

RECEIVED  
DEC 22 2003  
KCC WICHITA

DIAMOND TESTING  
P.O. Box 157  
HOISINGTON, KANSAS 67544  
(620) 653-7550 • (800) 542-7313

ORIGINAL

Company L. D. Drilling, Inc. Lease & Well No. Williamson No. 1  
Elevation 2348 KB Formation Cherokee Sand Effective Pay -- Ft. Ticket No. 1769  
Date 9-7-03 Sec. 33 Twp. 18S Range 24W County Ness State Kansas  
Test Approved By Kim B. Shoemaker Diamond Representative Roger D. Friedly

Formation Test No. 1 Interval Tested from 4,348 ft. to 4,387 ft. Total Depth 4,387 ft.  
Packer Depth 4,343 ft. Size 6 3/4 in. Packer Depth --ft. Size -- in.  
Packer Depth 4,348 ft. Size 6 3/4 in. Packer Depth --ft. Size -- in.  
Depth of Selective Zone Set ft.

Top Recorder Depth (Inside) 4,328 ft. Recorder Number Elec. Cap. 5,000 psi  
Bottom Recorder Depth (Outside) 4,384 ft. Recorder Number 13386 Cap. 4,000 psi  
Below Straddle Recorder Depth ft. Recorder Number psi

Drilling Contractor Mallard JV, Inc. - Rig 1 Drill Collar Length 248 ft. I.D. 2 1/4 in.  
Mud Type Chemical Viscosity 43 Weight Pipe Length -- ft. I.D. -- in.  
Weight 9.2 Water Loss 12.0 cc. Drill Pipe Length 4,066 ft. I.D. 3 1/2 in.  
Chlorides 3,500 P.P.M. Test Tool Length 34 ft. Tool Size 3 1/2 - IF in.  
Jars: Make Bowen Serial Number 1 Anchor Length 39 ft. Size 4 1/2 - FH in.  
Did Well Flow? No Reversed Out No Surface Choke Size 1 in. Bottom Choke Size 5/8 in.  
Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 - XH in.

Blow: 1st Open: Weak, 1/2 in., blow increasing. Off bottom of bucket in 43 mins. No blow back during shut-in.  
2nd Open: Weak, surface blow in 4 mins. increasing to 8 1/2 ins. No blow back during shut-in.

Recovered 155 ft. of gas in pipe  
Recovered 72 ft. of clean oil = .354240 bbls. (Gravity: 36 @ 60°)  
Recovered 31 ft. of gas & water cut muddy oil = .152520 bbls. (Grind out: 10%-gas; 22%-water; 32%-mud; 36%-oil (Emul))  
Recovered 62 ft. of oil cut watery mud = .305040 bbls. (Grind out: 10%-oil; 34%-water; 56%-mud)  
Recovered 186 ft. of gas & oil cut muddy water = 1.870960 bbls. (Grind out: 2%-gas; 3%-oil; 39%-mud; 56%-water)  
Recovered 62 ft. of gas cut muddy water = .880400 bbls. (Grind out: 5%-gas; 22%-mud; 73%-water)  
Recovered 413 ft. of TOTAL FLUID = 3.563160 bbls.

Remarks Tool Sample Grind Out: 5%-gas; 6%-oil; 22%-water; 67%-mud

Time Set Packer(s) 9:40 ~~P.M.~~ <sup>XXM.</sup> Time Started Off Bottom 1:40 ~~P.M.~~ <sup>A.M.</sup> Maximum Temperature 121°  
Initial Hydrostatic Pressure ..... (A) 2102 P.S.I.  
Initial Flow Period ..... Minutes 45 (B) 9 P.S.I. to (C) 130 P.S.I.  
Initial Closed In Period ..... Minutes 60 (D) 1198 P.S.I.  
Final Flow Period ..... Minutes 60 (E) 137 P.S.I. to (F) 183 P.S.I.  
Final Closed In Period ..... Minutes 75 (G) 1160 P.S.I.  
Final Hydrostatic Pressure ..... (H) 2003 P.S.I.



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FLUID SAMPLE DATA

Company L. D. Drilling, Inc.

Lease & Well No. Williamson No. 1

Date 9-7-03 Sec. 33 Twp. 18 S Range 24 W

Formation Test No. 1 Interval Tested From 4,348 ft. to 4,387 ft. Total Depth 4,387 ft.

