



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 "A" # 2 Location: 1630 FSL - 1650 FEL
S/2-SE-NW-SE
Section 25/ 19S/ 10W
Rice County, KS

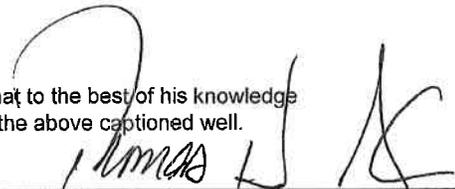
Loggers Total Depth: No Log API#15- 159-22,786-00-00
Rotary Total Depth: 3325' Elevation: 1729 GL - 1737 KB
Commenced: 9/11/2014 Completed: 9/16/2014
Casing: 8 5/8" @ 263'W/225sks Status: D & A

DEPTHS & FORMATIONS (All from KB)

| | | | |
|-----------------------|-------------|--------------|--------------|
| Surface, Sand & Shale | <u>0'</u> | Shale | <u>395'</u> |
| Dakota Sand | <u>71'</u> | Shale & Lime | <u>1244'</u> |
| Shale | <u>101'</u> | Shale | <u>1652'</u> |
| Cedar Hill Sand | <u>131'</u> | Shale & Lime | <u>1969'</u> |
| Red Bed Shale | <u>188'</u> | Lime & Shale | <u>3045'</u> |
| Anhydrite | <u>390'</u> | RTD | <u>3325'</u> |
| Base Anhydrite | <u>395'</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.

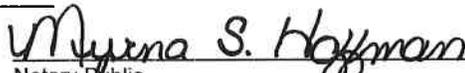


Thomas H. Alm

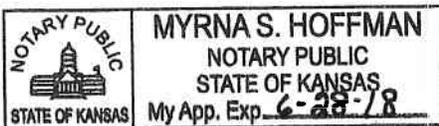
Subscribed and sworn to before me on 9-18-14

My Commission expires: 6-28-18

(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. 633

| | | | | | | | |
|---------|------|------|-------|--------|-------|-------------|---------|
| Date | Sec. | Twp. | Range | County | State | On Location | Finish |
| 9-11-14 | 25 | 19 | 10 | Rice | KS | | 9:15 PM |

Location ~~QWB~~ Ellinwood E to 6 Rd 1 W 1/2 E Ninto

| | | | |
|---------------------|------------|--|--|
| Lease | Well No. | Owner | |
| Heine | A-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. | |
| Contractor | | | |
| Discovery 2 | | | |
| Type Job | | | |
| Surface | | | |
| Hole Size | T.D. | Charge To | |
| 12 1/4 | 262 | Hup for operating | |
| Csg. | Depth | Street | |
| 8 5/8 | 262 | | |
| Tbg. Size | Depth | City | |
| | | State | |
| Tool | Depth | The above was done to satisfaction and supervision of owner agent or contractor. | |
| | | | |
| Cement Left in Csg. | Shoe Joint | Cement Amount Ordered | |
| 15 | 15 | 225 com 3% cc 2% gel | |
| Meas Line | Displace | 1/4 lb flow seal | |
| | 15 1/2 | | |

EQUIPMENT

| | | | | |
|---------|-----|----------|--------|----------|
| Pumptrk | No. | Cementer | Helper | Common |
| PU | | Rick | | 225 |
| Bulktrk | No. | Driver | Driver | Poz. Mix |
| 16 | | Billy | | 5 |
| Bulktrk | No. | Driver | Driver | Calcium |
| 3 | | Ryan | | 9 |

