

JAMES C. MUSGROVE

Petroleum Geologist, LLC
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Mai Oil Operations
Tieperman #2
w/2 NE-SE-SW (990' FSL & 2200' FEL)
Section 29-21s-12w
Stafford County, Kansas

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5 1/2" Production Casing Set

Contractor: Southwind Drilling Co. (rig #3)
Commenced: January 1, 2017
Completed: January 6, 2017
Elevation: 1868' K.B., 1866' D.F., 1860' G.L.
Casing program: Surface; 8 5/8" @ 663"
Production, 5 1/2" @ 3670'
Sample: Samples saved and examined 2900' to the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 2900' to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were one (1) Drill Stem Tests ran by Trilobite Testing Co.
Electric Log: By Eli Wireline Services, Dual Induction, Compensated Density/Neutron Log and Micro Log

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	665	+1203
Base Anhydrite	688	+1180
Heebner	3114	-1246
Toronto	3132	-1264
Douglas	3147	-1279
Brown Lime	3246	-1378
Lansing	3259	-1391
Base Kansas City	3482	-1614
Viola	3490	-1622
Simpson Shale	3534	-1666
Arbuckle	3590	-1722
Rotary Total Depth	3670	-1802
Log Total Depth	3672	-1804

(All tops and zones corrected to Electric Log Measurement)

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

TOPEKA SECTION

2900-3114' No shows of oil and/or gas was noted in drilling of the Topeka Section
(See attached Sample Log/Geologist Report).

TORONTO SECTION

3132-3146' Limestone, tan, buff, finely crystalline, poor scattered porosity, chalky, black spotty stain, no show of free oil and questionable odor in fresh samples.

LANSING SECTION

3260-3268' Limestone, cream, tan, fossiliferous, chalky, poor visible porosity, no shows; no odor.

3276-3280' Limestone, tan, buff, fossiliferous, chalky, poor visible porosity, trace black stain, trace of free oil and questionable odor in fresh samples.

3286-3290' Limestone, tan, buff, fossiliferous/oolitic, granular in part, poor to fair porosity, chalky, light brown stain, show of free oil and faint odor in fresh samples.

3298-3302' Limestone, cream tan, few with vuggy type porosity, black and brown stain, show of free oil and fair odor in fresh samples.

3315-3320' Limestone, tan, gray, finely crystalline, poor scattered pinpoint type porosity, light black stain, show of free oil and faint odor.

3324-3334' Limestone, cream, white, fossiliferous in part, oomoldic in part, fair oomoldic and vuggy type porosity, chalky, light black stain, show of free oil and faint odor in fresh samples.

3339-3349' Limestone, cream fossiliferous, oomoldic, poorly developed porosity, no shows and questionable odor in fresh samples.

3350-3364' Limestone, tan, fossiliferous in part, dense.

3383-3387' Limestone, cream, white, oomoldic, good oomoldic and vuggy type porosity, black stain, show of free oil and faint odor.

3398-3406' Limestone, cream, tan, oolitic, fair vuggy type porosity, chalky in part, black to brown stain, show of free oil and faint odor in fresh samples.

3418-3424' Limestone, cream, tan, oolitic, poorly developed porosity, poor visible, black stain, show of free oil, faint odor in fresh samples.

VIOLA SECTION

3488-3494' Limestone, white, cream, cherty, dense.

3494-3520' Chert, white, gray, boney, opaque, no shows.

3520-3536' Varied colored boney, chert, poor visible porosity, black stain, no show of free oil and no odor in fresh samples.

SIMPSON SECTION

3588-3590' Sand, gray, very fined grained, well sorted, friable, no shows.

ARBUCKLE SECTION

3590-3596' Dolomite, tan, finely crystalline, sucrosic, scattered pinpoint porosity, good stain and saturation, show of free oil and strong odor in fresh samples.

3596-3606' Dolomite, tan, sucrosic, finely crystalline, good vuggy type porosity, fair to good stain and saturation, good show of free oil and good odor in fresh samples.

3608-3615' Dolomite, tan, finely crystalline, fair to good inter-crystalline type porosity, fair stain and saturation, show of free oil strong odor in fresh samples.

