



Musgrove

**PETROLEUM
CORPORATION**
Clifflin, Kansas

NOTES

Company: Mai Oil Operations, Inc.

Lease: Kramer A #9

Field: Trapp

Location: S2-SE-SW-NW (2370' FNL & 990' FWL)

Sec: 14 Twsp: 15S Rge: 14W

County: Russell State: Kansas

KB: 1899' GL: 1891'

API #: 15-167-23947-00-00

Contractor: Southwind Drilling, Inc. (Rig #3)

Spud: 05/21/2014 Comp: 05/30/2014

RTD: 3400' LTD: 3400

Mud Up: 2200' Type Mud: Chemical

Samples Saved From: 2300' to RTD

Drilling Time Kept From: 2300' to RTD

Samples Examined From: 2300' to RTD

Geological Supervision from: 2300' to RTD

Geologist on Well: Wyatt Urban

Surface Casing: 8 5/8@514'

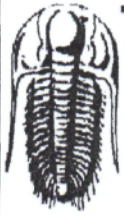
Electronic Surveys: Logged by Nabors Completion Services: DIL, MEL, CDL/CNL,

MAI OIL OPERATIONS, INC. WELL COMPARISON SHEET

Formation	Mai Oil- Kramer A#9 S2-SE-SW-NW 14-15S-14W				Mai Oil- Kramer A#8 W2-NE-NE-SW 14-15S-14W				Mai Oil- Kramer A#7 W2-NW-NE-SW 14-15S-14W			
	1899 KB				1893 KB		Structural Relationship		1909 KB		Structural Relationship	
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Anhydrite	881	1018	882	1017	872	1021	3	-4	887	1022	-4	-5
B. Anhydrite	914	985	915	984	911	982	-3	2	923	986	-1	-2
Grand Haven	2452	-553	2448	-549	2448	-555	2	6	2459	-550	-3	1
1st Tarkio Sd.	2462	-563	2457	-558	2457	-564	1	6	2470	-561	-2	3
Dover	2475	-576	2471	-572	2470	-577	1	5	2484	-575	-1	3
2nd Tarkio Sd.	2478	-579	2477	-578	2478	-585	6	7	2493	-584	5	6
Tarkio Lime	2518	-619	2517	-618	2518	-625	6	7	2530	-621	2	3
Elmont	2583	-684	2581	-682	2581	-688	4	6	2594	-685	1	3
Howard	2721	-822	2719	-820	2719	-826	4	6	2731	-822	0	2
Topeka	2792	-893	2791	-892	2790	-897	4	5	2803	-894	1	2
Heebner	3019	-1120	3019	-1120	3020	-1127	7	7	3031	-1122	2	2
Toronto	3032	-1133	3035	-1136	3025	-1132	-1	-4	3047	-1138	5	2
Lansing	3082	-1183	3081	-1182	3083	-1190	7	8	3094	-1185	2	3
BKC	3287	-1388	3288	-1389	3287	-1394	6	5	3295	-1386	-2	-3
Arbuckle	3330	-1431	3330	-1431	3333	-1440	6	5				

Length (ft)	Description	Volume (bbl)
250.00	M w/ show of oil	2.38

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

14-15S-14W Russell, KS

Kramer A#9

Job Ticket: 59237 DST#: 2

Test Start: 2014.05.29 @ 13:13:00

Mai Oil Operating, Inc. 8411 Preston Rd. Ste. 800 Dallas, TX 75225 ATTN: Wyatt Urban

GENERAL INFORMATION:

Formation: LKC "A-D"
Deviated: No Whipstock ft (KB)
Time Tool Opened: 15:46:30
Time Test Ended: 19:59:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Brannan L
Unit No: 48

Interval: 3090.00 ft (KB) To 3150.00 ft (KB) (TVD)
Total Depth: 3150.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1899.00 ft (KB)
1891.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8372 Inside