Formation Cherokee Sand

	MUD PIT	RECOVERY	
Viscosity	<u>43</u> CP	<u>--</u> CP	
Weight	<u>9.2</u>	<u>--</u>	
Water Loss	<u>12.0</u> CC	<u>--</u> CC	
PH Factor	<u>8.5</u>	<u>--</u>	Water <u>6.5</u>

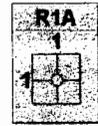
	RESISTIVITY	CHLORIDE CONTENT
Recovery Water	<u>.40</u> @ <u>65</u> °F.	<u>18,000</u> ppm
Recovery Mud	<u>--</u> @ <u>--</u> °F.	<u>--</u> ppm
Recovery Mud Filtrate	<u>--</u> @ <u>--</u> °F.	<u>--</u> ppm
Mud Pit Sample	<u>1.00</u> @ <u>69</u> °F.	<u>6,300</u> ppm
Mud Pit Sample Filtrate	<u>1.00</u> @ <u>65</u> °F.	<u>7,000</u> ppm

Sample Taken By ROGER D. FRIEDLY

Witness By Kim B. Shoemaker

Remarks Pit filtrate triton dish chlorides were 3,500 Ppm.  
Recovery water dish chlorides were 14,500 Ppm.

# Oil Well Test - Buildup Radial Flow Analysis



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L.D. DRILLING, INC  
WILLIAMSON #1

DST #1 4348'-4387'

## Analysis Results

Total Sandface Rate ( $q_t B_t$ )	13.838 bbl/d	Apparent Skin ( $s'$ )	0.990
Semilog Slope (m)	155.35	Skin - Damage	0.990
Gas Permeability ( $k_g$ )	md	Skin - Inclination	0.000
Oil Permeability ( $k_o$ )	3.134 md	Skin - Partial Penetration	
Water Permeability ( $k_w$ )	md	Pressure Drop Due to Skin ( $\Delta p_s$ )	133.63 psi
Flow Capacity (kh)	15.668 md.ft	Damage Ratio (DR)	1.072
Total Mobility ( $k/\mu_t$ )	2.90 md/cp	Flow Efficiency (FE)	0.933
Total Transmissivity ( $kh/\mu_t$ )	14.48 md.ft/cp		

## Reservoir Parameters

Net Pay (h)	5.000 ft
Total Porosity ( $\phi_t$ )	0.12 %
Water Saturation ( $S_w$ )	20.00 %
Oil Saturation ( $S_o$ )	80.00 %
Gas Saturation ( $S_g$ )	0.00 %
Wellbore Radius ( $r_w$ )	0.30 ft
Formation Temperature (T)	121.0 °F
Formation Compressibility ( $c_f$ )	3.048e-5 psi <sup>-1</sup>
Total Compressibility ( $c_t$ )	4.089e-5 psi <sup>-1</sup>

## Pressures

Initial Pressure ( $p_i$ )	2180.31 psi
Extrapolated Pressure ( $p^*$ )	1221.91 psi
Ave. Reservoir Press	1218.62 psi
Final Flowing Pressure ( $p_{wfo}$ )	183.26 psi

## Production and Times

Corrected Flow Time ( $t_c$ )	1.7333 hr
Cumulative Oil Production	0.794 bbl
Final Oil Rate	11.000 bbl/d