Drill Stem Test #1 **3534-3615**
(Log Measurements 3536-3617)

Times: 30-30-45-45

Blow: Strong

**Recovery: 820' oil and gas cut watery mud
 (10% oil; 30% gas; 15% water; 45% mud)
 700' slightly oil and gas cut muddy water
 (40% gas; 5% oil; 40% water; 15% mud)
 1072' slightly oil cut muddy water
 (10% gas; 5% oil; 65% water; 20% mud)
 180' water
 50' muddy water**

**Pressures: ISIP 1207 psi
 FSIP 1209 psi
 IFP 630-1148 psi
 FFP 1159-1209 psi
 HSH 1782-1695 psi**

3617-3630' Dolomite, tan, finely crystalline, few oolitic, poor visible porosity, light brown stain, show of free oil and strong odor in fresh samples.

3630-3650' Dolomite, tan, finely crystalline, sucrosic, poor to fair pinpoint porosity, brown stain, and show of free oil and strong odor in fresh samples.

3650-3660' Dolomite, cream, tan, fine and medium crystalline, sucrosic in part trace stain, trace of free oil and strong odor in fresh samples.

3660-3672' Dolomite, cream, finely crystalline, dense, chert, no shows.

Mai Oil Operations
Tieperman #2
w/2 NE-SE-SW (990' FSL & 2200' FEL)
Section 29-21s-12w
Stafford County, Kansas

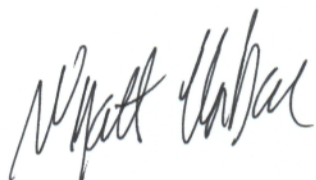
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Rotary Total Depth	3670
Log Total Depth	3672

Recommendations:

The 5 ½" production casing was set and cemented on Mai Oil Operations Inc., Tieperman #2.

Respectfully yours,



Wyatt Urban
Petroleum Geologist



DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations, Inc.**

8411 Preston Rd STE 800
Dallas TX 75225+5520

ATTN: Wyatt Urban

Tieperman #2

S29-21s-12w Stafford,KS

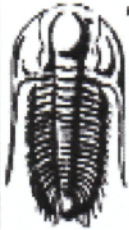
Start Date: 2017.01.06 @ 06:32:00

End Date: 2017.01.06 @ 14:35:45

Job Ticket #: 61873 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.01.09 @ 11:25:47



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Mai Oil Operations, Inc.
 8411 Preston Rd STE 800
 Dallas TX 75225+5520
 ATTN: Wyatt Urban

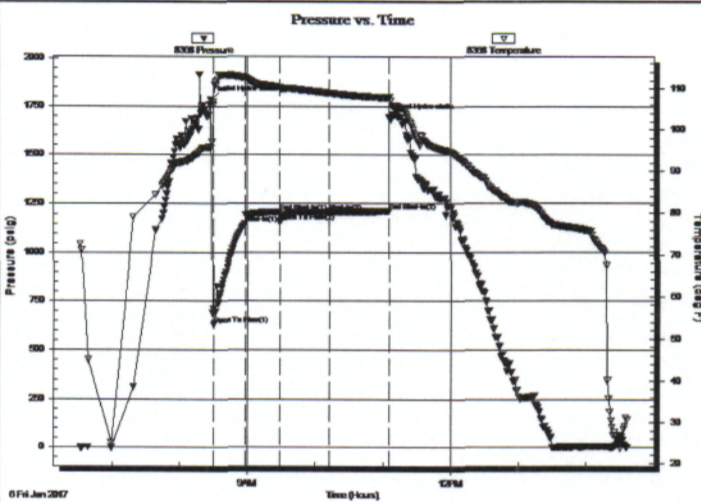
S29-21s-12w Stafford,KS
Tieperman #2
 Job Ticket: 61873 **DST#: 1**
 Test Start: 2017.01.06 @ 06:32:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:30:00
 Time Test Ended: 14:35:45
 Interval: **3534.00 ft (KB) To 3615.00 ft (KB) (TVD)**
 Total Depth: 3615.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 1868.00 ft (KB)
 1860.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8368 **Inside**
 Press@RunDepth: 1209.52 psig @ 3535.00 ft (KB)
 Start Date: 2017.01.06 End Date: 2017.01.06 Capacity: 8000.00 psig
 Start Time: 06:32:15 End Time: 14:35:45 Last Calib.: 2017.01.06
 Time On Btm: 2017.01.06 @ 08:28:00
 Time Off Btm: 2017.01.06 @ 11:05:45

