

**Ritchie Exploration, Inc.
Bieker-Stehno No.1
2410' FSL and 2010' FWL
100'N and 30'E of N2 NE SW
Sec 6 T6S R24W
Graham County, Kansas**

Geological Report
by

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

Scale 1:240 Imperial

Well Name:	Bieker-Stehno No. 1	
Surface Location:	Sec 6 T6S R24W	
Bottom Location:	2410' FSL and 2010' FWL	
API:	15-065-23949	
License Number:	4767	
Spud Date:	6/22/2013	Time: 2:00 PM
Region:	Graham County, Kansas	
Drilling Completed:	6/28/2013	Time: 8:00 PM
Surface Coordinates:		
Bottom Hole Coordinates:		
Ground Elevation:	2448.00ft	
K.B. Elevation:	2453.00ft	
Logged Interval:	3100.00ft	To: 3830.00ft
Total Depth:	3830.00ft	
Formation:	Marmaton	
Drilling Fluid Type:	Chemical/Fresh Water Gel	

OPERATOR

Company:	Ritchie Exploration, Inc.	
Address:	8100 East 22nd Street North, No. 700 Wichita, Kansas 67226	
Contact Geologist:	Pete Fiorini	
Contact Phone Nbr:	316-691-9500	
Well Name:	Bieker-Stehno No. 1	
Location:	Sec 6 T6S R24W	API: 15-065-23949
Pool:	Oil	Field: Wildcat
State:	Kansas	Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: 100° 02' 35.504" Latitude: 39° 33' 32.911"
 N/S Co-ord:
 E/W Co-ord:

CONTRACTOR

Contractor: WW Drilling
 Rig #: 6
 Rig Type: mud rotary
 Spud Date: 6/22/2013 Time: 2:00 PM
 TD Date: 6/28/2013 Time: 8:00 PM
 Rig Release: 6/29/2013 Time: 10:30 AM

ELEVATIONS

K.B. Elevation: 2453.00ft Ground Elevation: 2448.00ft
 K.B. to Ground: 5.00ft

NOTES

Date	Depth at 7 am	Activity
6-22-13	MIRU	Spud at 2:00 pm
6-23-13	990	Drilling
6-24-13	2838	Drilling
6-25-13	3540	CFS
6-26-13	3632	TIH after DST No. 1
6-27-13	3682	TOH after DST No. 3
6-28-13	3760	TOH for DST No. 5
6-29-13	3830	Lay Down Drill Pipe
6-30-13	3830	P & A

Surface Casing: 8 5/8" 23# at 260'
 Production Casing: None set

Deviation: 260' - 3/4°
 3632' - 1°
 3830' - 1°

Bit Record:	Make	Size	Type	Depth In	Depth Out	Hours
	SM	12 1/4"	Tooth Bit	Surface	260	2
	SM	7 7/8"	F27	260	3830	64

Drill Stem Tests:

DST No. 1 3564 to 3632 Formation: Toronto and Lansing A Zone
 30-45-45-60

Recovery: 10' Clean Oil (23 degree gravity)
 60' WHMCO (19%W, 36%M, 45%O)
 60' SOMCW (7%O, 32%M, 61%W - Chl 61,000 ppm)

IHP 1700 FHP 1695
 IFP 6-32 FFP 39-63
 ISIP 1229 FSIP 1228
 Temp 108°

DST No. 2 3622 to 3662 Formation: Lansing C and D Zones
 30-45-45-60

Recovery: 10' OCM (22%O, 78%M)
 60' GSOWCM (5%G, 5%O, 12%W, 78%M)

IHP 1723 FHP 1714
 IFP 4-24 FFP 26-43
 ISIP 1107 FSIP 1100
 Temp 105°

DST No. 3 3658 to 3682 Formation: Lansing E and F Zones

DST No. 3 3636 to 3682 Formation: Lansing E, and F Zones
 30-30-30-30
 Recovery: 5' Mud
 IHP 1732 FHP 1729
 IFP 3-5 FFP 6-7
 ISIP 11 FSIP 12
 Temp 105°