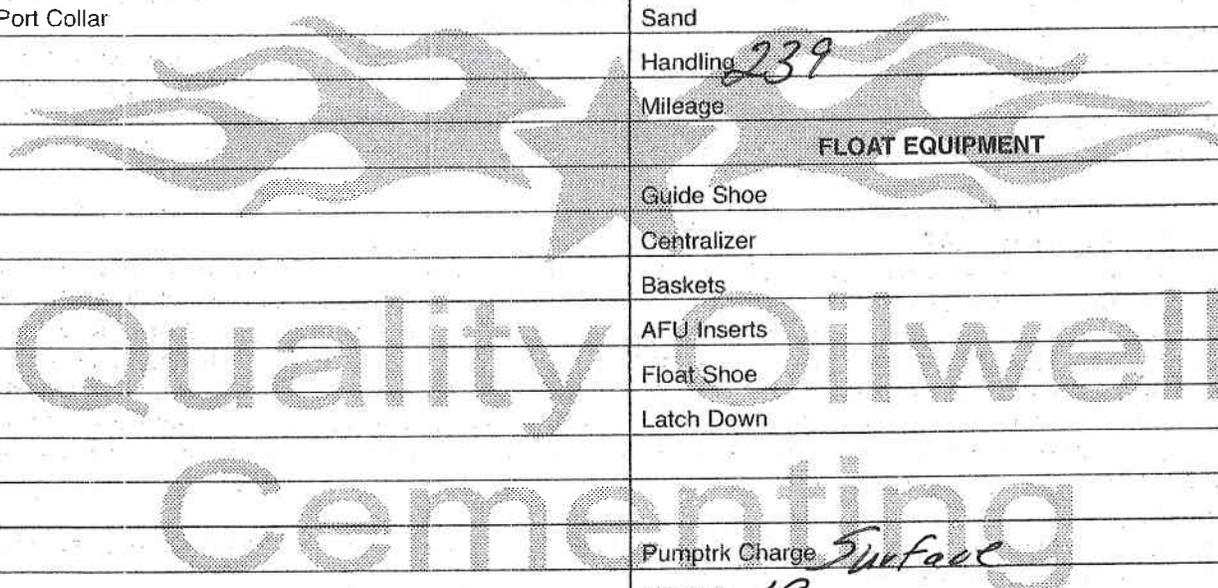
JOB SERVICES & REMARKS

| | |
|----------------------|-------------------------|
| Remarks: | Hulls |
| Cement Die Circulate | Salt |
| Rat Hole | Flowseal 56# |
| Mouse Hole | Kol-Seal |
| Centralizers | Mud CLR 48 |
| Baskets | CFL-117 or CD110 CAF 38 |
| D/V or Port Collar | 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 |



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. 550

| | | | | | | | | | | | | | | | |
|------|---------|------|----|------|----|-------|----|--------|------|-------|----|-------------|--|--------|----------|
| Date | 9-16-14 | Sec. | 25 | Twp. | 19 | Range | 10 | County | Rice | State | KS | On Location | | Finish | 11:30 AM |
|------|---------|------|----|------|----|-------|----|--------|------|-------|----|-------------|--|--------|----------|

Location Ellinwood E to 6th Rd 1/4 1/2 E

Lease Heine "A" Well No. 2 Owner N. Int'l

Contractor Discovery #2
Type Job Plug
Hole Size 7 3/4 T.D. 3289'
Csg. Drill Pipe Depth
Tbg. Size Depth
Tool Depth

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.

Charge To Hupfer Operating

Cement Left in Csg. Shoe Joint

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

Cement Amount Ordered 215 60/40 4% Gel 1/4 flo

Meas Line Displace

EQUIPMENT

| | | | | | | |
|---------|----|-----|----------|-------|----------|-----|
| Pumptrk | 5 | No. | Cementer | David | Common | 129 |
| | | | Helper | | Poz. Mix | 86 |
| Bulktrk | 15 | No. | Driver | Ryan | Gel. | 8 |
| | | | Driver | | Calcium | |
| Bulktrk | Pu | No. | Driver | Brett | | |
| | | | Driver | | | |

JOB SERVICES & REMARKS

Remarks:

Rat Hole - 30 sx Flowseal 50#

Mouse Hole - 20 sx Kol-Seal

Centralizers Mud CLR 48

Baskets CFL-117 or CD110 CAF 38

D/V or Port Collar Sand

Handling 223

Mileage 8 5/8

FLOAT EQUIPMENT

1st @ 3289 w/ 35 sx

2nd @ 1225 w/ 35 sx

3rd @ 825 w/ 35 sx

4th @ 315 w/ 35 sx

5th @ 60 w/ 25 sx

Guide Shoe

Centralizer

Baskets

AFU Inserts

Float Shoe

Latch Down

~~Wired Plug~~

Pumptrk Charge plug

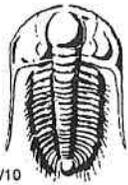
Mileage 19

Signature [Signature]