TEST COMMENT: 30-IF-BOB in 20 seconds
 30-ISI-Weak Blow Back; Built to 1"
 45-FF-BOB in 30 seconds
 45-FSI-No Blow Back



PRESSURE SUMMARY

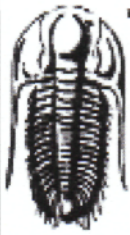
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1782.92	95.60	Initial Hydro-static
2	630.91	106.75	Open To Flow (1)
30	1148.90	112.59	Shut-In(1)
61	1207.75	110.21	End Shut-In(1)
62	1159.66	110.13	Open To Flow (2)
105	1209.52	108.86	Shut-In(2)
158	1210.95	107.80	End Shut-In(2)
158	1695.38	107.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
820.00	OWGCM 10% O 15% W 30 % G 45%M	11.50
700.00	OMGCW 5% O 15%M 40%G 40%W	9.82
1072.00	OGMCW 5%O 20% M 10% G 65% W	15.04
180.00	Water 100% W	2.52
50.00	WM 40%W 60%M	0.70

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.
8411 Preston Rd STE 800
Dallas TX 75225+5520
ATTN: Wyatt Urban

S29-21s-12w Stafford,KS
Tieperman #2
Job Ticket: 61873 **DST#: 1**
Test Start: 2017.01.06 @ 06:32:00

Tool Information

Drill Pipe:	Length: 3524.00 ft	Diameter: 3.80 inches	Volume: 49.43 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.50 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 51000.00 lb
			<u>Total Volume: 49.43 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3534.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	81.00 ft			
Tool Length:	101.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3515.00	
Shut In Tool	5.00			3520.00	
Hydraulic tool	5.00			3525.00	
Packer	5.00			3530.00	20.00 Bottom Of Top Packer
Packer	4.00			3534.00	
Stubb	1.00			3535.00	
Recorder	0.00	9120	Outside	3535.00	
Recorder	0.00	8368	Inside	3535.00	
Perforations	11.00			3546.00	
Change Over Sub	1.00			3547.00	
Drill Pipe	63.00			3610.00	
Change Over Sub	1.00			3611.00	
Bullnose	4.00			3615.00	81.00 Bottom Packers & Anchor

Total Tool Length: 101.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.

S29-21s-12w Stafford,KS

8411 Preston Rd STE 800
Dallas TX 75225+5520

Tieperman #2

Job Ticket: 61873

DST#: 1

ATTN: Wyatt Urban

Test Start: 2017.01.06 @ 06:32:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

39000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
820.00	OWGCM 10% O 15% W 30 % G 45%M	11.502
700.00	OMGCW 5% O 15%M 40%G 40%W	9.819
1072.00	OGMCW 5%O 20% M 10% G 65% W	15.037
180.00	Water 100% W	2.525
50.00	WM 40%W 60%M	0.701

