



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Prepared For: Hertel Oil CO

704 E 12th St
Hays Ks 67601

ORIGINAL

ATTN: Randy Killian

6-11s-17w Ellis coKS

Jaco #1

Start Date: 2000.12.10 @ 08:10:00

End Date: 2000.12.10 @ 13:55:00

Job Ticket #: 13924 DST #: 1

1355 FNL 790 FEL
EZ NE

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620



DRILL STEM TEST REPORT

Hertel Oil CO

Jaco #1

704 E 12th St
Hays Ks 67601

6-11s-17w Ellis coKS

Job Ticket: 13924

DST#: 1

ATTN: Randy Killian

Test Start: 2000.12.10 @ 08:10:00

GENERAL INFORMATION:

Formation: **LKC A-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:49:37
 Time Test Ended: 13:55:00

Test Type: Conventional Bottom Hole
 Tester: Ray Schwager
 Unit No: 16

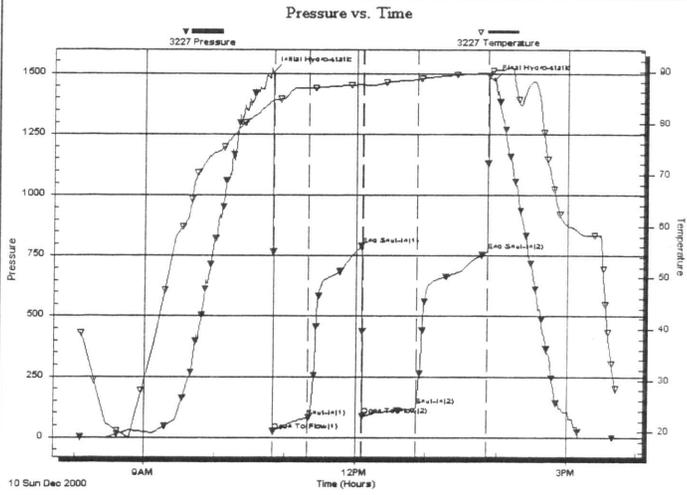
Interval: **3120.00 ft (KB) To 3227.00 ft (KB) (TVD)**
 Total Depth: 3227.00 ft (KB)
 Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 1906.00 ft (KB)
 1901.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: **3227** Inside
 Press@RunDepth: 126.11 psig @ 3131.01 ft (KB)
 Start Date: 2000.12.10 End Date: 2000.12.10
 Start Time: 08:04:42 End Time: 15:42:36

Capacity: 7000.00 psig
 Last Calib.: 2000.12.10
 Time On Btm: 2000.12.10 @ 10:48:37
 Time Off Btm: 2000.12.10 @ 13:56:36

TEST COMMENT: times 30-45-45-60 IFP-w eak bl 1/2" to 1 1/2"bl
 FFP-w eak bl 2"bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
164	1506.77	84.44	Initial Hydro-static
165	22.95	84.50	Open To Flow (1)
195	79.10	86.88	Shut-In(1)
241	792.77	87.56	End Shut-In(1)
241	86.51	87.53	Open To Flow (2)
287	126.11	88.52	Shut-In(2)
347	767.10	89.79	End Shut-In(2)
352	1476.54	90.30	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
100.00	HOCM 25%oil 75%mud	0.49
140.00	HOCM 35%oil 65%mud	1.24

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil CO

Jaco #1

704 E 12th St
Hays Ks 67601

6-11s-17w Ellis coKS

Job Ticket: 13924

DST#: 1

ATTN: Randy Killian

Test Start: 2000.12.10 @ 08:10:00

Tool Information

Drill Pipe:	Length: 2928.00 ft	Diameter: 3.80 inches	Volume: 41.07 bbl	Tool Weight: 2200.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight set on Packer: 20000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
Drill Pipe Above KB:	9.00 ft			Tool Chased 0.00 ft
Depth to Top Packer:	3115.00 ft			String Weight: Initial 43000.00 lb
Depth to Bottom Packer:	ft			Final 43000.00 lb
Interval betw een Packers:	ft			
Tool Length:	128.02 ft			
Number of Packers:	4	Diameter: 675.00 inches		