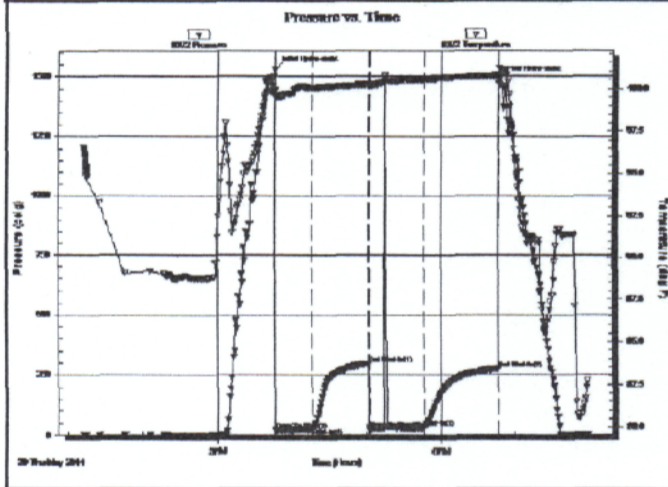
Press@RunDepth: 32.01 psig @ 3091.00 ft (KB) Capacity: 8000.00 psig

Start Date: 2014.05.29 End Date: 2014.05.29 Last Calib.: 2014.05.29

Start Time: 13:13:01 End Time: 19:59:00 Time On Blm: 2014.05.29 @ 15:46:00

Time Off Blm: 2014.05.29 @ 18:47:30

TEST COMMENT: 30- F- Surface blow built very slowly to 1/2"
45- IS- No blow
45- FF- No blow
60- FSI- No blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1532.84	99.92	Initial Hydro-static
1	20.48	99.49	Open To Flow (1)
30	28.21	100.03	Shut-in(1)
75	295.82	100.24	End Shut-in(1)
76	27.78	100.19	Open To Flow (2)
120	32.01	100.53	Shut-in(2)
180	274.26	100.75	End Shut-in(2)
182	1489.68	101.14	Final Hydro-static

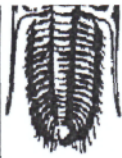
Recovery

Length (ft)	Description	Volume (bbl)
25.00	M	0.34

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TESTING, INC.

8411 Preston Rd.
Ste. 800
Dallas, TX 75225
ATTN: Wyatt Urban

14133-1447 Russell, KS

Kramer A#9
Job Ticket: 59238 DST#: 3
Test Start: 2014.05.30 @ 10:59:58

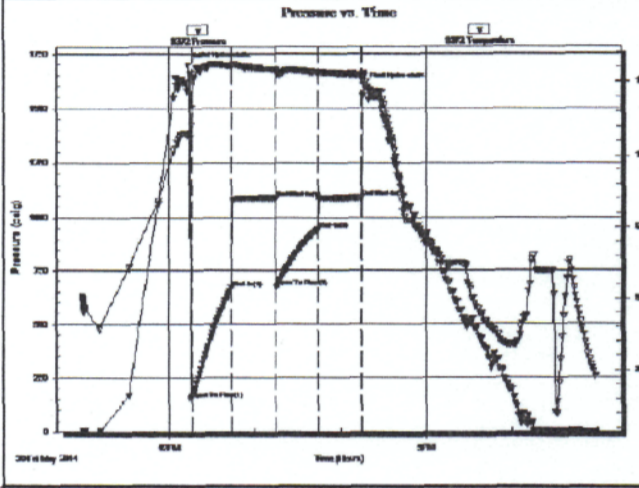
GENERAL INFORMATION:

Formation: **ARBUCKLE**
 Deviated: No Whipstock ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 12:15:58 Tester: Brannan L
 Time Test Ended: 16:58:28 Unit No: 48

Interval: **3283.00 ft (KB) To 3334.00 ft (KB) (TVD)** Reference Elevations: 1899.00 ft (KB)
 Total Depth: 3334.00 ft (KB) (TVD) 1891.00 ft (CF)
 Hole Diameter: 7.88 inches-Hole Condition: Fair KB to GRVCF: 8.00 ft