Total Length: 2822.00 ft Total Volume: 39.584 bbl

Num Fluid Samples: 0

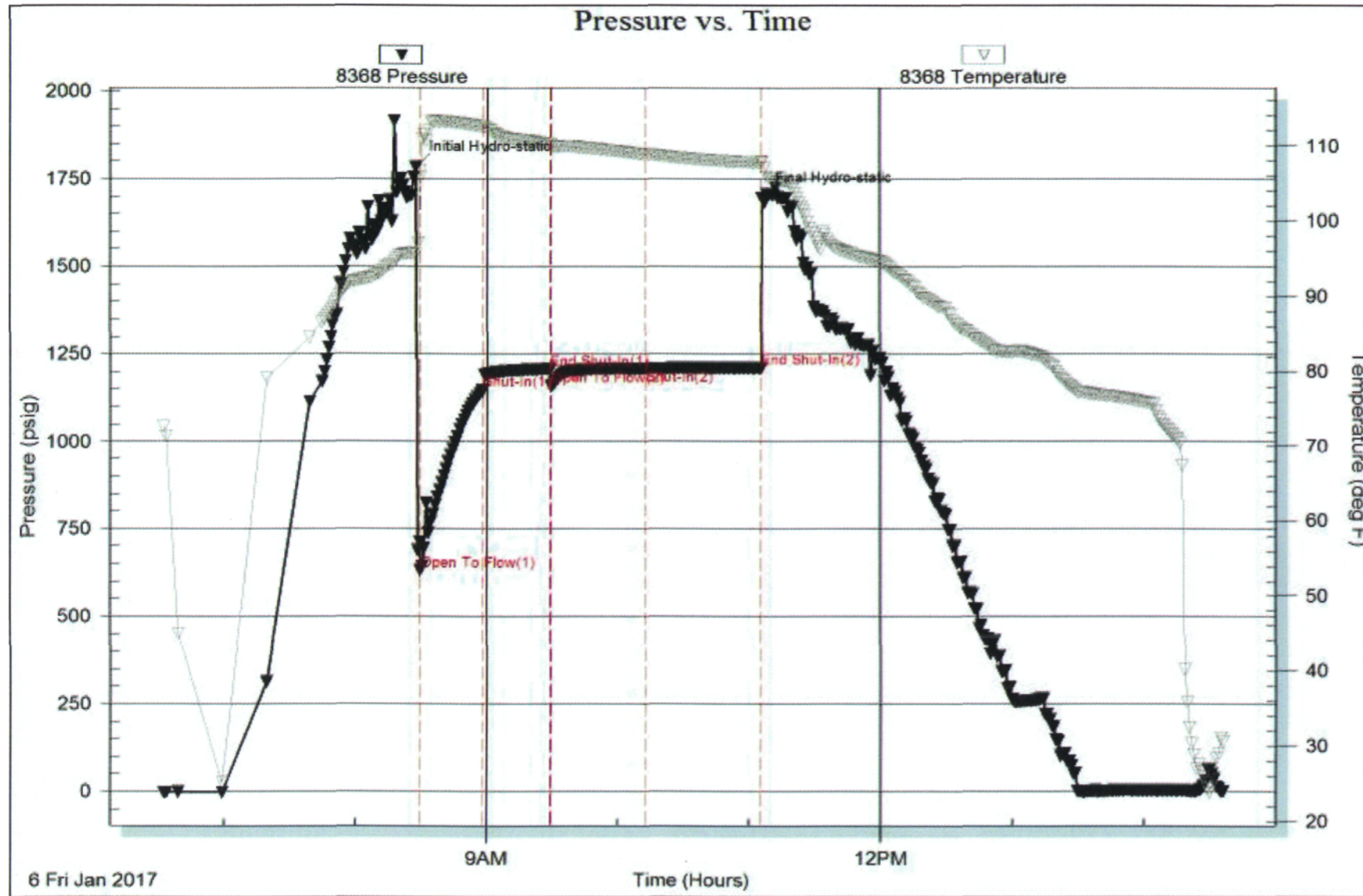
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



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. 3113

Date	Sec.	Twp.	Range	County	State	On Location	Finish
1-2-17	29	21	12	Stallord	Ks		19:15 PM

Location *Dartmouth elevator - 12 1/2 S, E1s*

Lease	Well No.		Owner
<i>Tiepeman</i>	2		To Quality Oilwell Cementing, Inc.
Contractor	3		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
<i>Surface</i>			<i>Ma: oil operations</i>
Hole Size	T.D.	Depth	Street
<i>12 1/4"</i>	<i>663'</i>	<i>663'</i>	
Csg.	Depth	City	State
<i>8 5/8"</i>			
Tbg. Size	Depth	The above was done to satisfaction and supervision of owner agent or contractor.	
Tool	Depth	Cement Amount Ordered	
		<i>450 60/40 3 1/2 CC 2% Gel</i>	
Cement Left in Csg.	Shoe Joint	Meas Line	
<i>20'</i>	<i>20'</i>	Displace	
		<i>41 BCS V&E Flowseal</i>	

