

Confidentiality Requested:

Yes No

Kansas Corporation Commission Oil & Gas Conservation Division

1158744

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License #			API No. 15		
Name:			Spot Description:		
Address 1:			SecTwpS. R		
Address 2:			Feet	from North / South Line of Sectio	
City: St	ate: Zip	D:+	Feet	from East / West Line of Section	
Contact Person:			Footages Calculated from Ne	earest Outside Section Corner:	
Phone: ()			□ NE □ NW	☐ SE ☐ SW	
CONTRACTOR: License #			GPS Location: Lat:	, Long:	
Name:				g. xx.xxxxx) (e.gxxx.xxxxx)	
Wellsite Geologist:			Datum: NAD27 NAD27		
Purchaser:			County:		
Designate Type of Completion:			Lease Name:	Well #:	
New Well Re-	·Fntrv	Workover	Field Name:		
	_		Producing Formation:		
☐ Oil ☐ WSW	SWD	SIOW	Elevation: Ground:	Kelly Bushing:	
☐ Gas ☐ D&A ☐ OG	☐ ENHR	☐ SIGW ☐ Temp. Abd.	Total Vertical Depth:	Plug Back Total Depth:	
CM (Coal Bed Methane)	G3W	iemp. Abd.	Amount of Surface Pipe Set a	and Cemented at: Fee	
Cathodic Other (Core	Expl etc.)		Multiple Stage Cementing Co		
If Workover/Re-entry: Old Well Inf				Fee	
Operator:				nent circulated from:	
Well Name:			, ,	w/sx cm	
Original Comp. Date:			loot doparto.		
	_	NHR Conv. to SWD			
Deepening Re-perf. Plug Back	Conv. to GS		Drilling Fluid Management F (Data must be collected from the		
Commingled	Permit #:		Chloride content:	ppm Fluid volume: bbl	
Dual Completion	Permit #:		Dewatering method used:		
SWD	Permit #:		Location of fluid disposal if ha	auled offsite:	
☐ ENHR	Permit #:		One water Name .		
GSW Permit #:					
				License #:	
Spud Date or Date Rea	iched TD	Completion Date or		TwpS. R	
Recompletion Date		Recompletion Date	County:	Permit #:	

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY						
Confidentiality Requested						
Date:						
Confidential Release Date:						
☐ Wireline Log Received						
Geologist Report Received						
UIC Distribution						
ALT I III Approved by: Date:						

Page Two



Operator Name:				Lease N	Name: _			Well #:		
Sec Twp	S. R	East	West	County	:					
INSTRUCTIONS: Shopen and closed, flow and flow rates if gas to	ring and shut-in pres o surface test, along	sures, whethe with final cha	er shut-in pre art(s). Attach	essure reac n extra shee	hed stati t if more	c level, hydrosta space is neede	itic pressures, bot d.	tom hole temp	erature, fluid re	ecovery,
Final Radioactivity Lo files must be submitte						ogs must be ema	ailed to kcc-well-lo	gs@kcc.ks.go	v. Digital electr	ronic log
Drill Stem Tests Taker (Attach Additional		Yes	☐ No				on (Top), Depth ar		Sampl	
Samples Sent to Geo	logical Survey	Yes	□No		Nam	е		Тор	Datum	1
Cores Taken Electric Log Run		☐ Yes ☐ Yes	☐ No ☐ No							
List All E. Logs Run:										
				RECORD	Ne					
		1				ermediate, product		T	I	
Purpose of String	Size Hole Drilled		Casing n O.D.)	Weig Lbs. /		Setting Depth	Type of Cement	# Sacks Used	Type and Pe Additive	
			ADDITIONAL	CEMENTIN	NG / SQL	JEEZE RECORD				
Purpose:	Depth Top Bottom	Type of	Cement	# Sacks	Used		Type and F	ercent Additives		
Perforate Protect Casing	100 20111111									
Plug Back TD Plug Off Zone										
1 lug 0 li 20 lio										
Did you perform a hydrau	ulic fracturing treatment	on this well?				Yes	No (If No, ski	ip questions 2 ar	nd 3)	
Does the volume of the t							= :	p question 3)		
Was the hydraulic fractur	ring treatment information	on submitted to	the chemical	disclosure re	gistry?	Yes	No (If No, fill	out Page Three	of the ACO-1)	
Shots Per Foot		ION RECORD Footage of Eac					cture, Shot, Cement			epth
	open,					,,				
TUBING RECORD:	Size:	Set At:		Packer A	t:	Liner Run:				
							Yes No			
Date of First, Resumed	Production, SWD or Ef	NHR. F	Producing Met	hod: Pumpin	a	Gas Lift 0	Other (Explain)			
Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Wat			Gas-Oil Ratio	Gra	avity
	1									
	ON OF GAS:		en Hole	METHOD OF			mmingled	PRODUCTION	ON INTERVAL:	ļ
Vented Solo	I Used on Lease bmit ACO-18.)		en noie _	Perf.	(Submit		mmingled mit ACO-4)			