Tool Comments

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			3100.00	
S.I. Tool	5.00			3105.00	
HYD S.I. Tool	5.00			3110.00	
Packer	5.00			3115.00	16.00 Bottom Of Top Packer
Packer	5.00			3120.00	
Stubb	1.00			3121.00	
Perforations	10.00			3131.00	
Recorder	0.01	3227	Inside	3131.01	
C.O. Sub	1.00			3132.01	
Blank Spacing	63.00			3195.01	
C.O. Sub	1.00			3196.01	
Recorder	0.01	11085	Outside	3196.02	
Perforations	28.00			3224.02	
Bullnose	3.00			3227.02	112.02 Bottom Packers & Anchor

Total Tool Length: 128.02

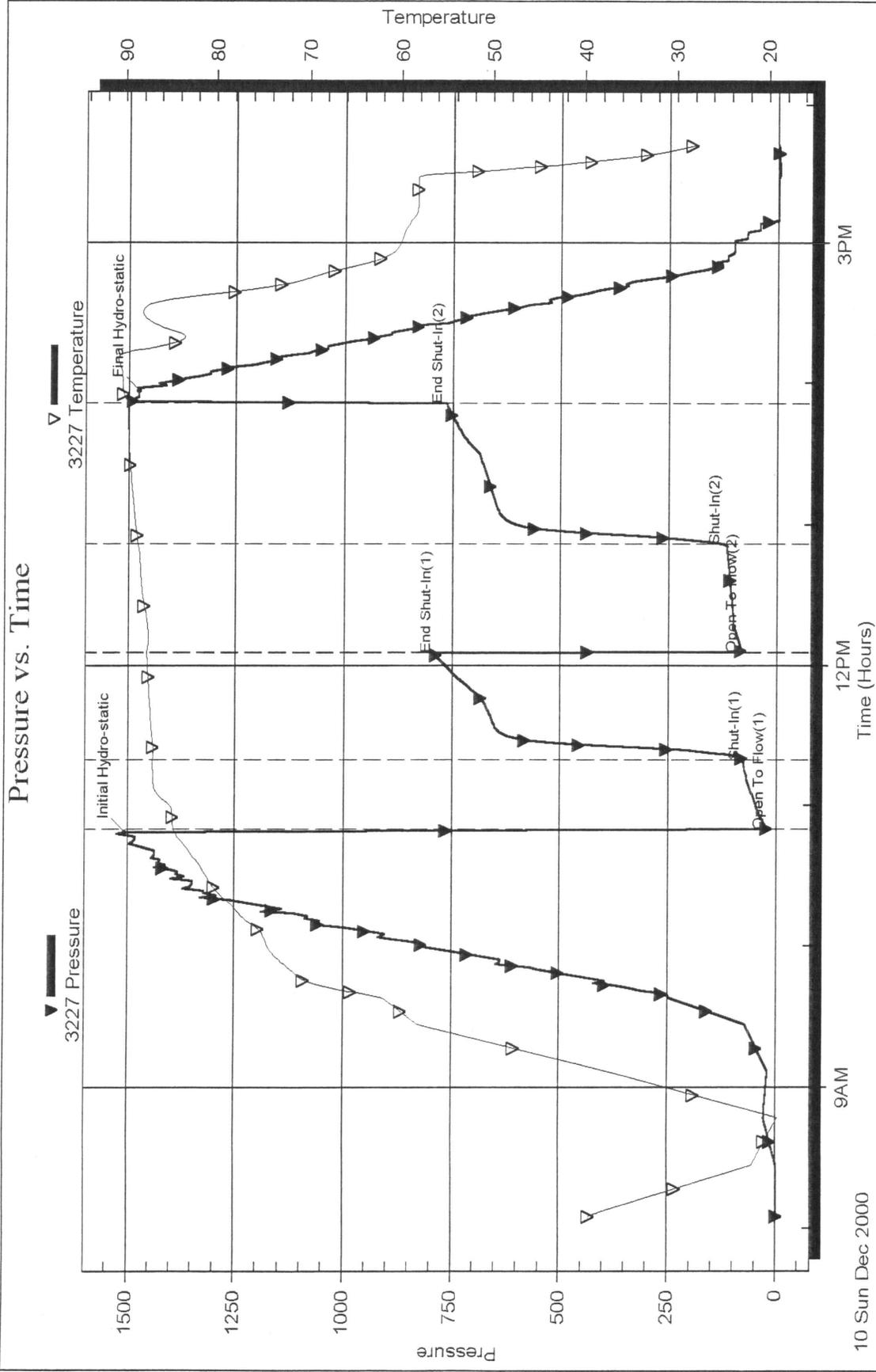
Serial #: 3227

Inside

Hertel Oil CO

6-11s-17w Ellis coks

Pressure vs. Time



6-11-17W



DRILL STEM TEST REPORT

Hertel Oil CO

Jaco #1

704 E 12th St
Hays Ks 67601

6-11s-17w Ellis coKS

Job Ticket: 13925

DST#: 2

ATTN: Randy Killian

Test Start: 2000.12.11 @ 07:10:00

GENERAL INFORMATION:

Formation: **LKC-H&I**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:35:40
 Time Test Ended: 12:40:00

Test Type: Conventional Bottom Hole
 Tester: Ray Schwager
 Unit No: 16