Serial #: 8372 Inside
 Press@RunDepth: 942.96 psig @ 3284.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.05.30 End Date: 2014.05.30 Last Calib.: 2014.05.30
 Start Time: 10:59:59 End Time: 16:58:28 Time On Btm: 2014.05.30 @ 12:13:28
 Time Off Btm: 2014.05.30 @ 14:15:58

TEST COMMENT: 30- F- BOB 30secs
 30- IS- No blow
 30- FF- BOB 1min
 30- FS- No blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1698.39	101.40	Initial Hydro-static
3	152.05	102.01	Open To Flow (1)
30	667.31	106.04	Shut-in(1)
61	1089.93	105.83	End Shut-in(1)
62	670.69	105.59	Open To Flow (2)
91	942.96	105.61	Shut-in(2)
121	1089.97	105.41	End Shut-in(2)
123	1602.52	105.52	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
700.00	MW, 5%M 95%W	9.56
1450.00	GMOW, 5%G 10%M 35%O 50%W	19.81

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests

ROCK TYPES

- Dolprim
- shale, grn
- Carbon Sh
- Ss
- Lmst fw<7
- shale, gry
- shale, red

ACCESSORIES

- FOSSIL**
 F Fossils < 20%
 φ Oolite
 ⚙ Oomoldic
- STRINGER**
 . . . Sandstone
- TEXTURE**
 C Chalky
 FX Finexln

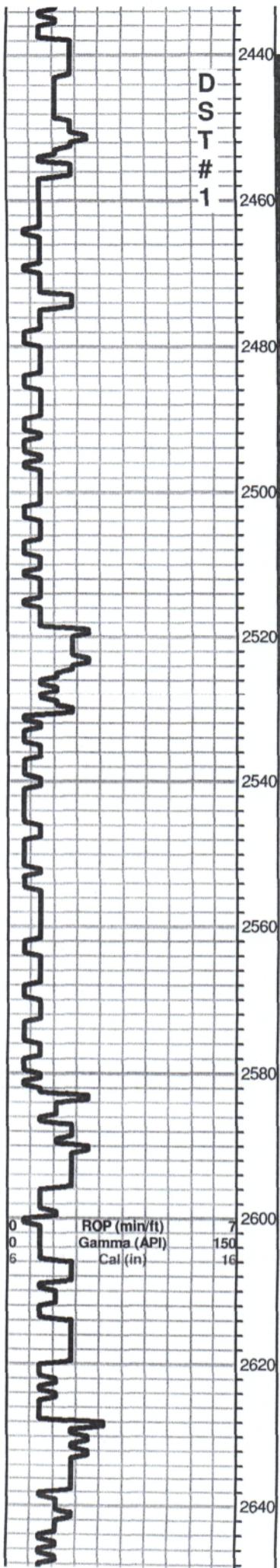
OTHER SYMBOLS

- Oil Show
- Good Show
- DST
- DST Int

Blow: BOB 1 min.

Recovery:
250' Mud w/ Show of oil

Pressures:
ISIP 671psi
FSIP 636 psi
IFP 24-116 psi
FFP 117-132 psi
HSH 1193-1132



LS, cream to tan, FXL, foss, chaky in part, poor visible porosity no shows

Grand Haven 2452 (-553)

LS, tan to brown, FXL, dense, foss, poor scattered porosity, no shows

Sd. gray, F. Grain, well sorted, Lt. black stain, no SFO, no odor

Dover 2472 (-573)

Sd. gray, F. grain, well sorted, SFO, odor, golden brown stain

Sh. black gray, silty, trace Sd. Lt. SFO, faint odor, Lt. brown stain

Tarkio Lime 2518 (-619)