## Fluid Properties

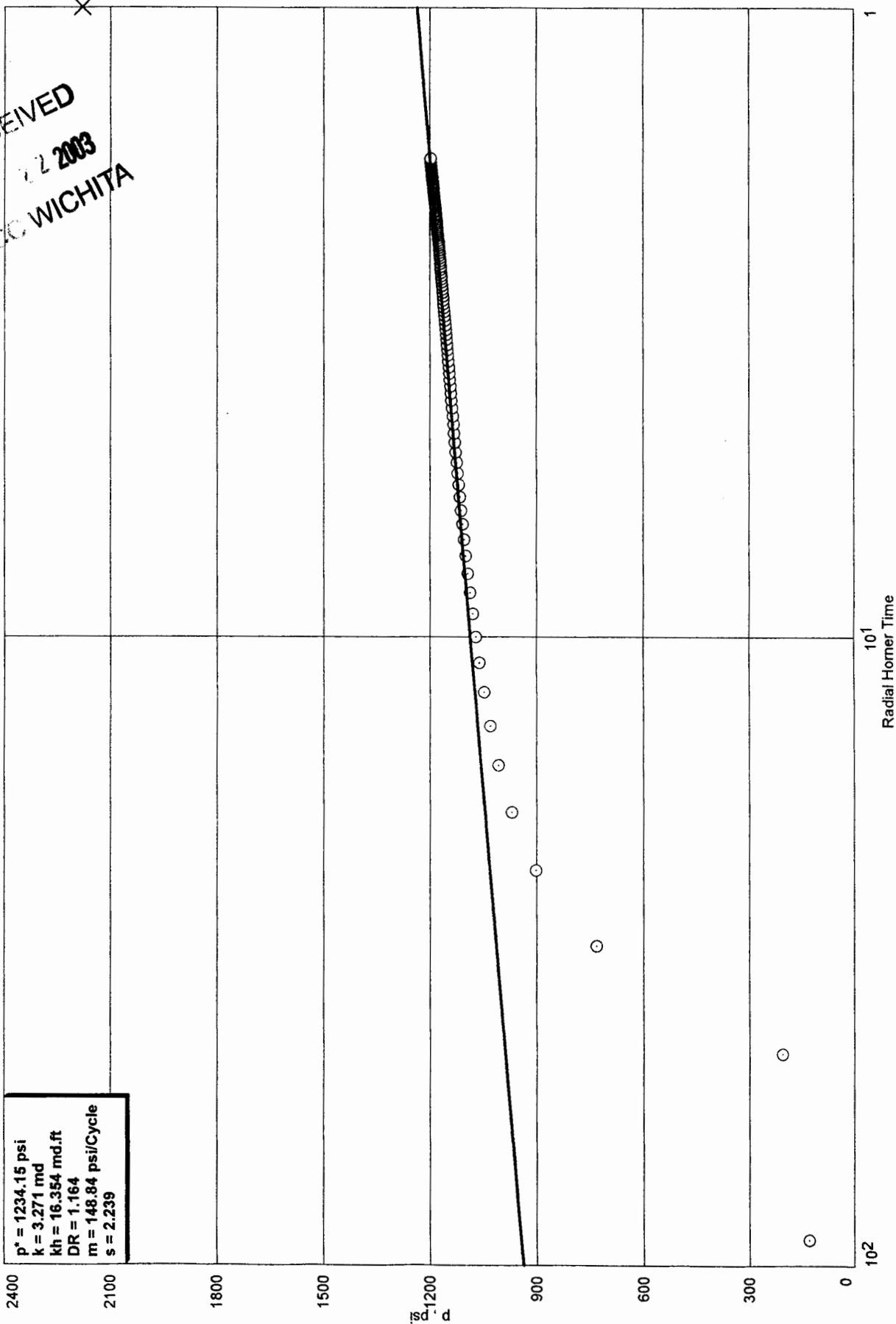
Oil Compressibility ( $c_o$ )	1.22759e-5 psi <sup>-1</sup>
Oil Formation Volume Factor ( $B_o$ )	1.258
Oil Viscosity ( $\mu_o$ )	1.082 cp
Solution Gas Ratio ( $R_s$ )	468 scf/bbl
Oil Gravity ( $\gamma_o$ )	36.00 ° API
Gas Gravity (G)	0.650
PVT Reference Pressure ( $p_{pVT}$ )	2180.31 psi

## Extended Rates Calculations

Specified Flowing Pressure	183.26 psi
Specified Reservoir Pressure	1218.62 psi
Drainage Area	160.0 acres
3 - Month Constant Rate	bbl/d
6 - Month Constant Rate	bbl/d
Stabilized Rate @ Current Skin	9.002 bbl/d
Stabilized Rate @ Skin of 0	10.064 bbl/d
Stabilized Rate @ Skin of -4	19.239 bbl/d
PI / II (Total Liquids - Actual)	0.011 bbl/d/psi
PI / II (Total Liquids - Ideal)	0.012 bbl/d/psi
Stab. PI / II (Total Liquids - Actual)	0.009 bbl/d/psi
Stab. PI / II (Total Liquids - Ideal)	0.010 bbl/d/psi

