

Confidentiality Requested:

Yes  No

**KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

**Form must be Typed**

**Form must be Signed**

**All blanks must be Filled**

**WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

*(Data must be collected from the Reserve Pit)*

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

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  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Scale 1:240 Imperial

Well Name: GLENNEMEIER B #1  
Surface Location: W/2 E/2 NW NE Sec. 28 - 5S - 21W  
Bottom Location:  
API: 15-137-20751  
License Number: 34916  
Spud Date: 2/27/2019 Time: 6:15 PM  
Region: NORTON COUNTY KANSAS  
Drilling Completed: 3/4/2019 Time: 8:18 PM  
Surface Coordinates: 660' FNL & 1800' FEL  
Bottom Hole Coordinates:  
Ground Elevation: 2274.00ft  
K.B. Elevation: 2282.00ft  
Logged Interval: 3000.00ft To: 3714.00ft  
Total Depth: 3716.00ft  
Formation: LANSING - KANSAS CITY; ARBUCKLE; REAGAN  
Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

#### OPERATOR

Company: FOURWINDS OIL CORPORATION  
Address: P.O. BOX 1063  
HAYS, KS 67601

Contact Geologist: DAN WINDHOLZ  
Contact Phone Nbr: (785) 259-8403

Well Name: GLENNEMEIER B #1  
Location: W/2 E/2 NW NE Sec. 28 - 5S - 21W  
API: 15-137-20751

Pool: KANSAS Field: RAY WEST  
State: KANSAS Country: USA

#### SURFACE CO-ORDINATES

Well Type: Vertical  
Longitude: -99.6900908  
Latitude: 39.5942538  
N/S Co-ord: 660' FNL  
E/W Co-ord: 1800' FEL

#### LOGGED BY



Company: BIG CREEK CONSULTING, INC

Company: BIG CREEK CONSULTING, INC.  
 Address: 1909 MAPLE  
 ELLIS, KS 67637

Phone Nbr: (785) 259-3737  
 Logged By: GEOLOGIST

Name: JEFF LAWLER

**CONTRACTOR**

Contractor: DISCOVERY DRILLING  
 Rig #: 1  
 Rig Type: MUD ROTARY  
 Spud Date: 2/27/2019  
 TD Date: 3/4/2019  
 Rig Release: 3/6/2019  
 Time: 6:15 PM  
 Time: 8:18 PM  
 Time: 10:00 AM

**ELEVATIONS**

K.B. Elevation: 2282.00ft  
 K.B. to Ground: 8.00ft  
 Ground Elevation: 2274.00ft

**NOTES**

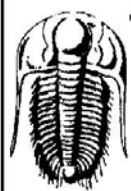
DUE TO ECONOMICAL RECOVERY 5 1/2" PRODUCTION CASING WAS RUN.

RESPECTFULLY SUBMITTED,  
 JEFF LAWLER

**WELL COMPARISON SHEET**

FORMATION	GLENNEMEIER B #1								W2 SE SW 21-5-21				SE SE SW 21-5-22				P&A 12-81				P&A			
	GLENNEMEIER A #1				GLENNEMEIER A #2				WILLIAMS #1				WILLIAMS #2											
	W2 SE SW 21-5-21				SE SE SW 21-5-22				NENE 28-5-21				NE 28-5-21											
	KB	2282	GL	2274	KB	2266	SMPL.		KB	2215	SMPL.		KB	2265	SMPL.		KB	2324	SMPL.					
DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	LOG CORR.	SMPL. CORR.	DEPTH	DATUM	LOG CORR.	SMPL. CORR.	DEPTH	DATUM	LOG CORR.	SMPL. CORR.	DEPTH	DATUM	LOG CORR.	SMPL. CORR.					
ANHYDRITE TOP	1886	396	1888	394	1864	402	- 6 - 8	1813	402	- 6 - 8	1857	408	- 12 - 14											
BASE	1903	379	1912	370	1892	374	+ 5 - 4	1842	373	+ 6 - 3	1888	377	+ 2 - 7											
TOPEKA	3230	-948	3231	-949	3213	-947	- 1 - 2	3158	-943	- 5 - 6	3210	-945	- 3 - 4	3268	-944	- 4 - 5								
HEEBNER SHALE	3432	-1150	3436	-1154	3415	-1149	- 1 - 5	3363	-1148	- 2 - 6	3410	-1145	- 5 - 9	3471	-1147	- 3 - 7								
TORONTO	3462	-1180	3462	-1180	3441	-1175	- 5 - 5	3390	-1175	- 5 - 5	3436	-1171	- 9 - 9	3497	-1173	- 7 - 7								
LKC	3478	-1196	3481	-1199	3461	-1195	- 1 - 4	3407	-1192	- 4 - 7	3454	-1189	- 7 - 10	3517	-1193	- 3 - 6								
BKC	3664	-1382	3665	-1383	3646	-1380	- 2 - 3	3593	-1378	- 4 - 5	3639	-1374	- 8 - 9	3700	-1376	- 6 - 7								
GORHAM SAND			3714	-1432				3649	-1434															
REAGAN					3699	-1433						3691	-1426			3751	-1427							
GRANITE																								
TOTAL DEPTH	3714	-1432	3716	-1434	3700	-1434	+ 2 + 0	3648	-1433	+ 1 - 1	3697	-1432	+ 0 - 2	3757	-1433	+ 1 - 1								

**DST #1 GORHAM SAND 3710' - 3716'**

	<b>DRILL STEM TEST REPORT</b>	
	Fourw inds Oil Corporation	28-5S-21W Norton, KS
	P.O. Box 1063 Hays, KS 67601	Glennemeier B #1 Job Ticket: 65344 DST#: 1
ATTN: Jeff Lawler		Test Start: 2019.03.05 @ 02:00:00

