



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: Morgenstern # 6 Location: 1745 FNL - 1270 FWL
SW/NW/SE/NE
Section 9/ 16S/ 13W
Barton County, KS

Loggers Total Depth: 3392' API#15- 009-25,876-00-00
Rotary Total Depth: 3396' Elevation: 1910 GI - 1918 KB
Commenced: 10/3/2013 Completed: 10/9/1013
Casing: 8 5/8" @ 478' W/215sks Status: D & A

DEPTHS & FORMATIONS (All from KB)

Surface. Sand & Shale	<u>0'</u>	Shale	<u>894'</u>
Dakota Sand	<u>291'</u>	Shale & Lime	<u>1591'</u>
Shale	<u>315'</u>	Shale	<u>1963'</u>
Cedar Hill Sand	<u>355'</u>	Shale & Lime	<u>2527'</u>
Red Bed Shale	<u>560'</u>	Lime & Shale	<u>2948'</u>
Anhydrite	<u>865'</u>	RTD	<u>3396'</u>
Base Anhydrite	<u>894'</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.

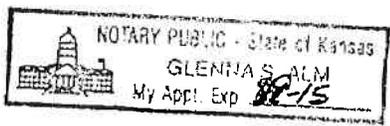
Thomas H. Alm

Subscribed and sworn to before me on 10-15-13

My Commission expires: 8-9-15

(Place stamp or seal below)

Notary Public



QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

785-483-2025
85-324-1041

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

No. 7523

Date	Sec.	Twp.	Range	County	State	On Location	Finish
10-1-13	9	16	13	Barton	KS		1:30 AM

Location Susank 3N

Lease Morgenstern Well No. 5 Owner

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 Production String Charge To Hupfer Operating

Hole Size 7 7/8 T.D. 3395' Street

Csg. 5 1/2 Depth 3392' City State

Tbg. Size Depth The above was done to satisfaction and supervision of owner agent or contractor.

Tool Depth Cement Amount Ordered 170 Q-Pro C 10% Salt

Cement Left in Csg. 28.03' Shoe Joint 28.03' Cement Amount Ordered 170 Q-Pro C 10% Salt

Meas Line Displace 80 bbl 5% Gilsomite

EQUIPMENT

Pumptrk <u>17</u> No. Cementer/Helper <u>Cody</u>	Common <u>170 Q-pro C</u>
Bulktrk <u>8</u> No. Driver <u>Clayton</u>	Poz. Mix
Bulktrk <u>PU</u> No. Driver <u>Brett</u>	Gel.
	Calcium

JOB SERVICES & REMARKS

Remarks:	Hulls
Rat Hole <u>30" x</u>	Salt <u>15</u>
Mouse Hole <u>15" x</u>	Flowseal
Centralizers <u>1,3,5,7,9,11</u>	Kol-Seal <u>850#</u>
Baskets <u>2</u>	Mud CLR 48 - <u>500 Gal</u>
D/V or Port Collar	CFL-117 or CD110 CAF 38
	Sand
	Handling <u>197</u>
	Mileage

Run 500 Gal Mud Flush
Plug Rat & Mouse hole
Mixed 125 sx Q Pro-c down 5 1/2
Displaced 80 bbl of water
Lift Pressure @ 700 lbs
Landed Plug @ 1500 lbs
Plug held

5 1/2	FLOAT EQUIPMENT
	Guide Shoe
	Centralizer - <u>6</u>
	Baskets - <u>1</u>
	AFU Inserts
	Float Shoe
	Latch Down - <u>1</u>
	Packer Shoe - <u>1</u>
	Rubber Plug - <u>1</u>
	Pumptrk Charge <u>prod Long String</u>
	Mileage <u>24</u>

X Signature AA Hupfer

Tax
Discount
Total Charge