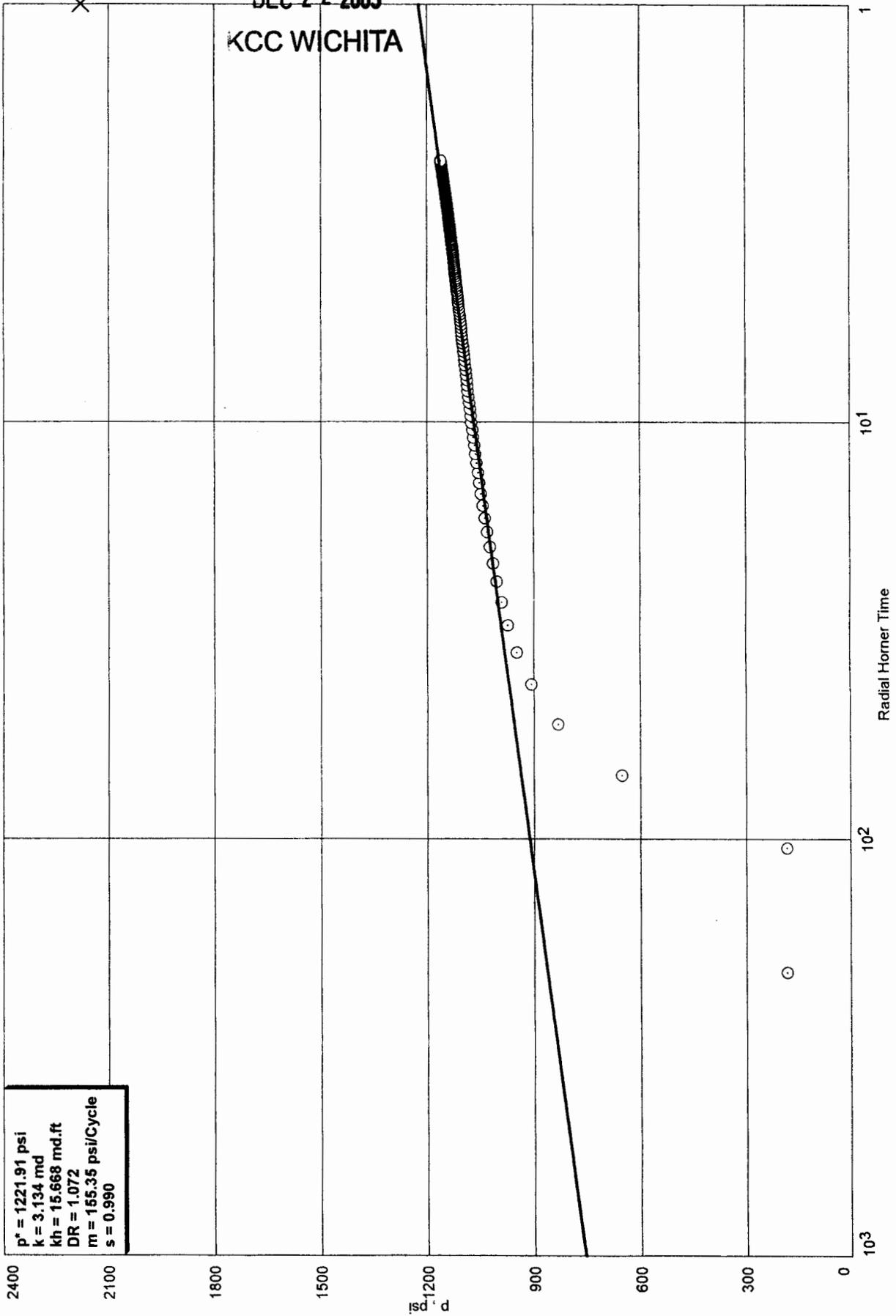
L.D. DRILLING, INC  
 WILLIAMSON #1  
 DST #1 4348'-4387'

# HORNER INITIAL SHUT IN



L.D. DRILLING, INC  
WILLIAMSON #1  
DST #1 4348'-4387'

# HORNER FINAL SHUT IN



L.D. DRILLING, INC.