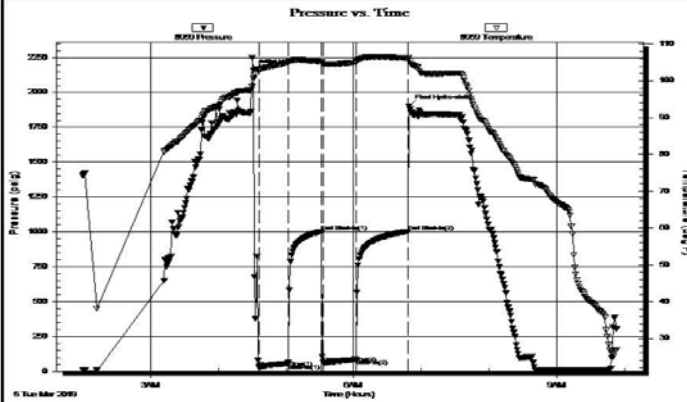
**GENERAL INFORMATION:**

Formation: **Gorham Sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:36:30  
 Time Test Ended: 09:53:00  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Martine Salinas  
 Unit No: 82  
 Interval: **3710.00 ft (KB) To 3716.00 ft (KB) (TVD)**  
 Total Depth: 3716.00 ft (KB) (TVD)  
 Reference Elevations: 2282.00 ft (KB)  
 2274.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 KB to GR/CF: 8.00 ft

**Serial #: 8959 Inside**

Press@RunDepth: 85.22 psig @ 3711.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2019.03.05 End Date: 2019.03.05  
 Last Calib.: 2019.03.05  
 Start Time: 02:00:01 End Time: 09:53:00  
 Time On Btm: 2019.03.05 @ 04:31:00  
 Time Off Btm: 2019.03.05 @ 06:49:00

**TEST COMMENT:** 30-IF-1/8" blow decreased to surface blow  
 30-ISI-No blow  
 30-FF-Weak surface blow dead @ 25 mins  
 45-FSI-No blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2156.77	100.73	Initial Hydro-static
6	26.99	103.16	Open To Flow (1)
31	57.29	105.07	Shut-In(1)
61	1002.39	105.17	End Shut-In(1)
63	62.45	104.52	Open To Flow (2)
91	85.22	105.03	Shut-In(2)
138	1002.43	106.10	End Shut-In(2)
138	1900.31	106.22	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
30.00	GOCM 20%G, 25%O, 55%M	0.22
161.00	CGO 60%G, 40%O	1.18

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

Trilobite Testing, Inc

Ref. No: 65344

Printed: 2019.03.05 @ 12:02:18

### ROCK TYPES

- Cht
- Lmst fw7>
- shale, grn
- shale, gry
- Carbon Sh
- shale, red
- Arg/Shale
- Ss

### OTHER SYMBOLS

- MISC**

  - Daily Report
  - Digital Photo
  - Document
  - Folder
  - Link
  - Vertical Log File
  - Horizontal Log File
  - Core Log File
  - Drill Cuttings Rpt

**DST**

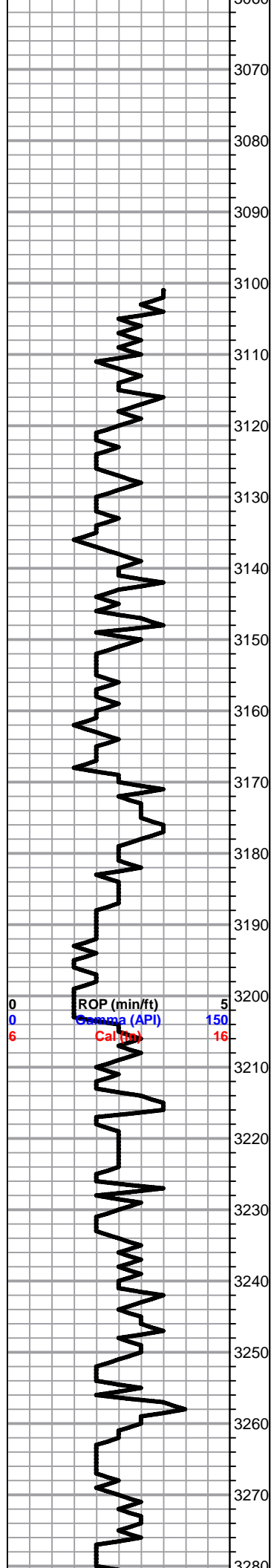
  - DST Int
  - DST alt

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

Curve Track #1	Depth   Intervals	DST	Lithology	Oil Show	Geological Descriptions	Curve Track #3
ROP (min/ft) Gamma (API) Cal (in)	Cored Interval DST Interval					
1:240 Imperial 0 ROP (min/ft) 5 0 Gamma (API) 150 6 Cal (in) 16	3060					1:240 Imperial

3070  
3080  
3090  
3100  
3110  
3120  
3130  
3140  
3150  
3160  
3170  
3180  
3190  
3200  
3210  
3220  
3230  
3240  
3250  
3260  
3270  
3280

ROP (min/ft) 5  
Gamma (API) 150  
Cal (ppm) 16



**1' DRILL TIME THROUGH ANHYDRITE FROM 1860' - 1930'**  
**1' DRILL TIME FROM 3100' - RTD**  
**10' WET/DRY SAMPLES FROM 3150' - RTD**

**GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 3100' - RTD**

**8 5/8" SURFACE PIPE SET @ 221.88' SURVEY 3/4 deg**

**ANHYDRITE TOP 1888' (+394) E-LOG 1886' (+396)**  
**ANHYDRITE BASE 1912' (+370) E-LOG 1903' (-+379)**

Lm- Cream Off White, FXLN, sl fsl, mostly tight w/ sctrd XLN porosity, clean & barren