Form	ACO1 - Well Completion			
Operator	Mai Oil Operations, Inc.			
Well Name	Ludwig-Morgenstern Unit 1			
Doc ID	1158744			

Tops

Name	Тор	Datum
Anhydrite	907	+1015
Topeka	2861	-939
Heebner	3094	-1172
Toronto	3105	-1183
Brown Lime	3158	-1236
Lansing	3172	-1250
Base Kansas City	3381	-1459
Arbuckle	3420	-1498

Conservation Division Finney State Office Building 130 S. Market, Rm. 2078 Wichita, KS 67202-3802



Phone: 316-337-6200 Fax: 316-337-6211 http://kcc.ks.gov/

Sam Brownback, Governor

Mark Sievers, Chairman Thomas E. Wright, Commissioner Shari Feist Albrecht, Commissioner

September 17, 2013

Allen Bangert Mai Oil Operations, Inc. 8411 PRESTON RD STE 800 DALLAS, TX 75225-5520

Re: ACO1 API 15-009-25855-00-00 Ludwig-Morgenstern Unit 1 SW/4 Sec.08-17S-14W Barton County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully, Allen Bangert

JAMES C. MUSGROVE

Petroleum Geologist 212 Main Street P.O. Box 215 Claflin, KS 67525

Office (620) 588-4250

Res. Claflin (620) 587-3444

Mai Oil Operations Ludwig-Morgenstern Unit #1 SW-SE-SE-SW (1450' FSL & 2040' FWL) Section 8-17s-14w Barton County, Kansas Page 1

5 1/2" Production Casing Set

Contractor:

Southwind Drilling Co. (Rig #3)

Commenced:

July 24, 2013

Completed:

July 31, 2013

Elevation:

1922' K.B; 1920' D.F; 1914' G.L.

Casing program:

Surface; 8 5/8" @ 901'

Production; 5 1/2" @ 3492'

Sample:

Samples saved and examined 2800' to the Rotary Total Depth.

Drilling time:

One (1) foot drilling time recorded and kept 2800 ft. to the Rotary Total

Depth.

Measurements:

All depths measured from the Kelly Bushing.

Drill Stem Tests:

There were five (5) Drill Stem Tests ran by Trilobite Testing Co.

Electric Log:

By Nabors Completion and Production Services Co; Dual Induction,

Compensated Density/Neutron Log and Micro.

<u>Formation</u>	Log Depth	Sub-Sea Datum
Anhydrite	907	+1015
Base Anhydrite	937	+985
Topeka	2861	-939
Heebner	3094	-1172
Toronto	3105	-1183
Brown Lime	3158	-1236
Lansing	3172	-1250
Base Kansas City	3381	-1459
Conglomerate	3390	-1468
Arbuckle	3420	-1498
Rotary Total Depth	3491	-1569
Log Total Depth	3493	-1521

(All tops and zones corrected to Electric Log measurements).

SAMPLE ANALYSIS, SHOWS OF OIL, TESTING DATA, ETC.

TOPEKA SECTION

3010-3030'

Limestone; gray, finely crystalline, few granular, poor visible porosity, questionable stain, no free oil and no odor.

Mai Oil Operations Ludwig-Morgenstern Unit #1 SW-SE-SE-SW (1450' FSL & 2040' FWL) Section 8-17s-14w Barton County, Kansas

Page 2

3038-3060'

Limestone; white/gray, finely crystalline, fossiliferous, chalky, poor visible porosity, black and brown stain, plus white chalk.

TORONTO SECTION

3105-3120'

Limestone; white/gray, finely crystalline, chalky, few fossiliferous, poor porosity, trace brown stain, no free oil and no odor.

LANSING SECTION

3172-3175'

Limestone; tan, brown, fossiliferous in part, dark brown spotty

stain, no free oil and no odor.