LS, tan to brown, FX, slightly halky, poor scattered porosity, few foss

Sh. blk, gray, maroon,

LS, tan, cream, white, chalky, few foss, no shows

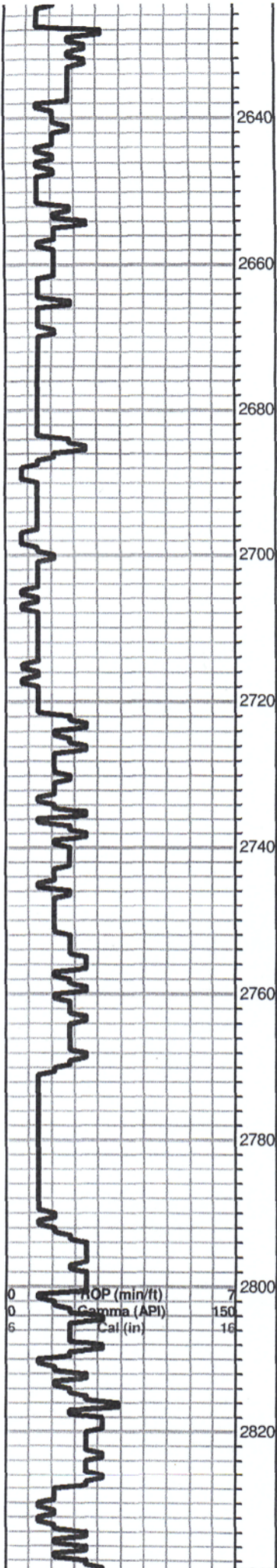
Elmont 2583 (-684)

LS, cream, FXL, poor visible porosity, no shows

LS, gray, cream, FXL, dns, poor scattered porosity, no shows



0	Total Gas (units)
1	C1 (units)
0	C2 (units)
0	C3 (units)
0	C4 (units)



LS, gray, cream, FXL, dns, poor scattered porosity, no shows

LS, A/A, trc. shale, gray, black silty

Sh. gray, silty

Howard 2721 (-822)

LS, cream to tan, FXL, chalky, few foss, poor visible porosity, no shows

LS, brown, tan, FX, dense, poor visible porosity, no shows

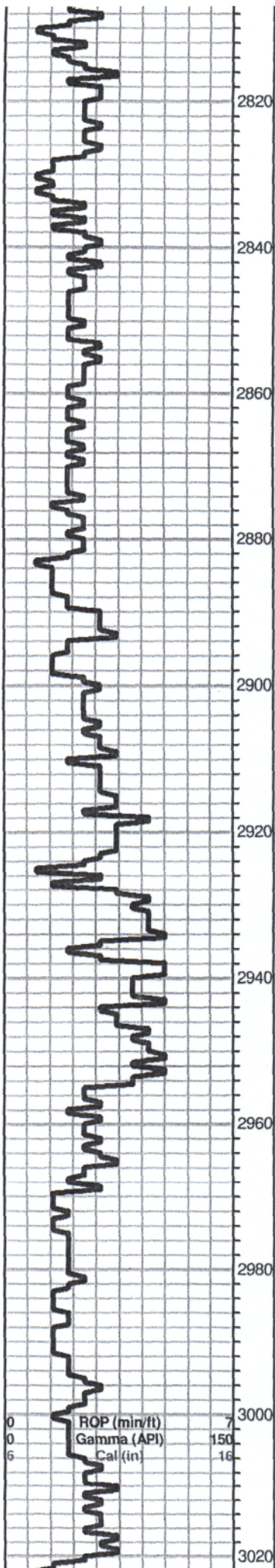
LS, brown to tan, FXL, cherty in parts, few foss, poor scattered porosity, no shows

Sh. gray, black carb

Topeka 2792 (-893)