Sh- Gray Maroon White, waxy & dense, gritty, soft & gummy

Sh- Maroon Green, abundant argillaceous wash, dense & waxy slivers

Lm- Gray Buff, FXLN, fsl, trashy, sctrd XLN porosity, barren

Sh- Maroon Gray, abundant argillaceous clumps

Sh- A/A w/ sl sandy, few pcs of fn grn consolidated & well sorted sub-rounded Ss, w/ light cementation, barren

Lm- Gray Cream, VFXLN, dense, well cemented, tight w/ no vis. porosity, barren

Sh- Gray White, platy, soft, calcareous

Sh- Maroon Green, abundant argillaceous clumps

**TOPEKA 3231' (-949) E-LOG 3230' (-948)** Lm/Ss Lm- Gray, FXLN, dense, well cemented, mostly tight w/ sctrd micro XLN porosity, barren Ss- Mint Green Frosted, Fn Grn, loosely cemented, consolidated & well sorted, sub-rounded, barren

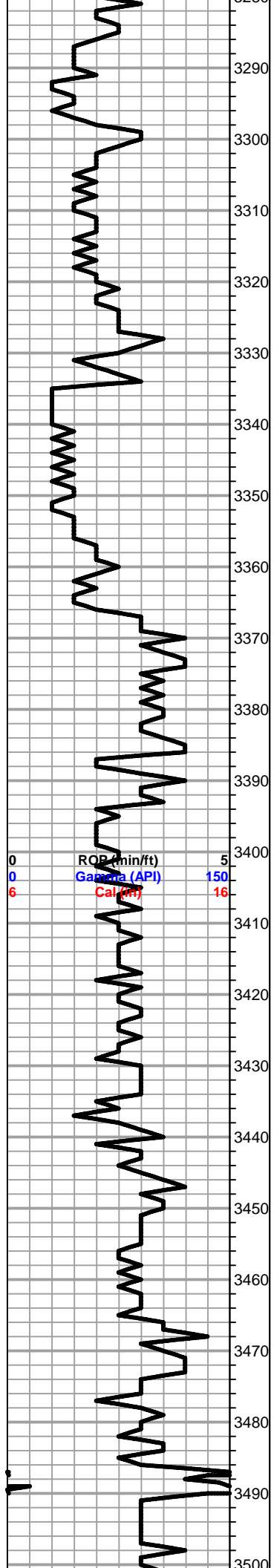
Lm- Cream Off White, Fn Grn, sandy Ls, well cemeneted, poor intergranular porosity, much gummy white chalk, barren

Sh- Gray White, abundant argillaceous clumps

Lm- Off White Cream, FXLN, massive, sl granular, sl sandy, poor vis. porosity, barren, much soft white chalk

A/A w/ some tan VFXLN, dense, sl fsl, sctrd micro XLN porosity, chalk A/A





Lm/Chert- Cream Off White, loosely cemented, dense XLN porosity, sl chalky in part, barren, several pcs of tan fresh bedded sl fsl chert, no vis. porosity

Lm- Cream Buff, FXLN, sl dolomitic, loosely to well cemented, gritty, dense XLN porosity, barren

Lm- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ sctrd XLN porosity, clean & barren

Sh- Black Green, fissile & carbonaceous, abundant argillaceous clumps

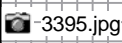
Sh- Maroon, abundant argillaceous clumps

Lm- Mint Green, VF-FXLN, dense, well cemented, tight w/ poor vis. porosity, barren

Sh- Maroon, abundant argillaceous clumps

Lm- Cream Buff Tan, VF-FXLN, dense, well cemented, sl fsl, sctrd XLN porosity, barren

Lm- White, FXLN, oolitic, mod. dev. w/ sctrd ppt porosity, sl chalky in part, SCTRD BLK STN, SL OILY SHEEN, SL TR FR O, MOD ODR



Lm- Cream Off White, VFXLN, dense, well cemented, poor vis. porosity, clean & barren

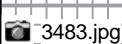
Lm- Cream Off White Buff, FXLN, sl fsl, few loose crinoids, sctrd XLN porosity, barren

**HEEBNER 3436' (-1154) E-LOG 3432' (-1150)** Sh- Black fissile & carbonaceous

Sh- Maroon Green Gray, gritty & earthy, argillaceous wash

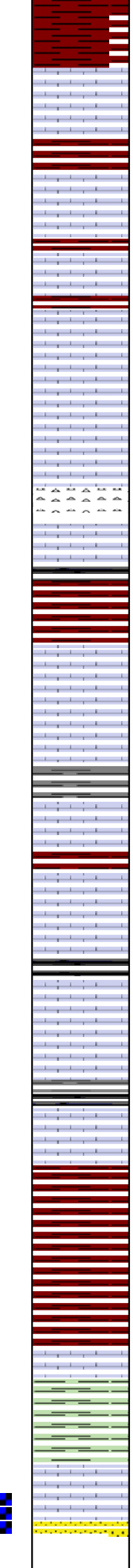
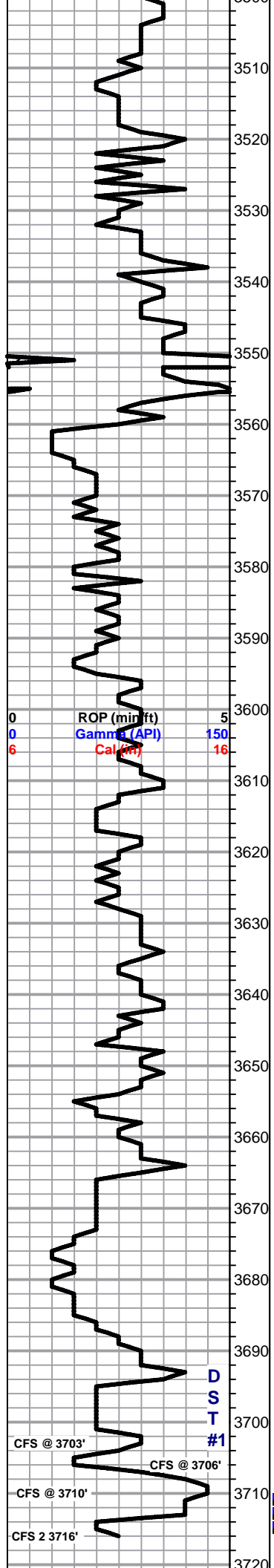
**TORONTO 3462' (-1180) E-LOG 3462' (-1180)** Lm/Chert Lm- White Cream, FXLN, mix of sl fsl w/ sctrd XLN porosity & sl dolomitic Ls w/ consistent XLN porosity throughout, all clean & barren Chert- Milky Gray Off White, fresh bedded vitreous chert w/o vis. porosity

