSP: 1223#  
 Hyd: 2041-2033#  
 Rec: 295'MCW (66%Wtr), 315'SMCW (94%Wtr), 1825'Wtr.

**DST #6 "Altamont A" 4369'-4426' 9-8-16 30-45-45-60**  
 1st Blw: Wk surf blw bit to 2" (No BB)  
 2nd Blw: V Wk surf blw bit to 1.5" (No BB)  
 IFP: 12-38# ISIP: 1223# FFP: 37-65# FSP: 1185#  
 Hyd: 2119-2113#  
 Rec: 1'CO, 5'OCM (25%O), 120'SOCM (3%O).

**DST #7 "Altamont B" 4424'-4452' 9-9-16 30-45-45-60**  
 1st Blw: Wk surf blw bit to 2.25" (No BB)  
 2nd Blw: V Wk surf blw bit to 4" (No BB)  
 IFP: 9-30# ISIP: 1244# FFP: 36-53# FSP: 1230#  
 Hyd: 2106-2106#  
 Rec: 65'GIP, 45'GSMCO (8%G, 83%O), 60'OM (50%O).





RTD: 4860' (-1584)  
LTD: 4857' (-1581)

<p>Mud-Co Check #9 @ 4428' 9/10/16 wt 53.3 pH 11.0 SI 7.4K Fill ch# LCM 8.8 7.4K 1F</p>	<p>2nd Blw: V Wk surf blw bit to 4' (No BB) IPF: 9-30# FSP: 120# FFP: 36-53# FSP: 120# Hyd: 210-215# Rec: 65' GSP, 45' GSMCO (P+G, 83% O), 60' OMI (50% O).</p>
<p>CFS @ 4452' (30'/60')</p>	<p>Mud-Co Check #9 @ 4428' 9/10/16 wt 53.3 pH 11.0 SI 7.4K Fill ch# LCM 8.8 7.4K 1F</p>
<p>CFS @ 4481' (30'/60')</p>	<p><b>Pawnee @ 4483' (-1207)</b></p>
<p>CFS @ 4518' (30'/60')</p>	<p><b>Myrick Station @ 4528' (-1252)</b></p>
<p>CFS @ 4566' (30'/60')</p>	<p><b>Cherokee @ 4570' (-1294)</b></p>
<p>CFS @ 4635' (30'/60')</p>	<p><b>Johnson @ 4635' (-1359)</b></p>
<p>CFS @ 4667' (30'/60')</p>	<p>Mud-Co Check #10 @ 4674' 9/10/16 wt 53.3 pH 11.0 SI 7.4K Fill ch# LCM 8.8 7.4K 1F</p>
<p>CFS @ 4700' (30'/60')</p>	<p><b>Morrow @ 4708' (-1432)</b></p>
<p>CFS @ 4782' (30'/60')</p>	<p><b>Mississippi @ 4780' (-1504)</b></p>
<p>CFS @ 4860' (30'/60')</p>	<p>Survey @ 4867' = 1 Degree</p>