<u>DESCRIPTION</u>	SECOND READING	175	FIRST READING	150	PRESSURE CHANGE	25	PIPE SIZE	0.0142	FLUID GRADIENT	0.3658	TIME CHANGE	30	TOTAL TIME	1440	DAILY PRODUCTION	46.58283215	AVERAGE % OIL	0.23	ESTIMATED PRODUCTION	10.714
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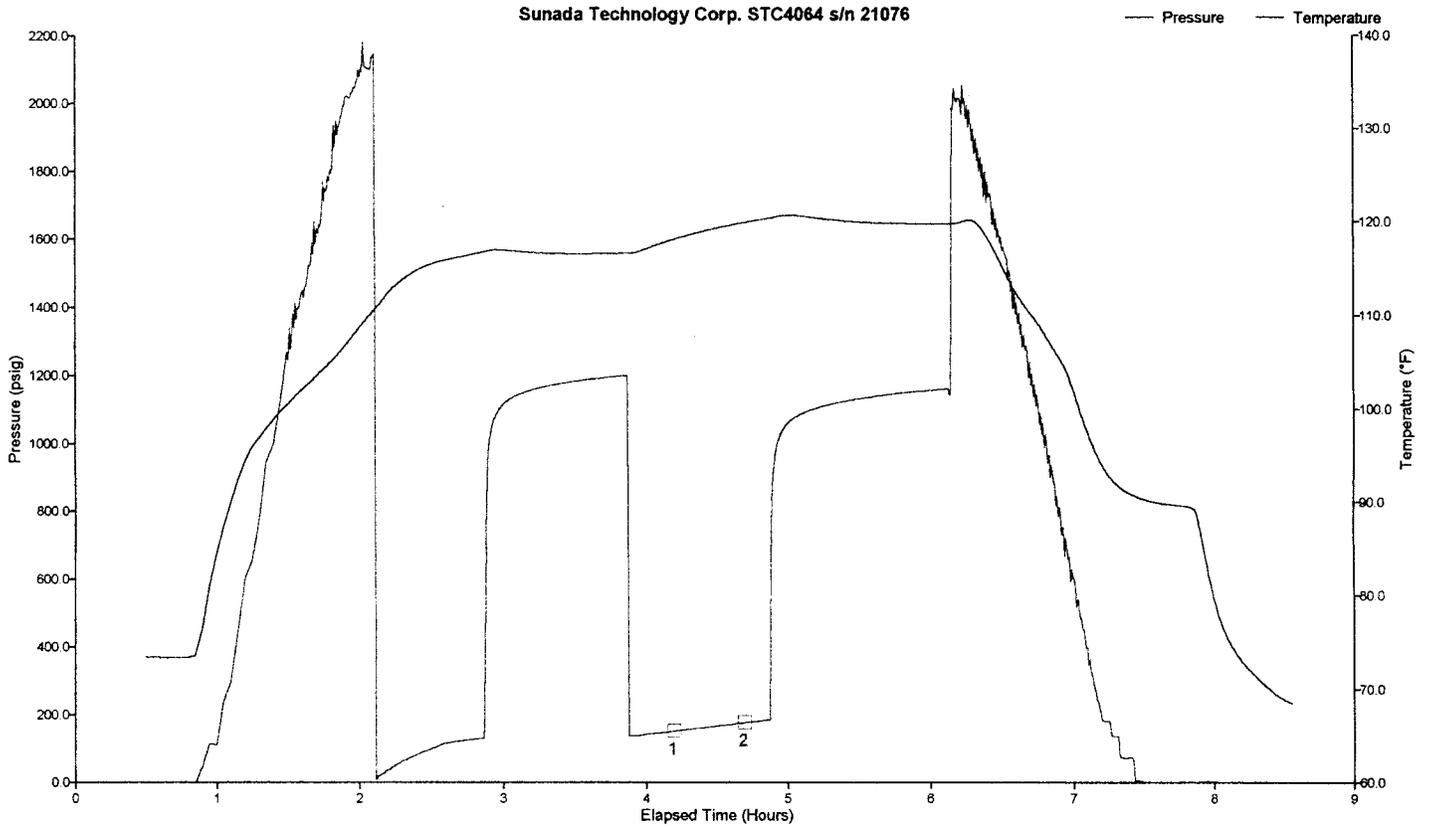
FINAL FLOW PERIOD

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WILLIAMSON #1 DST #1 CHERO SAND 4348'-4387'