DST No. 4 3702 to 3730 Formation: Lansing H Zone
 30-30-30-30
 Recovery: 15' SOCM (7%O, 93%M)
 IHP 1746 FHP 1743
 IFP 4-11 FFP 14-20
 ISIP 978 FSIP 912
 Temp 107°

DST No. 5 3726 to 3760 Formation: Lansing I and J Zones
 30-30-30-30
 Recovery: 5' Mud
 IHP 1755 FHP 1745
 IFP 7-7 FFP 7-10
 ISIP 31 FSIP 33
 Temp 105°

Formation	Sample	E-Log	Datum	Well 1	Well 2	Well 3
Anhydrite	2082	2082	+371	-2	-12	-12
B/Anhydrite	2114	2114	+339	-2	-11	-11
Topeka	3370	3368	-915	0	-5	-13
King Hill	3461	3461	-1008	0	-6	-14
Queen Hill	3521	3521	-1068	+1	-5	-14
Heebner	3572	3571	-1118	+1	-6	-12
Toronto	3596	3595	-1142	+4	-1	-13
Lansing	3610	3610	-1157	+3	-5	-13
Muncie Creek	3711	3711	-1258	-1	-1	-15
Stark	3761	3761	-1308	+2	-2	-15
Hushpuckney	3778	3778	-1325	+2	-1	-13
B/Kansas City	3793	3793	-1340	+6	0	-11
Marmaton	3816	3817	-1364	+7		
Total Depth	3830	3830	-1377			

Well 1: Murfin Drilling Company Schoen No. 1 C NE SE Sec 1 T6S R25W
 Well 2: Horizon Petroleum David No. 1 C SW SW Sec 5 T6S R24W
 Well 3: Ritchie Exploration, Inc. Slipke Unit No. 1 2268' FNL and 29' FEL Sec 32 T5S R24W

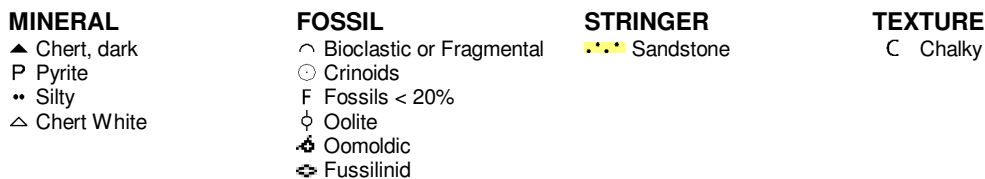
Due to the results of the Drill Stem Tests and the electric log calculations, it was decided to plug this test well.

Respectfully submitted,
 Macklin M. Armstrong

ROCK TYPES

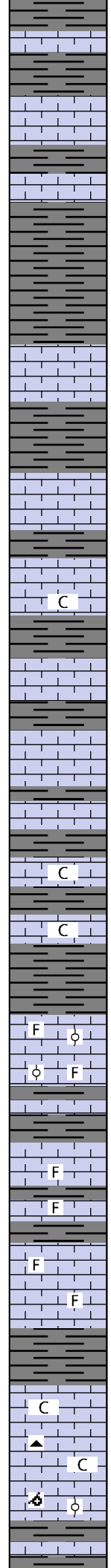
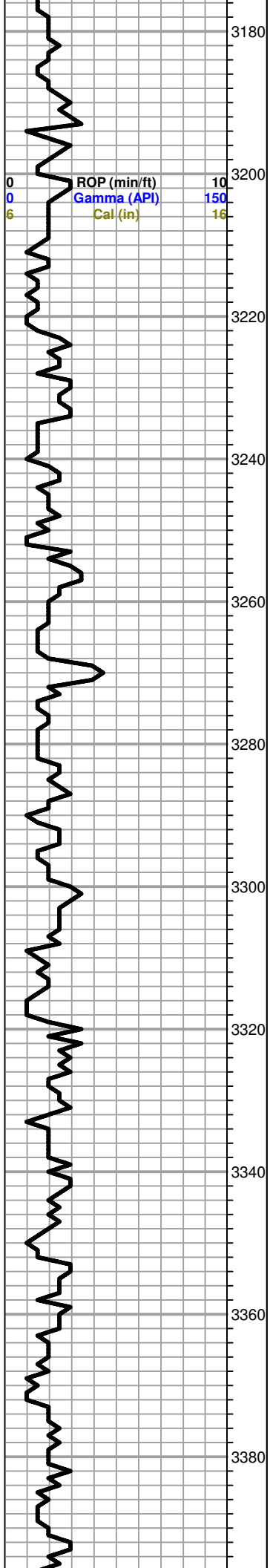


