



Discovery Drilling

P.O. Box 763 • Hays, KS 67601 • OFFICE (785) 623-2920 • CELLULAR (785) 635-1511

DRILLER'S LOG

Operator: Hupfer Operating, Inc. Lic# 30380 Contractor: Discovery Drilling Co., Inc. LIC#31548
P.O. Box 3912 PO Box 763
Shawnee, KS 66203-0912 Hays, KS 67601

Lease: Heine # 3 Location: 990 FSL - 330 FWL
NW/SW/SW
Section 28/ 19S/ 10W
Rice County, KS

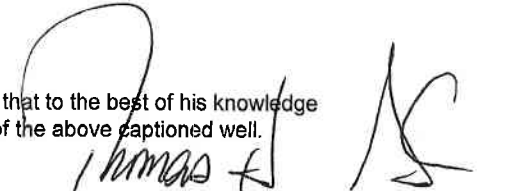
Loggers Total Depth: 3282' API#15- 159-22,791-00-00
Rotary Total Depth: 3284' Elevation: 1777 GL - 1785 KB
Commenced: 9/4/2014 Completed: 9/10/2014
Casing: 8 5/8" @ 3276'WV/120sks Status: Oilwell

DEPTHS & FORMATIONS (All from KB)

Surface, Sand & Shale	<u>0'</u>	Shale	<u>399'</u>
Dakota Sand	<u>74'</u>	Shale & Lime	<u>1229'</u>
Shale	<u>100'</u>	Shale	<u>2068'</u>
Cedar Hill Sand	<u>149'</u>	Shale & Lime	<u>2274'</u>
Red Bed Shale	<u>206'</u>	Lime & Shale	<u>2871'</u>
Anhydrite	<u>394'</u>	RTD	<u>3284'</u>
Base Anhydrite	<u>399'</u>		

STATE OF KANSAS)
) ss
COUNTY OF ELLIS)

Thomas H. Alm of Discovery Drilling states that to the best of his knowledge the above and foregoing is a true and correct log of the above captioned well.



Thomas H. Alm

Subscribed and sworn to before me on _____

My Commission expires: _____

(Place stamp or seal below)

Notary Public

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. 631

Date	9-9-14	Sec.	28	Twp.	19	Range	10	County	Rice	State	Ks	On Location		Finish	EISA
Lease								Well No.		Location					
Heine								3		Ellinwood, Ks - E to 3rd Rd, 1/2 S					

Contractor	Discovery 2	Owner	E Into
Type Job	Longstring	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.	
Hole Size	7 7/8"	T.D.	3284'
Csg.	5 1/2" New 15.50#	Depth	3279.04'
Tbg. Size		Depth	
Tool		Depth	
Cement Left in Csg.	35.30'	Shoe Joint	35.30'
Meas Line		Displace	77 BLS
Charge To		Hupfer operating	
Street		City	
State		State	
The above was done to satisfaction and supervision of owner agent or contractor.			
Cement Amount Ordered		170 Com 10% Salt 5 1/2 Gilsorik	
500 gal mud		Clear 48	

EQUIPMENT

Pumptrk	16	No.	Cementer	Billy	Common	170
			Helper		Poz. Mix	
Bulktrk	14	No.	Driver	Chad	Gel.	
			Driver		Calcium	
Bulktrk	p.u.	No.	Driver	Rick	Hulls	
			Driver		Salt	16

JOB SERVICES & REMARKS

Remarks:		Salt	16
Rat Hole		Flowseal	
Mouse Hole		Kol-Seal	850#
Centralizers	2, 7, 9, 11	Mud CLR 48	500 gal
Baskets	5	CFL-117 or CD110 CA# 38	
D/V or Port Collar		Sand	
Circulation		Handling	194
Clear 48, plug Rathole w/ 30 sy		Mileage	
plug mousehole w/ 20 sy, Hook to			
Casing + mix 120 sy Cement.			
Shut down wash pump &			
lines Released plug & Displaced			
plug w/ 77 BLS.			
Released & held			
Lift pressure 600 #			
Land plug 40 1600 #			

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	4 turbo's
Baskets	1
AFU Inserts	
Float Shoe	
Latch Down	1
1- Packer shoe	
Pumptrk Charge	prod string
Mileage	19

X Signature *Tom [unclear]*

Tax _____
Discount _____
Total Charge _____

QUALITY OILWELL CEMENTING, INC.