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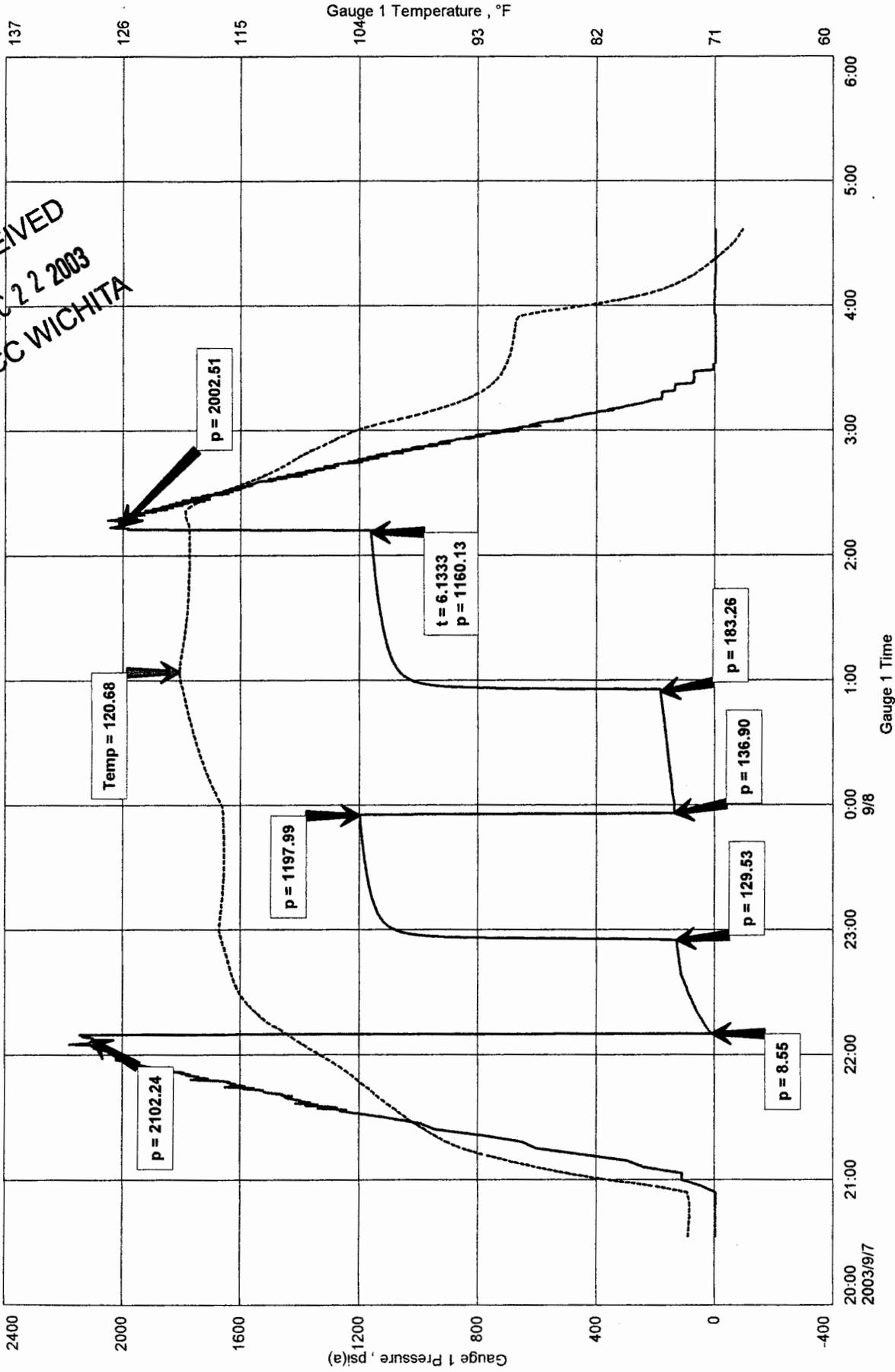
Well DST: DST #1 CHERO SAND 4348'-4387'  
 Well Name: WILLIAMSON #1  
 Company: L. D. DRILLING, INC.  
 Battery on: Sep 7, 2003 at 19:33:00  
 Notes: RECOVERED 72' GO, 31' G&WCMO, 62' OCMW, 186' G&OCMW, 62' GCMW,  
 WITH 155' GAS IN PIPE.