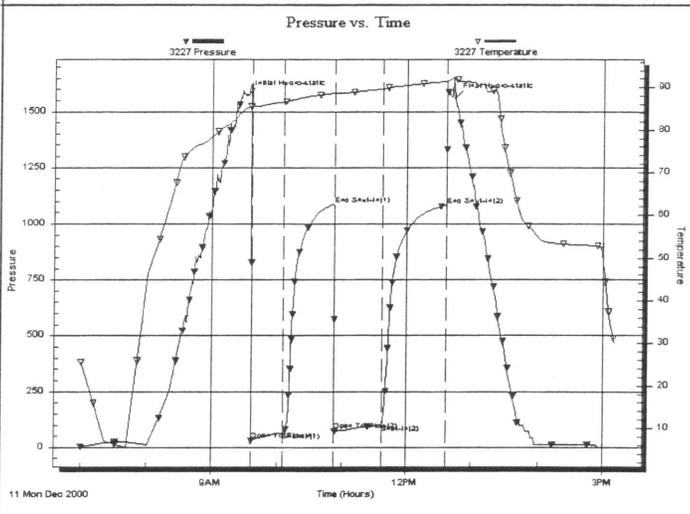
Interval: **3271.00 ft (KB) To 3366.00 ft (KB) (TVD)**
 Total Depth: 3366.00 ft (KB)
 Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 1906.00 ft (KB)
 1901.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: **3227** Inside
 Press@RunDepth: 97.69 psig @ 3284.01 ft (KB)
 Start Date: 2000.12.11 End Date: 2000.12.11
 Start Time: 06:59:15 End Time: 15:11:39

Capacity: 7000.00 psig
 Last Calib.: 2000.12.11
 Time On Btm: 2000.12.11 @ 09:31:10
 Time Off Btm: 2000.12.11 @ 12:44:09

TEST COMMENT: times 30-45-45-60 IFP-w eak bl 1/2" to 1 1/2" bl
 FFP-w eak bl 1 1/2" bl



PRESSURE SUMMARY

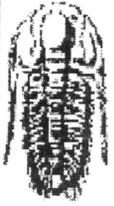
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
152	1574.40	85.16	Initial Hydro-static
157	29.36	85.39	Open To Flow (1)
186	65.53	86.63	Shut-In(1)
233	1080.23	88.73	End Shut-In(1)
234	71.85	88.67	Open To Flow (2)
278	97.69	89.70	Shut-In(2)
338	1077.44	91.43	End Shut-In(2)
345	1562.04	92.32	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
185.00	VHOCM 48%oil 52%mud	0.96