Tax

Discount

Total Charge



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 038

4/10

| | | |
|---|-------------------------|--|
| Well Name & No. <u>Heine #A-2</u> | Test No. <u>1</u> | Date <u>9-15-14</u> |
| Company <u>Huffer Operating, Inc.</u> | Elevation <u>1737</u> | KB <u>1731</u> GL |
| Address <u>P.O. Box 3912 Shawnee, KS 66202-0912</u> | | |
| Co. Rep / Geo. <u>Kurt Talbot</u> | Rig <u>Discovery #2</u> | |
| Location: Sec. <u>25</u> | Twp. <u>19 S</u> | Rge. <u>10 W</u> Co. <u>Rice</u> State <u>KS</u> |

| | |
|---|---|
| Interval Tested <u>3226 - 3296</u> | Zone Tested <u>Arbuckle</u> |
| Anchor Length <u>70</u> | Drill Pipe Run <u>2911</u> Mud Wt. <u>9.1</u> |
| Top Packer Depth <u>3221</u> | Drill Collars Run <u>0</u> Vis <u>55</u> |
| Bottom Packer Depth <u>3226</u> | Wt. Pipe Run <u>310'</u> WL <u>9.2</u> |
| Total Depth <u>3296</u> | Chlorides <u>4000</u> ppm System LCM <u>1</u> |
| Blow Description <u>1st Open - water blow built to 3 inches into bucket of water, 1st Shut In - No blow back, 2nd Open - blow built to 4 inches into water, 2nd Shut In - No blow back.</u> | |

| Rec | Feet of | %gas | %oil | %water | %mud |
|-------------|-----------------------|------|-----------|------------|------|
| <u>0</u> | <u>no gas in pipe</u> | | | | |
| <u>3848</u> | <u>mud</u> | | | <u>100</u> | |
| <u>31</u> | <u>watery mud</u> | | <u>20</u> | <u>80</u> | |
| <u>62</u> | <u>watery mud</u> | | <u>25</u> | <u>75</u> | |
| | | | | | |

Rec Total 139 BHT _____ Gravity 1 API RW 21 @ 40 °F Chlorides 29000 ppm

| | | |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>1599</u> | <input checked="" type="checkbox"/> Test _____ | T-On Location <u>14:00</u> |
| (B) First Initial Flow <u>54</u> | <input type="checkbox"/> Jars _____ | T-Started <u>1600</u> |
| (C) First Final Flow <u>72</u> | <input type="checkbox"/> Safety Joint _____ | T-Open <u>1730</u> |
| (D) Initial Shut-In <u>940</u> | <input type="checkbox"/> Circ Sub _____ | T-Pulled <u>1930 2000</u> |
| (E) Second Initial Flow <u>79</u> | <input type="checkbox"/> Hourly Standby _____ | T-Out <u>21:30</u> |
| (F) Second Final Flow <u>108</u> | <input checked="" type="checkbox"/> Mileage <u>48</u> | Comments _____ |
| (G) Final Shut-In <u>934</u> | <input type="checkbox"/> Sampler _____ | |
| (H) Final Hydrostatic <u>1552</u> | <input type="checkbox"/> Straddle _____ | <input type="checkbox"/> Ruined Shale Packer _____ |
| | <input type="checkbox"/> Shale Packer _____ | <input type="checkbox"/> Ruined Packer _____ |
| Initial Open <u>30</u> | <input type="checkbox"/> Extra Packer _____ | <input type="checkbox"/> Extra Copies _____ |
| Initial Shut-In <u>30</u> | <input type="checkbox"/> Extra Recorder _____ | Sub Total _____ |
| Final Flow <u>45</u> | <input type="checkbox"/> Day Standby _____ | Total _____ |
| Final Shut-In <u>45</u> | <input type="checkbox"/> Accessibility _____ | MP/DST Disc't _____ |
| | Sub Total _____ | |

Approved By _____ Our Representative [Signature]