ACCESSORIES



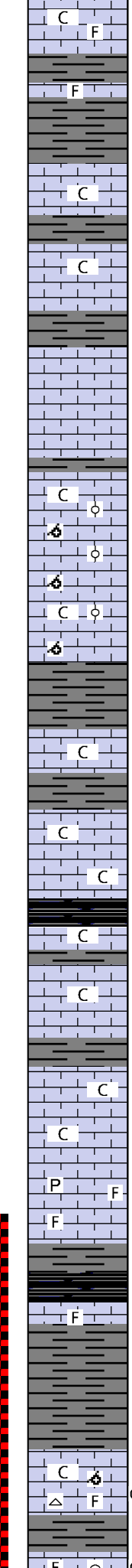
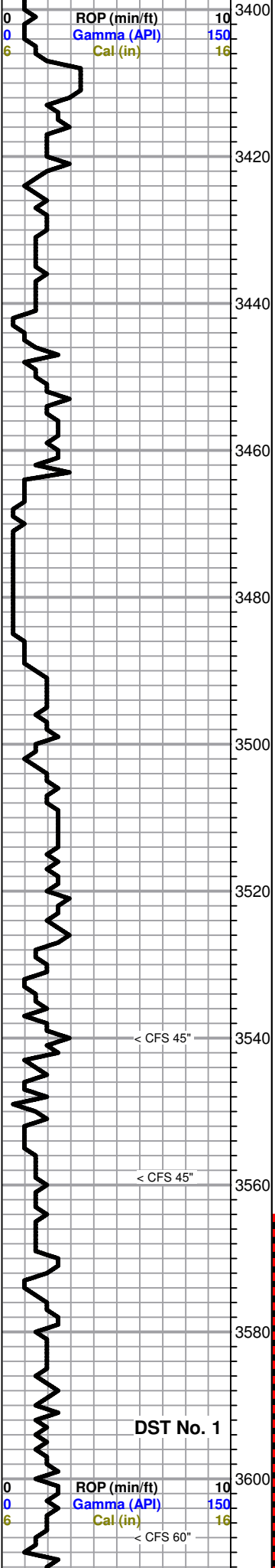
OTHER SYMBOLS





Sh-gry/dk gry
 Ls-lt gry/tan fxln dns no por
 Sh-gry/dk gry
 Ls-lt gry/tan fxln dns no por
 Sh-gry/dk gry
 Ls-lt gry/tan f/mxln dns no por
 Sh-gry/dk gry
 Sh-AA
 Sh-AA
 Ls-lt gry f/mxln dns no por
 Sh-gry/dk gry
 Ls-lt gry/gry mott blk f/mxln dns no por
 Sh-gry/dk gry
 Ls-tan fxln fxln dns no por
 Ls-crm/tan fxln mdh clkly no por
 Sh-gry/dk gry
 Ls-tan fxln dns no por
 Sh-gry/dk gry
 Ls-lt gry/tan fxln mhd no por
 Ls-lt gry/tan fxln dns no por
 Sh-gry/dk gry
 Ls-lt gry/tan fxln dns no por
 Sh-gry/dk gry
 Ls-crm/tan f/mxln mhd/dns sl clkly no por
 Sh-gry/dk gry
 Ls-crm/tan f/mxln mhd/dns sl clkly no por
 Sh-gry/dk gry
 Ls-tan/brn f/mxln dns sl fos no por sm Ls-tan f/mxln mhd with blk ool and irreg shaped fos no por
 Sh-gry/dk gry
 Ls-tan/lt gry fxln dns sl fos no por
 Sh-gry/dk gry
 Ls-tan/lt gry fxln dns sl fos no por
 Sh-gry/dk gry
 Ls-tan/lt gry fxln dns sl fos no por
 Sh-gry/dk gry
 Ls-tan/lt gry fxln dns sl fos no por
 Sh-gry/dk gry
 Ls-tan/gry f/mxln dns sl fos no por
 Ls-AA
 Sh-gry/dk gry
 ----- **Topeka 3370 -917** -----
 Ls-crm/lt tan fxln mhd sl clkly no por
 Ls-crm/tan f/mxln mhd sl clkly no por sm Cht-brn fsh opa
 with wt strks
 Ls-crm mxln mhd fos ool and oom no por
 Sh-gry/dk gry
 Ls-crm/tan f/mxln dns no por
 Sh-gry/dk gry