**LKC 3481' (-1199) E-LOG 3478' (-1196)** Lm- Off White, FXLN, oolit & mod. dev. w/ sctrd ppt inter oolite porosity, SCTRD DRK STN, SL SFO, NO ODR



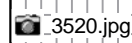
Lm- Off White Cream, VF-FXLN, sl fsl to clean, mostly tight w/ poor vis. porosity, vry clean & barren



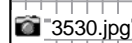


Sh- Maroon Gray, gritty & earthy, semi-waxy

Lm/Chert Lm- FXLN, poorly dev. sl oolitic, loosely cemented & partly chalky, sctrd fn ppt inter oolite porosity, SCTRDRK STN, NSFO, NO ODR, some soft white chalk  
Chert- Milky Gray & Semitranslucent, fresh bedded vitreous chert w/o vis. porosity



Lm- White Off White, FXLN, sl fsl, well cemented, poorly dev. w/ sctrd fn ppt inter oolite & micro XLN porosity, 1-2 PCS WK SCTRDRK STN, NSFO, NO ODR



Lm- White Off White, Fn Grn, FXLN, loosely cemented & chalky, poorly dev. w/ poor vis. porosity, vry clean & barren

Lm- Off White Cream, FXLN, sl fsl, poorly dev. loosely cemented & crumbly, dense XLN porosity, some soft white chalk, barren

**BIT TRIP @ 3551'**

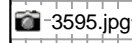
SURVEY 1/4 deg.

Lm/Dol- Cream Off White, FXLN, mix of mod. dev. oolitic w/ sctrd XLN & fn ppt inter oolite porosity & well dev. dolomite/dolomitic Ls w/ consistent XLN porosity throughout, all clean & barren

Chert- Milky White Gray, fresh bedded vitreous w/o vis. porosity

Sh- Black Gray Maroon, fissile & carbonaceous, gritty & earthy

Lm- Cream Off White, FXLN, oolitic, mod well dev. w/ consistent vry fn ppt interoolite porosity, SCTRDRK STN, NSFO, FR ODR

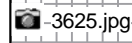


Lm- Mint Green, VFXLN, dense, well cemented, mostly tight w/ poor vis. porosity, barren

Sh- Gray Maroon, argillaceous clumps & gritty & earthy

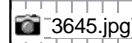
Lm- Cream Buff, VF-FXLN, dense, well cemented cherty Ls, 2-3 pcs w/ sctrd vry fn ppt porosity, SCTRDRK STN, NSFO, NO ODR

Lm- Cream Off White, FXLN, fsl & oolitic, sctrd XLN & fn ppt interoolite porosity, SCTRDRK STN, NSFO, NO ODR



Sh- Black Gray Maroon, carbonaceous, soft & calcareous, gritty & earthy

Lm- White, FXLN, oolitic, mod. dev w/ mostly consistent fn ppt inter oolite porosity, chalky & loosely cemented in part, SCTRDRK STN, TR FRO, FNT ODR, SEVERAL W/ BLK TARRY DO STN



Sh- Black Gray, fissile & carbonaceous, soft & gritty



Lm- Cream Off White, FXLN, oolitic, well to loosely cemented, poorly dev. w/ sctrd XLN porosity, clean & barren

**BKC 3665' (-1383) E-LOG 3664' (-1382)** Sh/Ss- Maroon Green, gritty & earthy, argillaceous clumps, dense & semi-waxy Ss- Maroon, Fn Grn, mod. cemented, consistent intergranular porosity, shaley, barren

Sh- A/A w/ influx of argillaceous clumps & gritty gray slivers

Lm- Cream Buff, FXLN, sl fsl, well cemented, sctrd XLN porosity, barren

STRAP +2.10'  
SURVEY 1/4 deg.  
DST #1  
GORHAM SAND  
3710' - 3716'  
30-30-30-45

191' TOTAL FLUID

161' GSY OIL  
Gr: 25  
60' GOCM  
(25%G, 20%O,  
55%M)

**3706' 40"-** Sh- Green, abundant argillaceous clumps

60"- A/A

**3710' 40"-** Lm- Cream Off White, FXLN Fn Grn, mix of well cemented & sl fsl w/ pyrite inclusions & XLN porosity, loosely cemented arenaceous Ls w/ consistent intergranular porosity, barren

60"- A/A

**REAGAN SAND 3714' (-1432)**



**3716' 40"-** Ss- Frosted, Fn-Med Grn, good Ca cementation, consolidated & mod. well

3720
3730
3740

sorted, sub-angular, GD DRK STN, GD SFO, FR ODR  
60" - A/A

RTD 3716' (-1434) LTD 3714' (-1432) @ 20:18 3/4/2019

SURVEY 1/4' deg.