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil CO

Jaco #1

704 E 12th St
Hays Ks 67601

6-11s-17w Ellis coKS

Job Ticket: 13925

DST#: 2

ATTN: Randy Killian

Test Start: 2000.12.11 @ 07:10:00

Tool Information

Drill Pipe:	Length: 3080.00 ft	Diameter: 3.80 inches	Volume: 43.20 bbl	Tool Weight: 2200.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight set on Packer: 20000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
Drill Pipe Above KB:	5.00 ft			Tool Chased 0.00 ft
Depth to Top Packer:	3271.00 ft			String Weight: Initial 43000.00 lb
Depth to Bottom Packer:	ft			Final 44000.00 lb
Interval between Packers:	ft			
Tool Length:	116.02 ft			
Number of Packers:	4	Diameter: 675.00 inches		

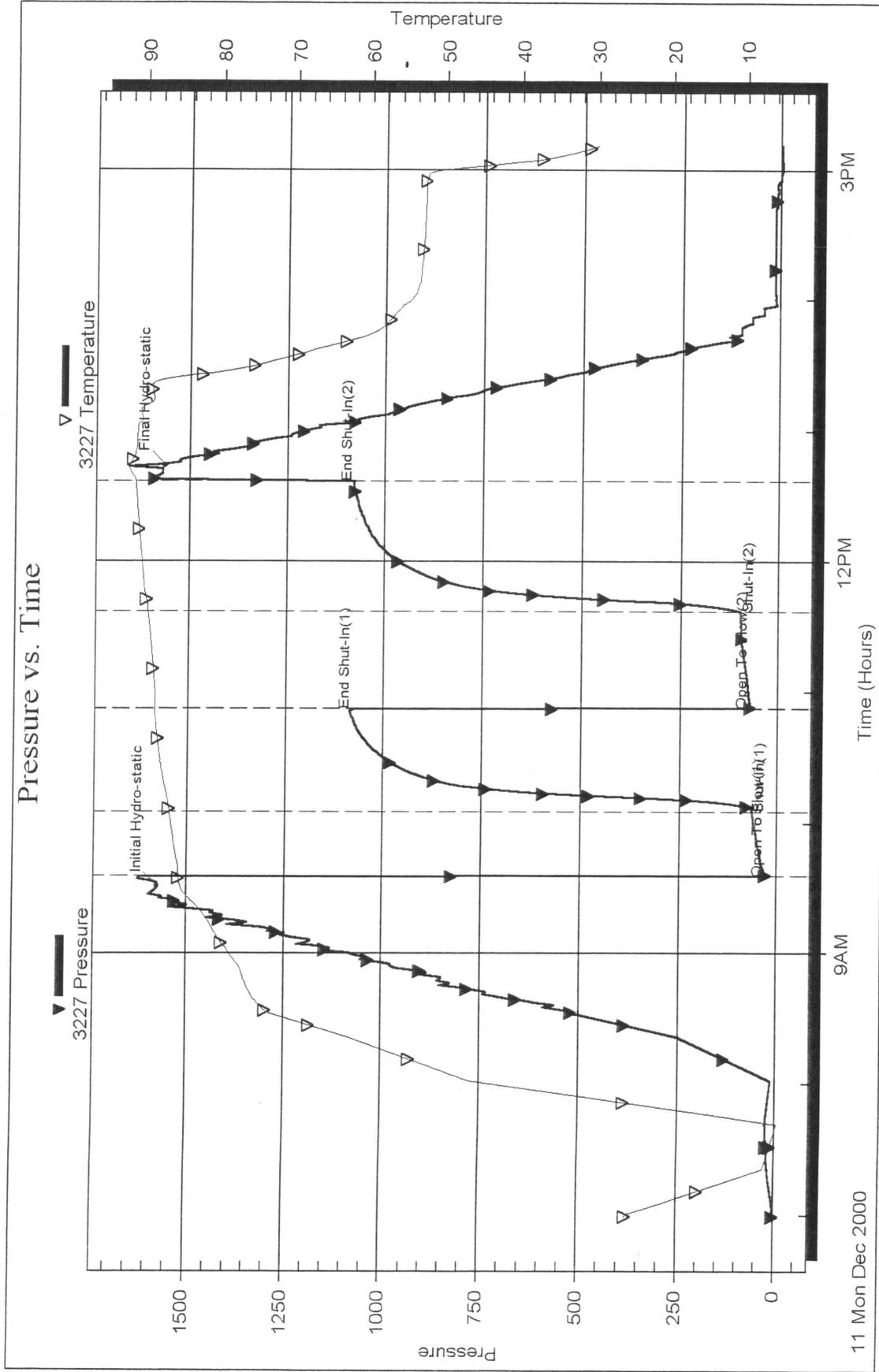
Tool Comments

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			3256.00	
S.I. Tool	5.00			3261.00	
HYD S.I. Tool	5.00			3266.00	
Packer	5.00			3271.00	16.00 Bottom Of Top Packer
Packer	5.00			3276.00	
Stubb	1.00			3277.00	
Perforations	7.00			3284.00	
Recorder	0.01	3227	Inside	3284.01	
C.O. Sub	1.00			3285.01	
Blank Spacing	63.00			3348.01	
C.O. Sub	1.00			3349.01	
Recorder	0.01	11085	Outside	3349.02	
Perforations	19.00			3368.02	
Bullnose	3.00			3371.02	100.02 Bottom Packers & Anchor
Total Tool Length:	116.02				

Serial #: 3227

Inside Hertel Oil CO

6-11s-17w Ellis coks



6-11-17W



DRILL STEM TEST REPORT

Hertel Oil CO

704 E 12th St
Hays Ks 67601

ATTN: Randy Killian

Jaco #1