EQUIPMENT

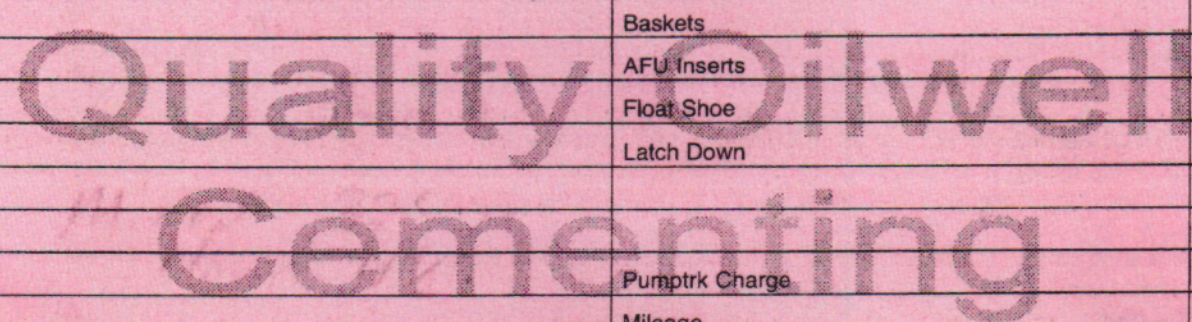
Pumptrk	No.	Cementer		Common
<i>5</i>		<i>Beeth</i>		Poz. Mix
Bulktrk	No.	Helper		Gel.
<i>4</i>		<i>Doug</i>		Calcium
Bulktrk	No.	Driver		
<i>p.u.</i>		<i>Rick</i>		

JOB SERVICES & REMARKS

Remarks:	Hulls
<i>Cement did Circulate</i>	Salt
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	
<i>Rubber plug</i>	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	



Pumptrk Charge		Tax	
Mileage		Discount	
		Total Charge	

X Signature *[Signature]*

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. 3116

Date	1-8-17	Sec.	29	Twp.	21	Range	12	County	Stafford	State	Ks	On Location	Finish	2:30PM
------	--------	------	----	------	----	-------	----	--------	----------	-------	----	-------------	--------	--------

Location Dartmouth, Ks - 12 1/2 S E/3rd

Lease	Tieperman	Well No#	2	Owner	To Quality Oilwell Cementing, Inc.
Contractor	Southwind #3	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 string				
Hole Size	7 7/8"	T.D.	3672'	Charge To	Main oil operations
Csg. New	5 1/2" 111'	Depth	3671'	Street	
Tbg. Size		Depth		City	State
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	21.89'	Shoe Joint	21.89'	Cement Amount Ordered	160 60/40 10% Salt 2% Gel
Meas Line		Displace	89' BLS	Vul Flo seal	= 1000 gal mud clear 48

EQUIPMENT

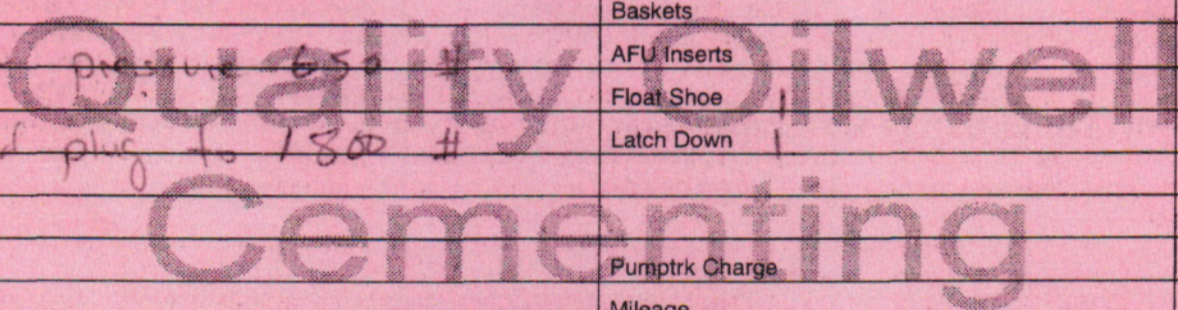
Pumptrk	20	No.	Cementer	Brett	Poz. Mix
			Helper		
Bulktrk	9	No.	Driver	Nick	Gel.
			Driver		
Bulktrk	PU	No.	Driver	Rock	Calcium
			Driver		

JOB SERVICES & REMARKS

Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
48' plug	Sand
to casing	Handling
shut down	Mileage
Released plug	
Bes of 1100	

FLOAT EQUIPMENT

Life pressure	Guide Shoe
Land plug to 1800 #	Centralizer 11
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down



Pumptrk Charge	
Mileage	
	Tax
	Discount
	Total Charge

X Signature [Handwritten Signature]