3395.jpg

A001 1280x1024 2019/03/03 16:23:25 Unit: mm Magnification: 77.5 x 1



3395'











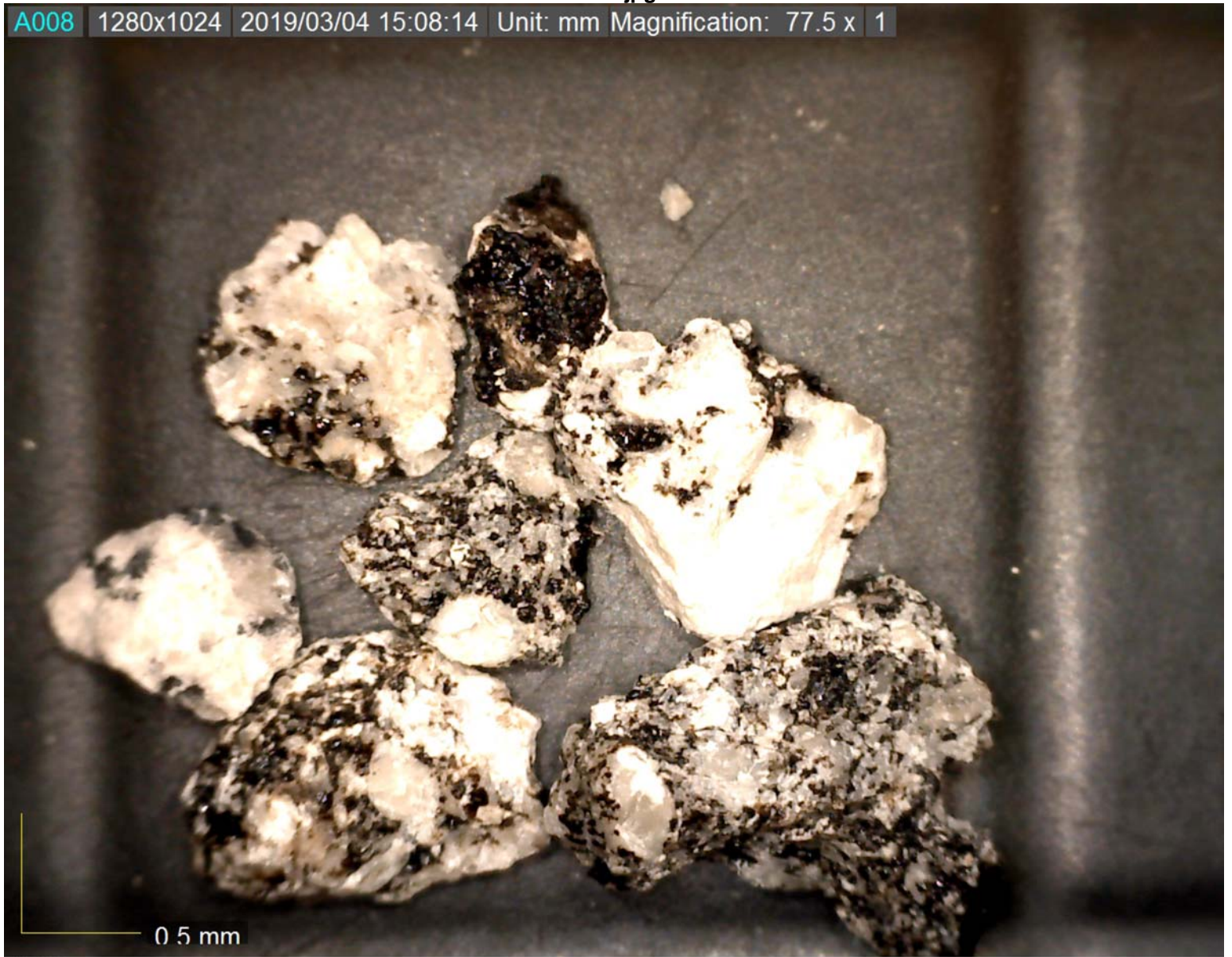








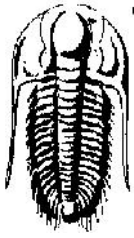








3714



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Fourwinds Oil Corporation

**28-5S-21W Norton, KS**

P.O. Box 1063  
Hays, KS 67601

**Glennemeier B #1**

Job Ticket: 65344

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2019.03.05 @ 02:00:00

## GENERAL INFORMATION:

Formation: **Gorham Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:36:30

Time Test Ended: 09:53:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 82

**Interval: 3710.00 ft (KB) To 3716.00 ft (KB) (TVD)**

Reference Elevations: 2282.00 ft (KB)

Total Depth: 3716.00 ft (KB) (TVD)

2274.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 8.00 ft

**Serial #: 8959**

**Inside**

Press@RunDepth: 85.22 psig @ 3711.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.03.05

End Date:

2019.03.05

Last Calib.: 2019.03.05

Start Time: 02:00:01

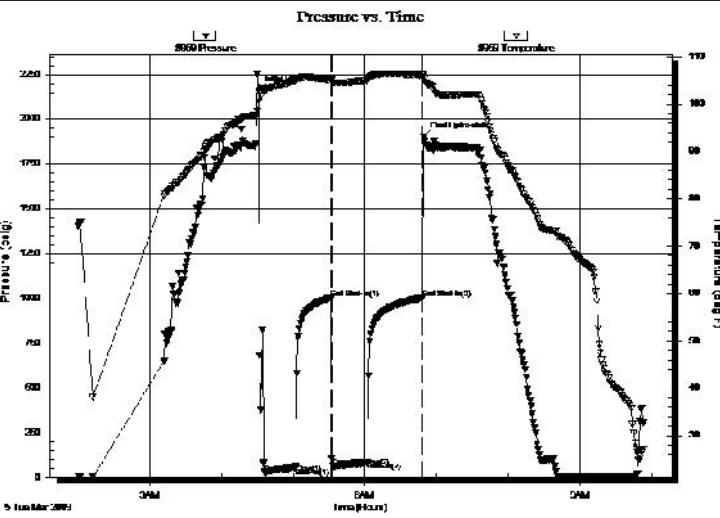
End Time:

09:53:00

Time On Btm: 2019.03.05 @ 04:31:00

Time Off Btm: 2019.03.05 @ 06:49:00

**TEST COMMENT:** 30-IF-1/8" blow decreased to surface blow  
30-ISI-No blow  
30-FF-Weak surface blow dead @ 25 mins  
45-FSI-No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2156.77	100.73	Initial Hydro-static
6	26.99	103.16	Open To Flow (1)
31	57.29	105.07	Shut-In(1)
61	1002.39	105.17	End Shut-In(1)
63	62.45	104.52	Open To Flow (2)
91	85.22	105.03	Shut-In(2)
138	1002.43	106.10	End Shut-In(2)
138	1900.31	106.22	Final Hydro-static

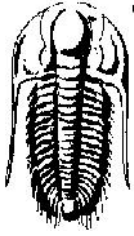
## Recovery

Length (ft)	Description	Volume (bbl)
30.00	GOCM 20%G, 25%O, 55%M	0.22
161.00	CGO 60%G, 40%O	1.18

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Fourwinds Oil Corporation

**28-5S-21W Norton, KS**

P.O. Box 1063  
Hays, KS 67601

**Glennemeier B #1**

Job Ticket: 65344

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2019.03.05 @ 02:00:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

25.2 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
30.00	GOCM 20%G, 25%O, 55%M	0.220
161.00	CGO 60%G, 40%O	1.183

Total Length: 191.00 ft      Total Volume: 1.403 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity of oil = 22 @ 28 degs