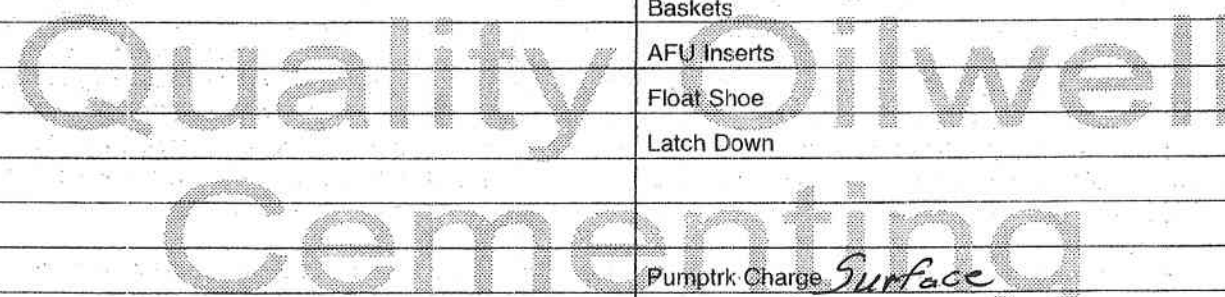
Federal Tax I.D.# 20-2886107

ne 785-483-2025
il 785-324-1041

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

No. 627

Date	9-4-14	Sec.	28	Twp.	19	Range	10	County	Rice	State	Ks	On Location		Finish	8:00 PM
Lease								Heine		Well No. 3		Owner Els Stay by free Row			
Contractor								Discovery 2		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								Surface		Charge To Hupfer operating					
Hole Size				12 1/4"		T.D.		304'		Street					
Csg.				8 5/8"		Depth		304'		City					
Tbg. Size						Depth				State					
Tool						Depth				The above was done to satisfaction and supervision of owner agent or contractor.					
Cement Left in Csg.				20'		Shoe Joint		20'		Cement Amount Ordered 225 Common 3% CC 2% CC					
Meas Line						Displace		18 BCS		Yub Flowseal					
EQUIPMENT															
Pumptrk 16				No.		Cementor		Billy		Common 225					
Bulktrk 3				No.		Helper		M		Poz. Mix					
Bulktrk 3				No.		Driver		Lennie		Gel. 5					
Bulktrk 3				No.		Driver		Rick		Calcium 9					
JOB SERVICES & REMARKS															
Remarks:				Cement did Circulate								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			
												Sand			
												Handling 239			
												Mileage			
FLOAT EQUIPMENT															
												Guide Shoe			
												Centralizer			
												Baskets			
												AFU Inserts			
												Float Shoe			
												Latch Down			
												Pumptrk Charge Surface			
												Mileage 19			
Signature															
												Tax			
												Discount			
												Total Charge			



HEINE #3 - S2 OF SW/4 Sec. 28-19-10W, Rice CO.

DST'S & COMPLETION

DRILL STEM TESTS: HEINE #3

DST #1: Lansing 2956' to 3086'. 30-45-30-60. Recovered 126' GIP and 50' VSOCM.
ISIP - 363, FSIP 420, IFP 27-27, FFP 26-35.

DST #2: Arbuckle - 3243' to 3279'. 45-45-45-60. Recovered 365' GIP, 68' muddy oil,
70% oil and 25' clean gassy oil. ISIP 705, FSIP 705, IFP 14-29, FFP 34-42.

DST #3: Arbuckle - 3243 to 3284'. 45-45-45-60. Strong blow with blow back.
Recovered 675' GIP, 240' oil and heavy oil cut mud. ISIP 747, FSIP 676,
IFP 15-58, FFP 66-85.

COMPLETION: Drilled Packer Shoe - Swab down, Good show of oil. Acidized w/
250 gals. 15% mud acid. Swab down. Swabbed 6 BFPH, 50^{o/b} oil.
Overnight fill up 1850' with 950' oil on top. Run tubing & rods.