3180-3196'

Limestone; tan, cream, oomoldic, good oomoldic porosity, brown

stain, show of free oil and fair to good odor in fresh samples.

Drill Stem Test #1

3161-3200'

Times:

30-30-45-45

Blow:

Weak building to good

Recovery:

186' gas in pipe

62' muddy gassy oil

(10% gas, 45% oil, 10% water, 35% mud)

Pressures:

ISIP 416

psi

FSIP 412 **IFP**

psi

16-27 FFP 30-39 psi psi

HSH 1512-1493

psi

3223-3226'

Limestone; white, fossiliferous, oolitic, chalky, trace brown stain, weak show of free oil and no odor in fresh samples.

3228-3236'

Limestone; as above, oolitic, chalky, brown and black stain, no

free oil and no odor.

3242-3248'

Limestone; as above, brown and golden brown stain, trace of

free oil and faint odor.

3250-3256'

Limestone; tan, gray, oomoldic, fair oomoldic porosity, brown

and golden brown stain, show of free oil and odor in fresh

samples.

Drill Stem Test #2

3210-3256'

Times:

30-30-30-45

Blow:

Strong; gas to surface 5 minutes into ISIP, TSTM

Recovery:

380' clean oil

310' muddy gassy oil

(20% gas, 65% oil 15% mud)

Pressures: ISIP 529

psi

FSIP 539

psi

IFP 92-172

psi

FFP 194-223

psi

Mai Oil Operations Ludwig-Morgenstern Unit #1 SW-SE-SE-SW (1450' FSL & 2040' FWL) Section 8-17s-14w Barton County, Kansas Page 3

> HSH 1536-1511 psi

3256-3270' Limestone; as above, trace stain, no free oil and no odor.

Limestone; gray, white, chalky, few fossiliferous, sub oomoldic, 3306-3312

trace gray and brown stain, no free oil and questionable odor in

fresh samples.

3322-3328' Limestone; white, oolitic, chalky, scattered porosity, light brown

to brown stain, weak show of free oil and questionable odor in

fresh samples.

3340-3349' Limestone; gray, cream, oolitic, oomoldic, brown and black

(gilsonitic) stain, trace of free oil and faint odor in fresh samples.

Limestone; as above, brown stain, trace of free oil and 3360-3364

questionable door.

3370-3384' Limestone; cream, white, fossiliferous, chalky, poor porosity,

trace brown stain, no free oil and no odor.

Drill Stem Test #3

3296-3382'

Times:

30-30-30-45

Blow:

Strong

Recovery:

75' gas in pipe

250' clean oil

280' muddy gassy oil

(30% gas, 40% oil, 30% mud) 186' very gassy muddy oil

(55% gas, 39% oil, 6% mud, 20% water)

Pressures: ISIP 727

psi

FSIP 695

psi

IFP 39-174

FFP 182-265

psi psi

HSH 1594-1577

psi

ARBUCKLE SECTION

3420-3433'

Dolomite; white, cream, medium crystalline, scattered porosity, brown and golden brown stain, trace of free oil and faint odor in fresh samples.

Drill Stem Test #4

3371-3431' (log measurements 3373-3433)

Times:

45-30-45-45

Blow:

Weak

Recovery:

80' gas in pipe

2' clean oil

80' heavy oil and gas cut mud (5% gas, 30% oil, 65% mud)

Mai Oil Operations Ludwig-Morgenstern Unit #1 SW-SE-SE-SW (1450' FSL & 2040' FWL) Section 8-17s-14w Barton County, Kansas Page 4

> Pressures: ISIP 588

psi **FSIP 443** psi **IFP** 17-26 psi FFP 23-33 psi HSH 1643-1591 psi

3433-3443'

Dolomite; as above, fair to good porosity, fair stain and saturation, show of free oil and odor in fresh samples.

Drill Stem Test #5

3371-3441' (log measurements 3373-3443)

Times:

45-30-45-45

Blow:

Weak

Recovery:

40' gas in pipe 2' clean oil 20' oil cut mud

(10% gas, 5% oil, 85% mud)

Pressures: ISIP 153

FSIP 136 psi **IFP** 21-43 psi FFP 45-53 psi HSH 1626-1611 psi

3343-3360'

Dolomite; white, cream, medium crystalline, few coarse

psi

crystalline, fair to good intercrystalline porosity, light brown stain,

show of free oil and faint odor in fresh samples.