All formation tops on
 this geological log
 have been correlated back to
 the electric log



Sh-gry/dk gry
Ls-crm/lt tan f/mxln soft sl clky sl fos fr inter xln por nsfo

Sh-gry/dk gry
Ls-crm/lt tan fxln dns sl fos no por

Sh-gry/dkgry

Ls-crm/lt tan fxln mhd sl clky trc inter xln por nsfo

Sh-gry/dk gry

Ls-crm/lt tan f/mxln mhd sl clky no por

Sh-gry/dk gry

Ls-crm/tan/lt gry fxln mhd no por

Ls-crm/tan/lt gry fxln dns no por

----- **King Hill 3461 -1008** -----

Sh-gry/dk gry
Ls-crm/tan fxln soft clky fos oom and ool gd inter ool por nsfo

Ls-AA

Ls-AA

Ls-AA

Sh-gry/dk gry

Ls-crm/lt gry fxln mhd sl clky no por

Sh-gry/dk gry

Ls-tan/lt gry fxln mhd/dns sl clky no por

Ls-AA

----- **Queen Hill 3521 -1068** -----

Sh-blk carb
Ls-tan/lt gry fxln dns sl clky no por

Sh-gry/dk gry
Ls-tan fxln mhd sl clky trc inter xln por nsfo

Ls-AA

Sh-gry/dk gry

Ls-crm/lt gry fxln soft clky fr inter xln por nsfo

Ls-AA

Ls-lt gry/tan f/mxln mhd sl fos no por sm pyr

Ls-AA

Sh-gry/dk gry

----- **Heebner 3572 -1119** -----

Sh-blk carb
Ls-gry/tan fxln dns fos no por

Sh-gry/dk gry

Sh-AA

----- **Toronto 3596 -1143** -----

Ls-crm/tan f/mxln mhd sl clky no por sm Ls-wt fxln soft clky

Ls-AA with sm Ls-crm f/mxln mhd sl clky fos oom no por sm Cht-crm/wt fsh opa and 2 pcs Ls-tan fxln mhd sl fos fr vug por brn spt stn sso on brk

Sh-gry/dk gry

----- **Lansing 3610 -1157** -----

Ls-tan fxln to frag mhd fos gd vug/foscast por brn spt stn fgsfo on brk very faint odor

DST No. 1
3564 to 3632
30-45-45-60
1st Open: Weak surface blow building to 2 1/2"
2nd Open: Very weak surface blow building to 3"
Recovery:
10' CO (23 deg grav)
60' WHMCO (19%W 36%M, 45%O)
60' SOMCW (7%O, 32%M 61%W - Chl 61,000 ppm)
IHP 1700 FHP 1695
IFP 6-32 FFP 39-63
ISIP 1229 FSIP 1228
Temp 108°

Mud Data at 3540'
7:20 am 6-25-13
Wt 9.1 Vis 59 WL 6.4
pH 11 Chl 900
Sol 5.7% YP 28 LCM 2#