LS, tan to brown, FXL, few foss, poor scattered porosity, no shows

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



LS, tan to brown, FXL, few foss, poor scattered porosity, no shows

LS, cream to tan, FXL, dense, no shows

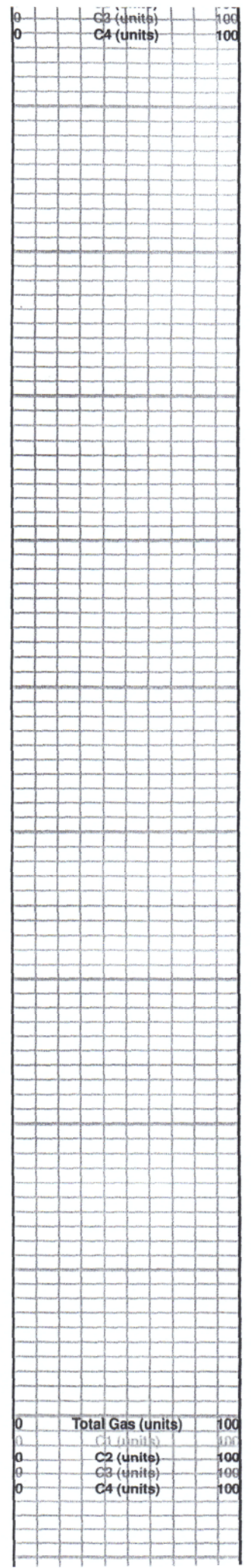
LS, tan, FXL, dense, poor visible porosity, no shows, trace black carb

LS, cream to white, FXL, dense, poor visible porosity, cherty no shows, Trc. brown chert

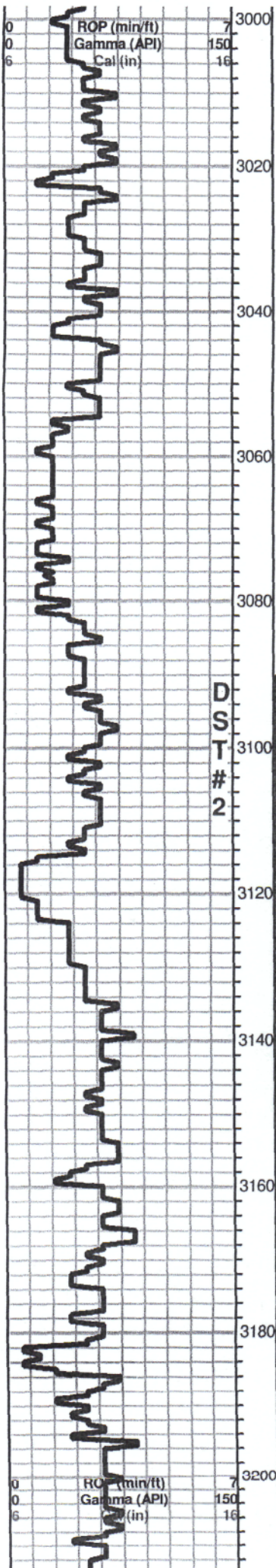
LS, cream to white, FXL, chalky, poor scattered porosity, SFO, fair odor

LS, cream to tan, chalky, poor visible porosity, no shows

Hebner 2010 / 1100



Total Gas (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)



LS, cream to tan, chalky, poor visible porosity, no shows

Heebner 3019 (-1120)

Black carb shale

LS, cream to tan, Chalky, poor visible porosity, no shows

Douglas 3082 (-1183)

Sh. gray, black, maroon

Sh. A/A

Lansing 3082 (-1183)

LS, tan, cream, poor scattered porosity, chalky, Lt. spotty SFO, fair odor, trace golden brown stain

LS, tan, brown, FXL, scattered porosity, chalky, Lt. SFO, odor,

LS, tan, chalky, oom, good vuggy porosity, SFO, fair odor

LS, cream to white, FXL, foss, poor scattered porosity, Lt. spotty show of free oil, Lt. brown stain

LS, cream to tan, FXL, poor scattered porosity, trace black, gray sh.