Gravity corrected to 25.2 @ 60 degs

Serial #: 8959

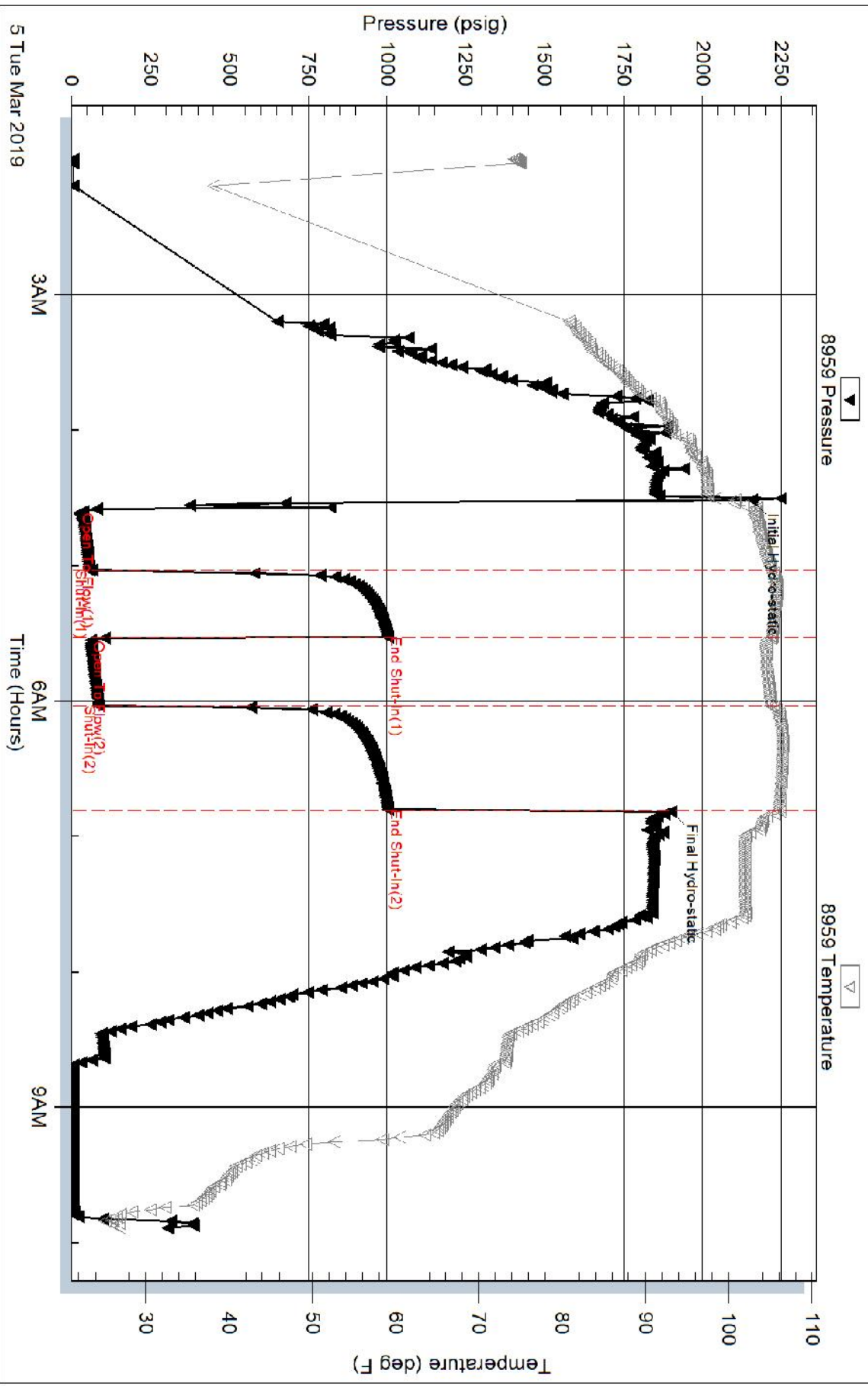
Inside

Fourw/inds Oil Corporation

Glennmeier B #1

DST Test Number: 1

### Pressure vs. Time





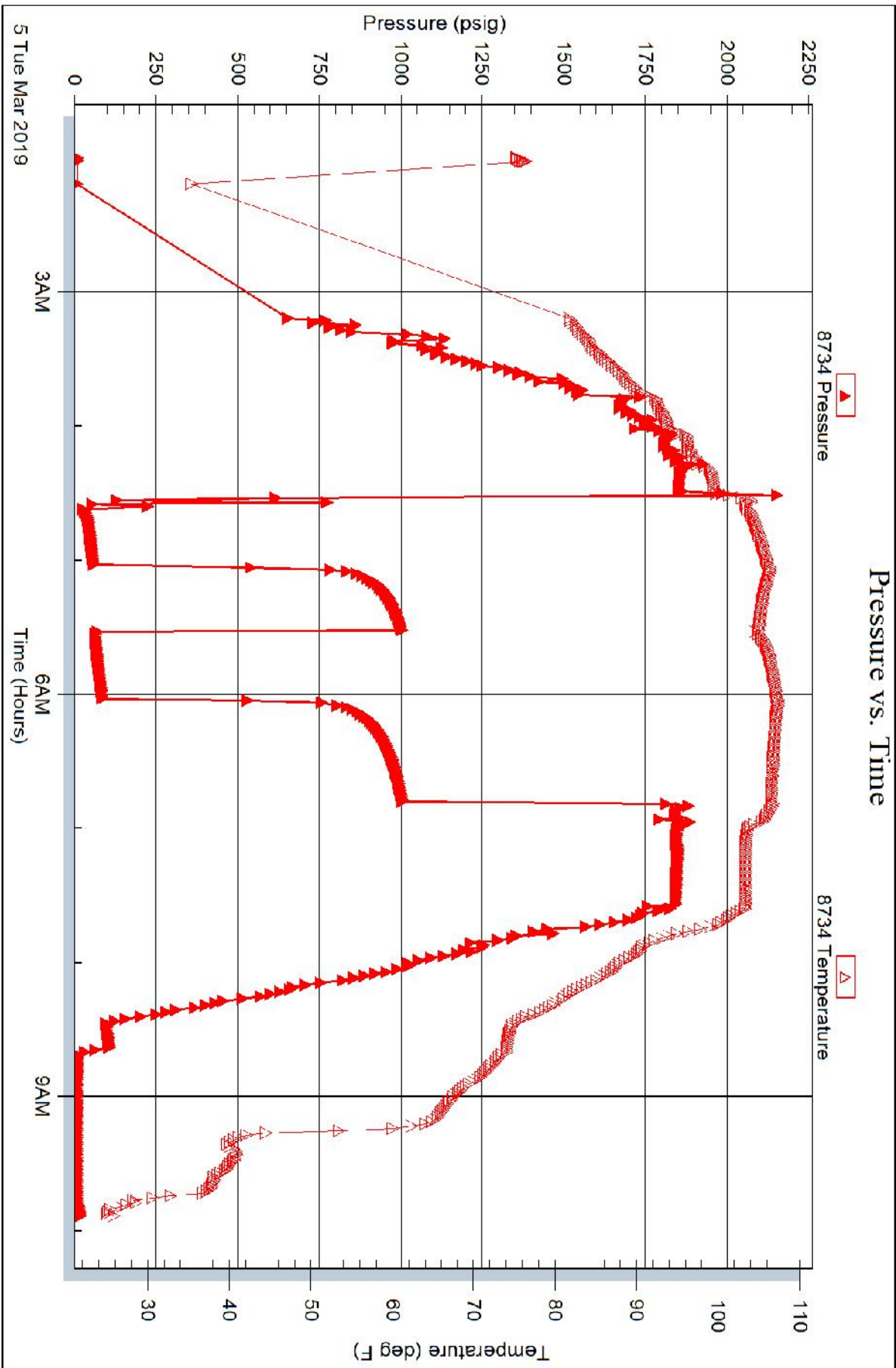
Serial #: 8734

Outside

Fourwinds Oil Corporation

Glenneier B #1

DST Test Number: 1





# 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. 1232

Date	3-6-19	Sec.	28	Twp.	5	Range	21	County	Norton	State	KS	On Location		Finish	10:30 AM
------	--------	------	----	------	---	-------	----	--------	--------	-------	----	-------------	--	--------	----------

Location Logan SW E-12R 1S 1W 3S 49into

Lease	Cylenemer	Well No.	B-1	Owner	To Quality Oilwell Cementing, Inc.
Contractor	Discovery #1	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				

Hole Size	7 7/8	T.D.	3716	Charge To	Fourwinds Oil
Csg.	5 1/2 1550#	Depth	3715	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.	15.50	Shoe Joint	15.50	Cement Amount Ordered	450 8/20 QMDC 1/4# FLO
Meas Line		Displace	88 BC	150 gal 10% salt 5% Gilsomite 500 gal mud flush	

**EQUIPMENT**

Pumptrk	17	No.	Cementer	raig	Common	150
			Helper	Rick	Poz. Mix	450 8/20 QMDC
Bulktrk	15	No.	Driver	Doug	Gel.	
Bulktrk	19	No.	Driver	Sack	Calcium	