3360-3380'

Dolomite; white, cream, medium crystalline, few coarse

crystalline, fair to good intercrystalline porosity, light brown stain,

show of free oil and faint odor in fresh samples.

3380-3493'

Dolomite; as above, plus white chert.

Rotary Total Depth

3491

Log Total Depth

3493

Recommendations:

5 1/2" production casing was set and cemented on the Ludwig-Morgenstern Unit #1.

Respectfully submitted;

Jamèş C. Musgro√e, Petroleum Geologist



Mai Oil Operation Inc

8411 Preston Rd Ste 800

Dallas Texas 75225-5520

ATTN: Kurt Mai

8-17s-14w Barton

Ludwig-Morgenstern#1

Job Ticket: 54259

DST#: 1

Test Start: 2013.07.28 @ 02:35:56

GENERAL INFORMATION:

Time Tool Opened: 04:31:36

Time Test Ended: 08:45:50

Formation:

LKC

Deviated:

No

Whipstock:

ft (KB)

Test Type: Conventional Bottom Hole (Initial)

Tester:

Ray Schwager

Unit No:

1928.00 ft (KB)

Reference Bevations:

KB to GR/CF:

1920.00 ft (CF)

8.00 ft

Total Depth: Hole Diameter:

3161.00 ft (KB) To 3200.00 ft (KB) (TVD)

3200.00 ft (KB) (TVD)

7.85 inches Hole Condition: Fair

Inside

Serial #: 8369 Press@RunDepth: Start Date:

Start Time:

39.79 psig @ 3165.00 ft (KB)

02:35:56

2013.07.28

End Date:

End Time:

2013.07.28 08:45:50

Capacity: Last Calib .: 8000.00 psig

Time On Btm: Time Off Btm: 2013.07.28 @ 07:09:20

2013.07.28 2013.07.28 @ 04:29:21

TEST COMMENT: 30-IFP-wkbl, 1/4"to 3"bl

30-ISIP-no bl

45-FFP-wk to a gd bl 1"to 6 1/2"bl

45-FSIP-no bl

					Press	ure vs. Tu					
				8380 Pressure				♥ 100 Temperature			
				Ł	letted Hydro atalic			- phospike		H	06
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	PRESSURE SUMMARY							
1	Time	Pressure	Temp	Annotation				
1	(Min.)	(psig)	(deg F)					
1	0	1512.66	98.92	Initial Hydro-static				
1	3	16.83	98.65	Open To Flow (1)				
1	33	27.89	99.26	Shut-In(1)				
	62	416.39	100.40	End Shut-In(1)				
Temp	62	30.76	100.31	Open To Flow (2)				
070	107	39.79	102.08	Shut-In(2)				
-	154	412.87	103.09	End Shut-In(2)				
	160	1493.34	103.65	Final Hydro-static				
1								

Recovery				
Length (ft)	Description	Volume (bbl)		
0.00	186'GIP	0.00		
62.00	MGO 10%G10%W35%M45%O	0.87		

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

Trilobite Testing, Inc

Ref. No: 54259

Printed: 2013.07.29 @ 00:42:33



Mai Oil Operation Inc

8-17s-14w Barton

8411 Preston Rd

Job Ticket: 54260

Ste 800

DST#: 2

Dallas Texas 75225-5520 ATTN: Kurt Mai

Test Start: 2013.07.28 @ 16:55:17

Ludwig-Morgenstern#1

GENERAL INFORMATION:

Time Tool Opened: 18:18:57

Time Test Ended: 22:47:26

Formation:

Interval:

Total Depth:

LKC

Deviated:

No

Whipstock:

ft (KB)

Test Type: Conventional Bottom Hole (Reset)

Tester:

Ray Schwager

Unit No:

70

Reference Elevations:

1928.00 ft (KB) 1920.00 ft (CF)

KB to GR/CF:

8.00 ft

Hole Diameter:

Serial #: 8369

3256.00 ft (KB) (TVD) 7.85 inches Hole Condition: Fair

Capacity:

8000.00 psig

Press@RunDepth: Start Date: Start Time:

Inside

223.92 psig @ 3220.00 ft (KB) 2013.07.28 16:55:17

3210.00 ft (KB) To 3256.00 ft (KB) (TVD)

End Date: End Time:

2013.07.28 22:47:26

Last Calib .:

2013.07.28

Time On Btm:

2013.07.28 @ 18:16:42 Time Off Btm: 2013.07.28 @ 20:39:57

TEST COMMENT: 30-IFP-strg bl in 30 sec

30-ISIP-GTS in 5 min gd bl bk 30-FFP-strg bl GTS to wk to gauge

45-FSIP-gd bl bk

369 Tempera

PRESSURE SUMMARY								
		Annotation						
(psig)	(deg F)							
1536.58	97.27	Initial Hydro-stati						
	Pressure (psig)	Pressure Temp (psig) (deg F)						

Time	nessure	remp	Annotation
(Min.)	(psig)	(deg F)	
0	1536.58	97.27	Initial Hydro-static
3	92.49	97.83	Open To Flow (1)
34	172.97	103.49	Shut-In(1)
63	529.34	104.65	End Shut-In(1)
63	194.30	104.55	Open To Flow (2)
94	223.92	106.01	Shut-ln(2)
139	539.94	106.47	End Shut-In(2)
144	1511.44	106.37	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GTS	0.00
380.00	co	5.33
310.00	MGO 20%G15%M65%O	4.35
* Recovery from mu	ultiple tests	

Gas Rates

Choke (inches) Pressure (psig)

Gas Rate (Mcf/d)

Trilobite Testing, Inc

Ref. No: 54260

Printed: 2013.07.29 @ 00:43:13



Mai Oil Operation Inc

8-17s-14w Barton

8411 Preston Rd

Ste 800 Dallas Texas 75225-5520 Ludwig-Morgenstern#1

Job Ticket: 54261

DST#: 3

ATTN: Kurt Mai

GENERAL INFORMATION:

Formation:

LKC H-K

Deviated:

Interval:

Total Depth:

Hole Diameter:

No Whipstock:

Time Tool Opened: 12:05:05 Time Test Ended: 16:41:49

ft (KB)

Test Type: Conventional Bottom Hole (Reset)

Tester:

Ray Schwager

Unit No:

Test Start: 2013.07.29 @ 10:40:55

70

1928.00 ft (KB)

Reference Bevations:

1920.00 ft (CF)

KB to GR/CF:

8.00 ft

Serial #: 8369 Press@RunDepth:

Inside

265.25 psig @

3382.00 ft (KB) (TVD)

3296.00 ft (KB) To 3382.00 ft (KB) (TVD)

7.85 inches Hole Condition: Fair

3298.00 ft (KB)

2013.07.29

Capacity:

8000.00 psig

Start Date: Start Time:

2013.07.29 10:40:55

End Date: End Time:

16:41:49

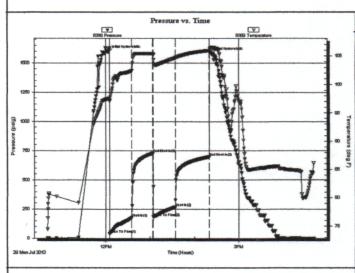
Last Calib .: Time On Btm:

2013.07.29 2013.07.29 @ 12:03:20

Time Off Btm: 2013.07.29 @ 14:23:20

TEST COMMENT: 30-IFP-strg bl in 3 min

30-ISIP-3"bl bk 30-FFP-strg bl in 4 min 45-FSIP-2"bl bk



	PRESSURE SUMMARY						
Time	Pressure	Temp	Annotation				
(Min.)	(psig)	(deg F)					
0	1594.09	97.49	Initial Hydro-static				
2	39.57	97.09	Open To Flow (1)				
32	174.93	102.41	Shut-In(1)				
61	727.59	105.41	End Shut-In(1)				
61	182.15	105.16	Open To Flow (2)				
91	265.25	104.65	Shut-In(2)				
137	695.74	105.95	End Shut-In(2)				
140	1577.92	106.52	Final Hydro-static				

Length (ft)	Description	Volume (bbi)
0.00	715'GIP	0.00
250.00	co	3.51
280.00	GMO 30%G30%M40%O	3.93
186.00	VGMO 55%G6%M39%O	2.61
20.00	Water	0.28

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 54261

Printed: 2013.07.30 @ 00:02:01



Mai Oil Operation Inc

8-17s-14w Barton

8411 Preston Rd

Ste 800

Job Ticket: 54262

Ludwig-Morgenstern#1

Dallas Texas 75225-5520 ATTN: Kurt Mai

Test Start: 2013.07.30 @ 02:15:33

GENERAL INFORMATION:

Time Test Ended: 07:54:57

Formation:

Arbuckle

Deviated:

No Whipstock: Time Tool Opened: 03:37:13

ft (KB)

Test Type: Conventional Bottom Hole (Reset)

Tester:

Ray Schwager

Unit No:

1928.00 ft (KB)

70

Reference Elevations:

1920.00 ft (CF)

KB to GR/CF:

8.00 ft

Hole Diameter:

Serial #: 8369

Press@RunDepth:

Interval: 3371.00 ft (KB) To 3431.00 ft (KB) (TVD)
Total Depth: 3431.00 ft (KB) (TVD) 7.85 inches Hole Condition: Fair

Inside

33.50 psig @ 3376.00 ft (KB)

Capacity:

8000.00 psig

Start Date: Start Time:

2013.07.30 02:15:33

End Date: End Time:

2013.07.30 07:54:57

Last Calib.: Time On Btm: 2013.07.30

2013.07.30 @ 03:35:58 Time Off Btm: 2013.07.30 @ 06:25:43

TEST COMMENT: 45-IFP-w k bl, 1/2"to 1 1/2"bl

30-ISIP-no bl

45-FFP-wkbl, surface to 1/4"bl

45-FSIP-no bl

			9300 Pre	1	Press	ure vs. Tim	ne	(309 Temper			
			F	in that Hydro-shalls				Plant Hyd			100
	1500 -		1			!		1			100
	1250 -		1		 	l 		1			- 85
Pressure (poig)	1000 -										90 omperature (cag r)
Pre	760 - 500 -				1	podlikot-kr(t)					80
	250 -				1				1		75
	0 -	*			1		100	1		V	70
30	Tue Jul	2013	м		T	irte (Hours)	GAM				

PRESSURE	SUMMARY
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PRESSURE SUMMARY								
1	Time	Pressure	Temp	Annotation				
1	(Min.)	(psig)	(deg F)					
١	0	1643.51	100.05	Initial Hydro-static				
1	2	17.93	99.12	Open To Flow (1)				
	47	26.46	101.36	Shut-in(1)				
.	77	588.63	102.00	End Shut-In(1)				
	77	23.21	101.83	Open To Flow (2)				
	123	33.50	102.69	Shut-In(2)				
	167	443.04	103.50	End Shut-In(2)				
1	170	1591.93	103.81	Final Hydro-static				
1								
1								
١								
1								
1								

Recovery

Length (ft)	Description	Volume (bbl)
0.00	80'GIP	0.00
2.00	co	0.03
38.00	HO&GCM 5%G30%O65%M	0.53
* Recovery from m	ultiple tests	

Gas Rates

Choke (inches) Pressure (psig)

Gas Rate (Mcf/d)

Trilobite Testing, Inc.

Ref. No: 54262

Printed: 2013.07.30 @ 08:13:45



Mai Oil Operation Inc

8411 Preston Rd

Ste 800

Dallas Texas 75225-5520

ATTN: Kurt Mai

8-17s-14w Barton

Ludwig-Morgenstern#1

Job Ticket: 54263

DST#: 5

Test Start: 2013.07.30 @ 12:50:51

GENERAL INFORMATION:

Formation:

Arbuckle

Deviated:

No Whipstock:

ft (KB)

Test Type: Conventional Bottom Hole (Reset)

Tester:

Ray Schwager

Unit No:

70

1928.00 ft (KB)

Reference Bevations:

KB to GR/CF:

1920.00 ft (CF) 8.00 ft

Interval:

3371.00 ft (KB) To 3441.00 ft (KB) (TVD)

Total Depth: Hole Diameter:

Time Tool Opened: 14:08:46

Time Test Ended: 18:22:30

3441.00 ft (KB) (TVD)

7.85 inches Hole Condition: Fair

Capacity:

8000.00 psig

Press@RunDepth: Start Date:

Start Time:

Serial #: 8369

Inside

53.92 psig @ 3375.00 ft (KB) 2013.07.30

12:50:51

End Date: End Time:

2013.07.30

Last Calib.:

2013.07.30

18:22:30

Time On Btm: Time Off Btm: 2013.07.30 @ 16:58:01

2013.07.30 @ 14:06:31

TEST COMMENT: 45-IFP-wkbl, 1/2"to3"bl

30-ISIP-no bl 45-FFP-wkbl, surface to 1/4"bl

45-FSIP-no bl

			vs. Time		
_	ECOM Pro	I sture	8369 Tem	perature	
1780	Į.	p man re-co-years.	1	a siyder-elatik:	1-
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600	1			M	186
200	1		seraco perde	PHICO T	1 82