LS, cream to white, chalky, oom, poor to fair scattered porosity, no shows

LS, white to cream, FXL, chalky, Lt. brown stain, trace SFO, faint odor

LS, tan FXL, ool, por scattered porosity, odor???, Lt. floor cut

Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

DST # 2 3090'-3150'
30-45-45-60

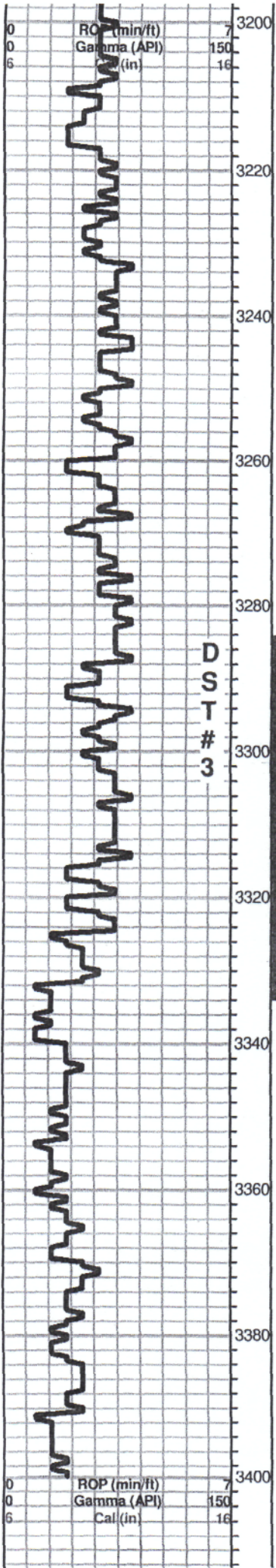
Blow: Surface blow 1/2"

Recovery: 25' Mud

Pressures

ISIP 296psi
FSIP 274psi
IFP 20-28psi
FFP 28-32psi
HSH 1533-1490psi

Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100



LS, tan FXL, ool, por scattered porosity, odor???, Lt. flor. cut

Black carb shale

LS, tan to gray, FXL, slightly cherty, poor visible porosity, no shows

LS, tan, brown, FXL, dense, no visible porosity, no shows

LS, cream to tan, FXL, poor to fair vuggy porosity, Lt. SFO, no odor

BKC 3288 (-1389)

LS, cream, FXL, poor scattered porosity, slightly chalky, poor visible porosity, no shows

Sh. gray, black, maroon,

Sh. A/A

Sh. gray, greenish, maroon

Arbuckle 3330 (-1431)

Dol. white, gray FXL, fair scattered porosity, SFO, strong odor, golden brown stain

Dol. white to cream, FXL, fair scattered porosity, Lt. SFO, fair odor, Lt. brown stain

Dol. white, cream, FXL, poor scattered porosity, Lt. SFO, faint odor

Dol. White, FXL, poor scattered porosity, dense, Trc. Lt. brown stain, faint odor

Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

DST # 3 3285 - 3334
30-30-30-30

Blow: BOB 30 Sec.

Recovery:
1450' GMOW
(5%G, 35%O, 50%W, 10%M)

700' MW
(95%W, 5%M)

Pressures:
ISIP 1090 psi
FSIP 1090 psi
IFP 152-667 psi
FFP 671-943 psi
HSH 1698-1603

Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

one 785-483-2025
cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 130

Date	5-21-2014	Sec.	14	Twp.	15	Range	14	County	Russell	State	KANSAS	On Location		Finish	7:30 PM			
Location													Russell KS. Hwy 40 + 281					
Lease	Kramer			Well No.			A-9			Owner			9 1/2 S 1/4 W					
Contractor	SOUTHWIND DRILLING			Rig #			3 "Jay"			To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.								
Type Job	Long Surface																	
Hole Size	12 1/4			T.D.			514'			Charge To			MAI OIL OPERATIONS					
Csg.	8 5/8 NEW			Depth			514'			Street								
Tbg. Size	2 3/8 CSQ.			Depth			City									State		
Tool				Depth			The above was done to satisfaction and supervision of owner agent or contractor											
Cement Left In Csg.	20'			Shoe Joint			Cement Amount Ordered			250 sx 40 28 GAL								
Meas Line				Displace			3 1/4 / BBL			3% CC								
EQUIPMENT												Common						
Pumptrk	18	No.	Cementer	GLEN G.			Poz. Mix											
			Helper	CODY B.														
Bulktrk	14	No.	Driver	CLAYTON B.			Gel.											
			Driver															
Bulktrk		No.	Driver				Calcium											
			Driver															
JOB SERVICES & REMARKS												Hulls						
Remarks:												Salt						
Rat Hole												Flowseal						
Mouse Hole												Kol-Seal						
Centralizers												Mud CLR 48						
Baskets												CFL-117 or CD110 CAF 38						
DV or Port Collar												Sand						
												Handling						
Ran 12 New Joints of 2 3/8												Mileage						
8 5/8 CSQ. Set @ 514'												FLOAT EQUIPMENT						
Received Circulation + Cement												2-Cup Wooden Wiper						
w/ 250 sx 40 2x3												Centralizer						
Release wooden wiper plug,												Baskets						
& displaced @ total of												AFU Inserts						
3 1/4 BBL / HP Behind.												Float Shoe						
Cement Did Circulate												Latch Down						
To Surface																		
THANK'S												Pumptrk Charge						
												Mileage						
												Tax						
												Discount						
x A												Total Charge						

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 138

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-31-14	14	15	14W	Russell	Kansas		12:30 PM
Lease				Well No.		Owner	
KRAMER "A"				#9		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.	
Contractor				Type Job		Charge To	
SOUTHWIND DALS Rig #3				PRODUCTION STRING		MAT OIL OPERATIONS	
Hole Size		T.D.		Depth		Street	
7 7/8		3400'		3399'			
Csg.		Tbg. Size		City		State	
5 1/2 New 14# ^{sq}							
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.			
LATCH DN ASSY		@ 3379'					
Cement Left in Csg.		Shoe Joint		Cement Amount Ordered			
20 ⁴⁰		20 ⁴⁰		100SX ⁴⁰ 10% SALT 2% GEL 1/4# ^{FBS}			
Meas Line		Displace		100SX ⁴⁰ 18% SALT 2% GEL 1/4# ^{FBS} SEAL			
		82.45					
EQUIPMENT				Common			
Pumptrk #18	No.	Cementer	Helper	Gleyn G. Cody B.			
Bulktrk #14	No.	Driver	Driver	CRAIG B.			
Bulktrk #1	No.	Driver	Driver	CHAD M.			
JOB SERVICES & REMARKS				Hulls			
Remarks: JT. 65/83 OUT				Salt			
Rat Hole 30 SX				Flowseal			
Mouse Hole				Kol-Seal			
Centralizers #1-10 #21, 23				Mud CLR 48/1000 gal			
Baskets #11				CFL-117 or CD110 CAF 38			
D/V or Port Collar				Sand			
RAN 81 NEW JOINTS OF 14# GSS.				Handling			
SET @ 3379', RECIPE CIRCULATION				Mileage			
DROP AFU BALL, CIRCULATE 3/4 HR				5 1/2 FLOAT EQUIPMENT			
PUMP 1000 GAL MID-FLUSH				Guide Shoe			
14# CEMENT w/ 70 SX ⁴⁰ 2% GEL 18% SALT				Centralizer 12 TR "TURBO"			
15# CEMENT w/ 100 SX ⁴⁰ 2% GEL 10% SALT				Baskets 1 - WEATHERFORD			
Clear-Line + Release LATCH-DN				AFU Inserts			
Plug. Displace A TOTAL OF				Float Shoe 1 TR			
82 1/2 BBL H ₂ O, LAND PLUG				Latch Down 1 TR			
@ 1500#.							
Release Pressure + AFU-LATCH PLUG				Pumptrk Charge			
"HELD"				Mileage			
THANKS!							
Signature				Tax			
				Discount			
				Total Charge			