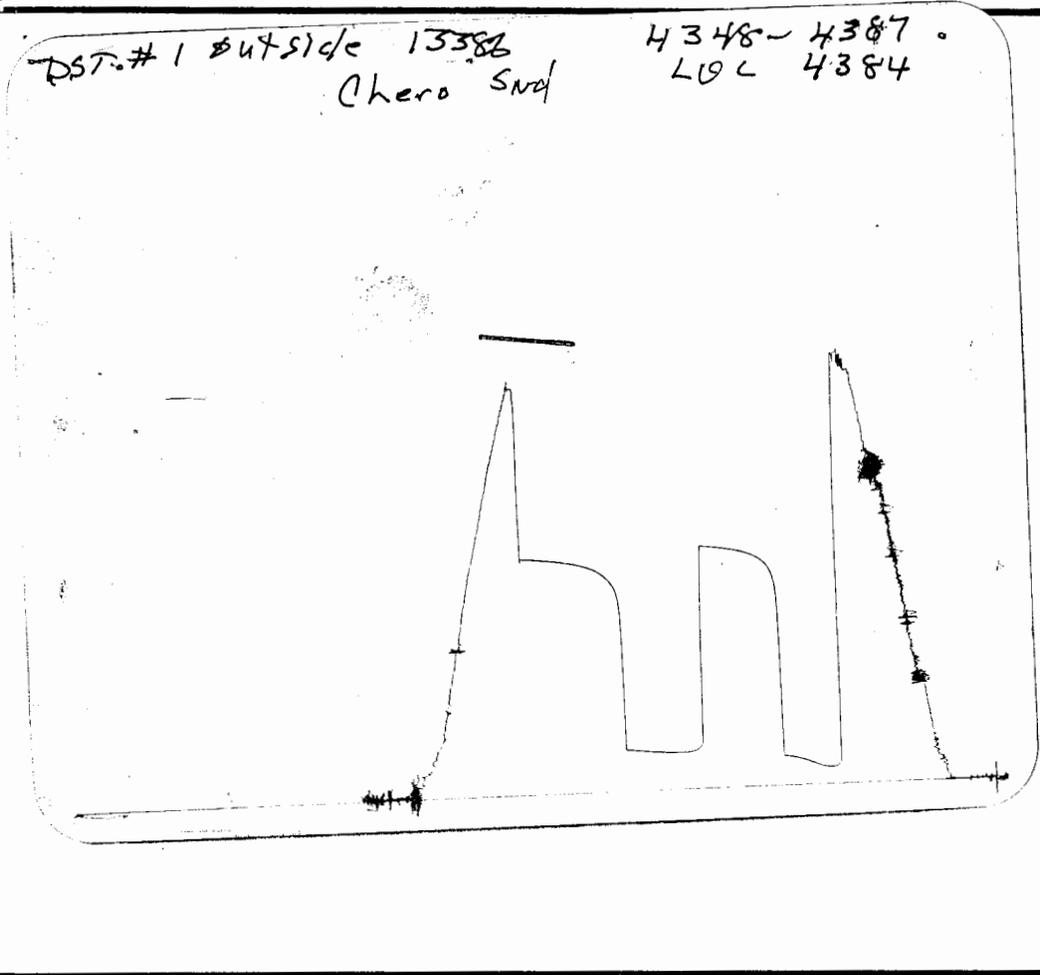


Tag	Pressure	Temperature	Comment
1	150.03 psig	118.10 °F	2003-09-07 23:45:00
2	175.07 psig	119.92 °F	2003-09-08 00:15:00

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# WILLIAMSON #1





This is an actual photograph of recorder chart.

POINT	PRESSURE		PSI
	Field Reading	Elec. Office Reading	
(A) Initial Hydrostatic Mud .....	2102	2102	PSI
(B) First Initial Flow Pressure.....	9	9	PSI
(C) First Final Flow Pressure .....	130	130	PSI
(D) Initial Closed-in Pressure .....	1198	1198	PSI
(E) Second Initial Flow Pressure.....	137	137	PSI
(F) Second Final Flow Pressure.....	183	183	PSI
(G) Final Closed-in Pressure .....	1160	1160	PSI
(H) Final Hydrostatic Mud.....	2003	2003	PSI