1	PRESSURE SUMMARY								
1	Time	Pressure	Temp	Annotation					
1	(Min.)	(psig)	(deg F)						
1	0	1626.45	96.84	Initial Hydro-static					
١	3	21.99	96.41	Open To Flow (1)					
1	48	43.04	98.57	Shut-In(1)					
١	78	153.22	99.37	End Shut-In(1)					
	78	45.50	99.33	Open To Flow (2)					
	123	53.92	100.36	Shut-In(2)					
	167	136.28	101.23	End Shut-In(2)					
1	172	1611.72	103.17	Final Hydro-static					
١									
1									
1									
١									

Recovery

Length (ft)	Description	Volume (bbl)
0.00	40'GIP	0.00
2.00	00	0.03
20.00	O&GCM 10%G5%O85%M	0.28
60.00	O&GCMW 5%G5%O40%M50%W	0.84
* Recovery from r	nultiple tests	

Gas Rates Choke (inches) Pressure (psig)

Gas Rate (Mcf/d)

Trilobite Testing, Inc

Ref. No: 54263

Printed: 2013.07.30 @ 19:26:11

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. 6716

Sec. Twp. Range County State On Location Finish Date Location Well No. Owner/V To Quality Oilwell Cementing, Inc. Contracto 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 Charge To Hole Size T.D. 1618 Depth Csg. Street Depth Tbg. Size City State The above was done to satisfaction and supervision of owner agent or contractor. Tool Depth Cement Amount Ordered Cement Left in Csg Shoe Joint Meas Line 14 Displace EQUIPMENT Common Cementer No. Poz. Mix Pumptrk Helper No. Driver Bulktrk Gel. No. Bulktrk 1) U Driver Cut Calcium JOB SERVICES & REMARKS Hulls Salt Remarks: Rat Hole Flowseal Mouse Hole Kol-Seal Centralizers Mud CLR 48 Baskets CFL-117 or CD110 CAF 38 D/V or Port Collar Sand Handling Mileage FLOAT EQUIPMENT Guide Shoe Centralizer Baskets **AFU Inserts** Float Shoe Latch Down Pumptrk Charge Mileage Discount X Signature **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. 7273

	Sec.	Twp.	Range	(County	State	On Location	Finish	
Date 7-25-13	8	17	14	B	orton	KS		9:00 AM	
			Location	ion 281 4 4 3 N 213 W IV Into					
Lease Ludwig More	Lease Luchwig MorgenStern Well No. #1								
Contractor South wir	Contractor South wing #3					ilwell Cementing, Inc.	cementing equipmen	t and furnish	
Type Job	Type Job					d helper to assist own	ner or contractor to de	work as listed.	
Hole Size (2 '/4 TD 901'				Charge /\	Charge / Mai Oil				
Csg. 8 5/8		Depth	891'		Street				
Tbg. Size		Depth		1915	City	10000	State		
Tool	,	Depth	of the Servery	enigh	The above wa	s done to satisfaction a	nd supervision of owner	agent or contractor.	
Cement Left in Csg. 30		Shoe J			Cement Amo	ount Ordered 350	69/40 34	2	
Meas Line	ii- Online		ce 5 4 3/4 b	61	e winter on				
12 Carlon As a	EQUIPM	MENT	and the state of the state of the	309 30	Common	mubicina comb			
Pumptrk 5 No. Ceme Helpe	r Dil	Hy			Poz. Mix				
Bulktrk 13 No. Driver	(10	yton			Gel.	50 marian	an leaned by		
Bulktrk PU No. Driver	BIP	+1			Calcium				
JOB SE	RVICES	& REMA	RKS		Hulls				
Remarks:				11812	Salt				
Rat Hole				80 6 5	Flowseal				
Mouse Hole					Kol-Seal				
Centralizers				social st	Mud CLR 48				
Baskets			and the same of th		CFL-117 or 0	CD110 CAF 38			
D/V or Port Collar	- 7- 6-			ervieus	Sand				
	- 19 ²⁰			À	Handling				
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The second secon					Centralizer				
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· · · · · · · · · · · · · · · · · · ·				11/	Float Shoe				
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	où ars v	el de le	Late Vigue of	-ss- ats	1 (NA 13)		Discount		
Signature ()	nur				of any street of		Total Charge		
(1)				(3)					