**JOB SERVICES & REMARKS**

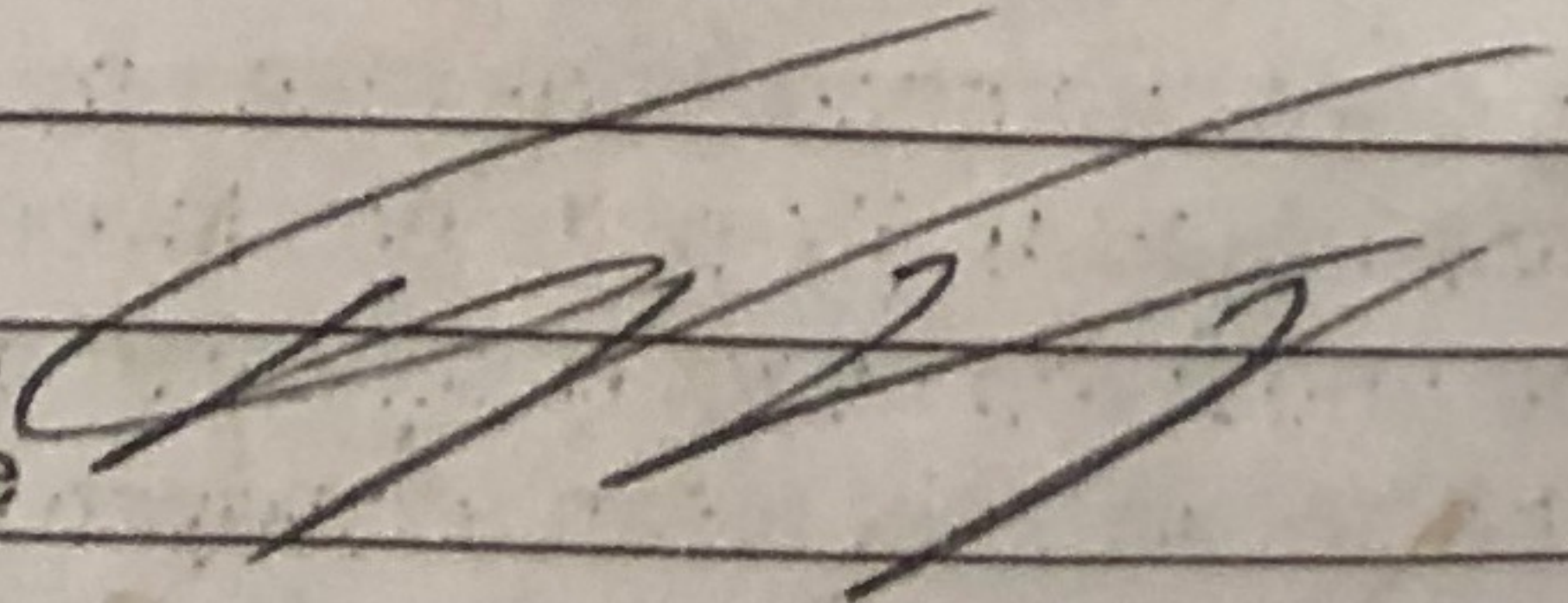
Remarks:		Hulls	
Rat Hole	30SK	Salt	13
Mouse Hole	15SK	Flowseal	115#
Centralizers		Kol-Seal	750#
Baskets		Mud CLR 48	500 gal
D/V or Port Collar		CFL-117 or CD110 CAF 38	
		Sand	
		Handling	
		Mileage	

**FLOAT EQUIPMENT**

Guide Shoe	
Centralizer	8
Baskets	4
AFU Inserts	
Float Shoe	1
Latch Down	1

5 1/2 set @ 3715. Batted @ 3699.50.  
Est. Circulation. Pump 500gal mud clear.  
Plug Rathole mousehole.  
Cement 5 1/2 with 555 SK.  
Clear lines. Displace Plug.  
Plug landed @ 2000#.  
Lift Pressure 1300#.  
Cement Circulated!

Pumptrk Charge	prod string
Mileage	74

X 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. 1231

Date	Sec.	Twp.	Range	County	State	On Location	Finish
2-28-19	28	5	21	Norton			2:15 AM

Location Logan SW E-12 R2 1S 2E1 W2 11 R2 3S

Lease <u>Glennemair</u>	Well No. <u>B-1</u>	Owner <u>WINTO</u>
Contractor <u>Discovery #1</u>		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 <u>Surface</u>		

Hole Size <u>12 1/4</u>	T.D. <u>222</u>	Charge To <u>Four Winds Oil Co</u>
Csg. <u>8 5/8</u>	Depth <u>221</u>	Street
Tbg. Size	Depth	City
Tool	Depth	State

Cement Left in Csg. <u>10'</u>	Shoe Joint	The above was done to satisfaction and supervision of owner agent or contractor.
		Cement Amount Ordered <u>150 80/20 3:4 2:62</u>

Meas Line Displace 133C

**EQUIPMENT**

Pumptrk <u>20</u>	No. Cementer <u>raig</u>	Common <u>120</u>
	Helper <u>Brett</u>	Poz. Mix <u>30</u>
Bulktrk	No. Driver	Gel. <u>3</u>
Bulktrk <u>9</u>	No. Driver <u>Tony</u>	Calcium <u>7</u>

**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

8 5/8 on bottom. Est. Circulation.  
Mix 150 SK. Displace.

Cement Circulated!

Thanks

**FLOAT EQUIPMENT**

Guide Shoe
Centralizer
Baskets
AFU Inserts
Float Shoe
Latch Down

Pumptrk Charge Surface  
Mileage 74

Signature Don Laska

Tax
Discount
Total Charge