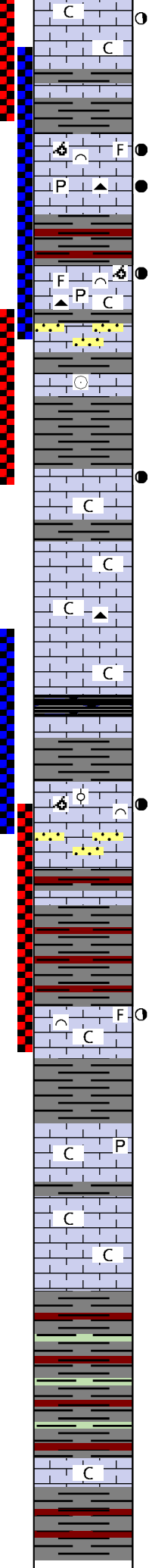
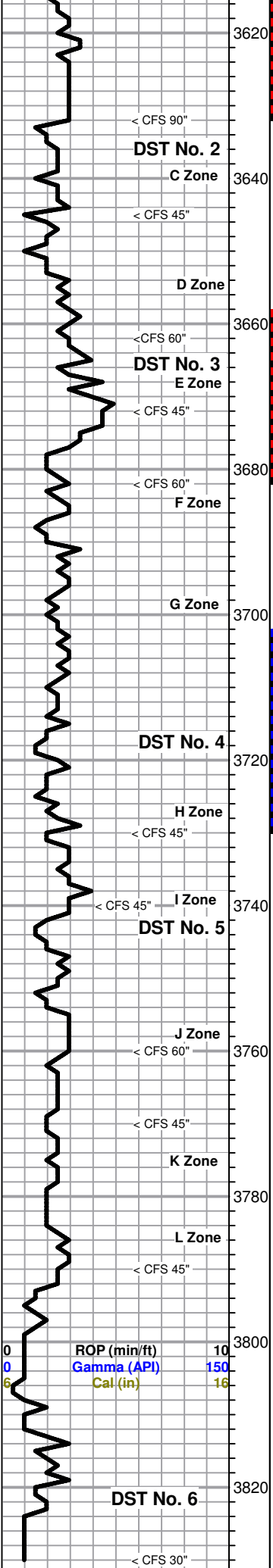
DST No. 2
3622 to 3662
30-45-45-60
1st Open: Very weak surface blow building to 1"
2nd Open: Very weak surface blow building to 1"
Recovery:
10' OCM (22%O, 78%M)
60' GSOWCM (5%G, 5%O 12%W, 78%M)
IHP 1723 FHP 1714
IFP 4-24 FFP 26-43
ISIP 1107 FSIP 1100
Temp 105°

DST No. 1

< CFS 45"

< CFS 45"

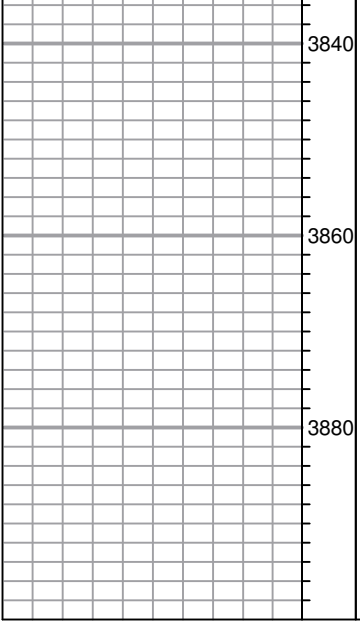
< CFS 60"