TriLOBITE TESTING INC. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

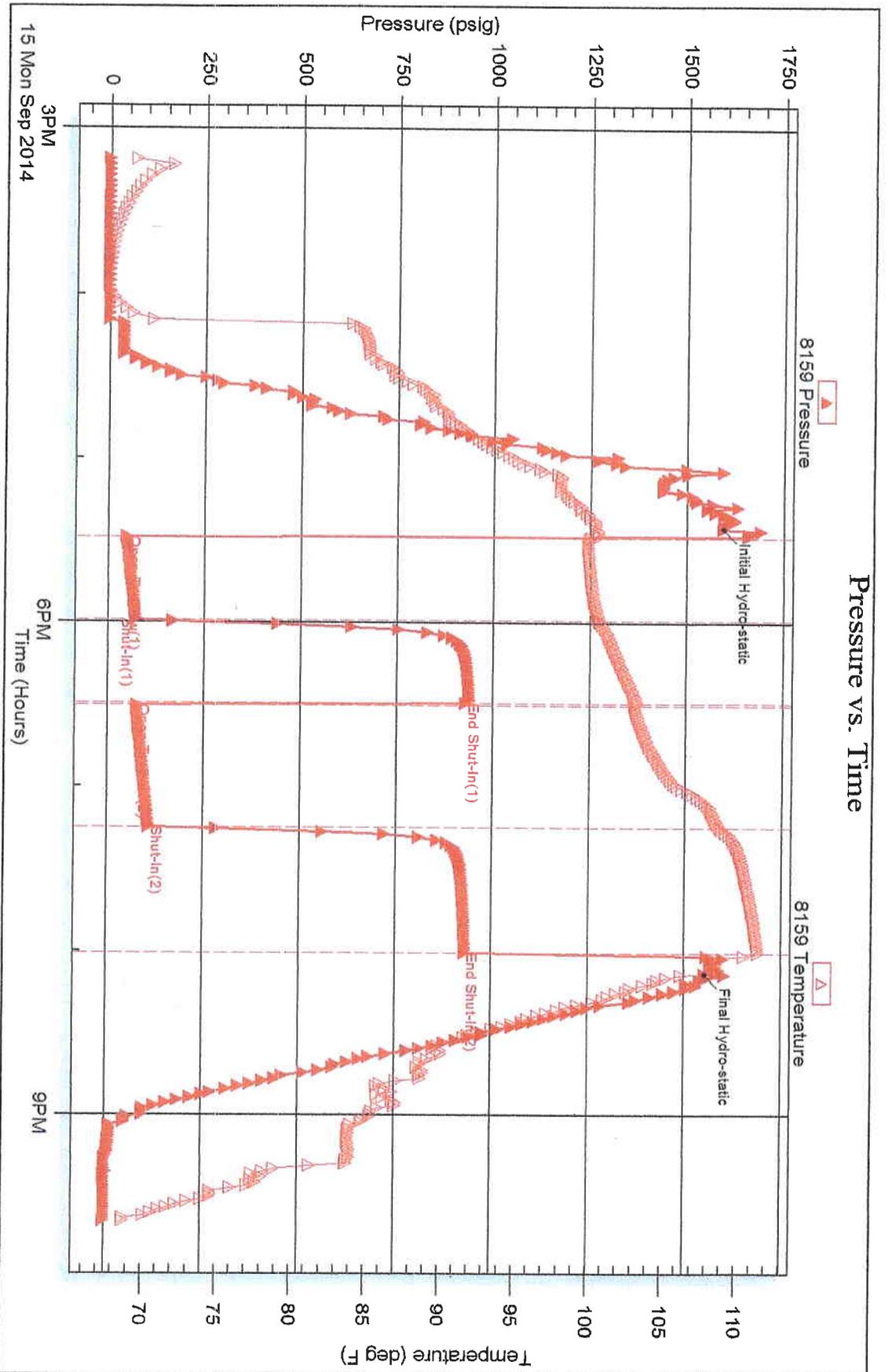
Serial #: 8159

Outside Hüpfner Operating, Inc.

Heine #A-2

DST Test Number: 1

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 60457

Printed: 2014.09.15 @ 23:03:30

HEINE A-2 SE/4 Sec 26-19-10W

RICE COUNTY

DST's

DST #1 - Arbuckle: 3226' to 3296'. 30-30-45-45. Recovered 139' muddy water. ISIP 940,
FSIP 934, IFP 54-72, FFP 79-108.