Ls-crm fxln mhd/dns clkly no por with few pcs Ls-tan fxln mhd trc vug por
 brn spt stn ssfo on brk
 Ls-crm/lt tan fxln mhd/dns sl clkly no por
 Sh-gry/dk gry
 Ls-AA
 Sh-gry/dk gry
 Ls-tan fxln to sl frag mhd sl fos sl oom gd vug por lt brn spt stn
 fgso on brk very faint odor
 Ls-tan fxln to sl frag mhd fos oom gd vug por brn spt to sat stn gsfo
 gd odor sm pcs ingrained with pyrite and sm Cht-gry/lt gry fsh opa
 Sh-gry/dk gry/red
 Ls-crm fxln to sl frag mhd sm sl fos and sl oom gd vug por brn spt stn
 fgso on brk faint odor
 Ls-crm fxln mhd/dns sl clkly sm pyrite no por sm Cht-gry/lt gry fsh opa
 Sh-gry/dk gry
 Ls-lt gry fxln dns no por and Ss-clr cgrn sub ang tite cemt nsfo
 Sh-gry/dk gry
 Ls-crm/lt gry fxln dns no por sm free crin
 Sh-gry/dk gry
 Sh-AA
 Ls-tan fxln to frag mhd fr vug por brn sct stn fgso on brk faint odor
 Ls-crm fxln dns sl clkly no por
 Sh-gry/dk gry
 Ls-crm/wt fxln mhd clkly no por
 Ls-crm/wt/lt gry fxln dns sl clkly no por
 Ls-AA with sm Cht-gry/lt gry fsh opa to semi trans
 Ls-crm/tan fxln dns sl clkly no por
 ----- **Muncie Creek 3711 -1258** -----
 Ls-crm/tan fxln dns no por
 Sh-gry/dk gry
 Ls-crm fxln to frag mhd fos oom and ool fr vug/inter ool por brn spt stn
 fgso on brk faint odor
 Ls-crm/lt gry fxln mhd no por with sm Ss-clr cgrn sub rnd tite cemt
 Sh-gry/dk gry/red
 Ls-crm/lt gry fxln dns no por
 Sh-gry/dk gry/red
 Sh-AA
 Ls-crm/lt gry fxln dns sl clkly no por with sm Ls-crm fxln to sl frag
 mhd fos fr vug/inter fos por lt brn spt stn ssfo on brk
 ----- **Stark 3761 -1308** -----
 Sh-gry/dk gry
 Ls-crm/lt gry f/mxln mhd sl clkly no por sm pyrite
 ----- **Hushpuckney 3778 -1325** -----
 Ls-crm/lt gry fxln mhd sl clkly no por sm Ls-wt fxln soft clkly
 ----- **B/Kansas City 3793 -1340** -----
 Sh-gry/dk gry/red/grn
 Sh-AA
 Sh-AA
 ----- **Marmaton 3816 -1363** -----
 Ls-crm/lt gry fxln mhd sl clkly no por
 Sh-gry/dk gry/red
 ----- **RTD 3830 -1377** -----

Pipe strap at 3632'
 Short 0.57 feet.
 Mud Data at 3632'
 7:30 am 6-26-13
 Wt 9 Vis 60 WL 6.8
 pH 11 Chl 1300
 Sol 4.9% YP 36 LCM 2#
 DST No. 3
 3658 to 3682
 30-30-30-30
 1st Open: Weak surface
 blow lasting 22"
 2nd Open: No blow, flushed
 tool, slight surge
 Recovery: 5' Mud
 IHP 1732 FHP 1729
 IFP 3-5 FFP 6-7
 ISIP 11 FSIP 12
 Temp 105°
 Mud Data at 3682'
 7:00 am 6-27-13
 Wt 9.1 Vis 60 WL 6.8
 pH 11 Chl 1200
 Sol 5.7% YP 26 LCM 2#
 DST No. 4
 3702 to 3730
 30-30-30-30
 1st Open: Very weak
 surface blow lasting 28"
 2nd Open: No blow, flushed
 tool, very weak surface
 blow lasting 3"
 Recovery:
 15' SOCM (7%O, 93%M)
 IHP 1746 FHP 1743
 IFP 4-11 FFP 14-20
 ISIP 978 FSIP 912
 Temp 107°
 Mud Data at 3760'
 7:15 am 6-28-13
 Wt 9.4 Vis 60 WL 7.2
 pH 10.5 Chl 1500
 Sol 7.8% YP 36 LCM 2#
 DST No. 5
 3726 to 3760
 30-30-30-30
 1st Open: Very weak
 surface blow lasting 8"
 2nd Open: No blow, flushed
 tool, slight surge
 Recovery: 5' Mud
 IHP 1755 FHP 1745
 IFP 7-7 FFP 7-10
 ISIP 31 FSIP 33
 Temp 105°

0 ROP (min/ft) 10
 0 Gamma (API) 150
 6 Cal (in) 16



Finished Drilling at 8:00 pm on 6-28-13. Pulled 11 stand short trip, then Cir for Log 90"

Finished Logging at 2:20 am on 6-29-13