6-11s-17w Ellis coKS

Job Ticket: 14126 **DST#: 3**

Test Start: 2000.12.12 @ 02:15:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:11:14

Time Test Ended: 07:47:00

Interval: **3451.00 ft (KB) To 3467.00 ft (KB) (TVD)**

Total Depth: 3227.00 ft (KB)

Hole Diameter: 7.85 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole

Tester: Ray Schwager

Unit No: 16

Reference Elevations: 1906.00 ft (KB)

1901.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 3227 Inside

Press@RunDepth: 14.64 psig @ 3457.01 ft (KB)

Start Date: 2000.12.12 End Date: 2000.12.12

Start Time: 02:09:49 End Time: 09:34:43

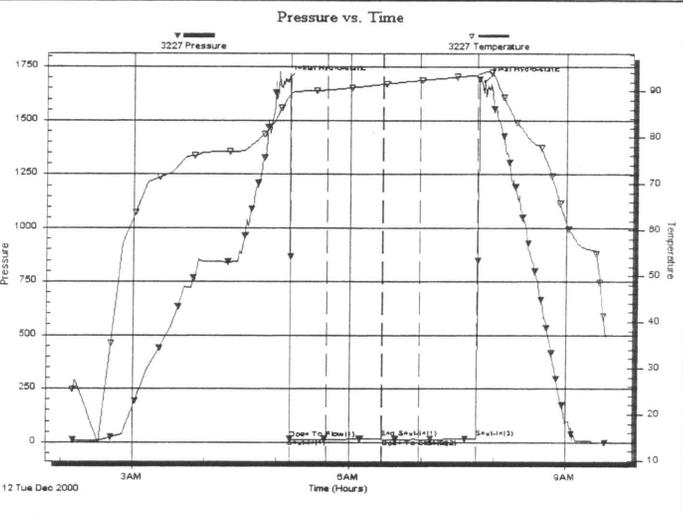
Capacity: 7000.00 psig

Last Calib.: 2000.12.12

Time On Btm: 2000.12.12 @ 05:07:44

Time Off Btm: 2000.12.12 @ 07:51:43

TEST COMMENT: times 30-45-30-45 IFP-w eak bl 1/4" bl
FFP-very weak surface bl



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
178	1686.81	88.38	Initial Hydro-static
182	14.60	89.41	Open To Flow (1)
212	14.64	90.24	Shut-In(1)
257	18.16	91.49	End Shut-In(1)
258	14.66	91.51	Open To Flow (2)
288	13.27	92.36	Shut-In(2)
336	17.14	93.52	Shut-In(3)
342	1681.56	94.19	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
1.00	OCM 6%oil 94%mud	0.00

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil CO
704 E 12th St
Hays Ks 67601

Jaco #1
6-11s-17w Ellis coKS
Job Ticket: 14126 **DST#: 3**
Test Start: 2000.12.12 @ 02:15:00

ATTN: Randy Killian

Tool Information

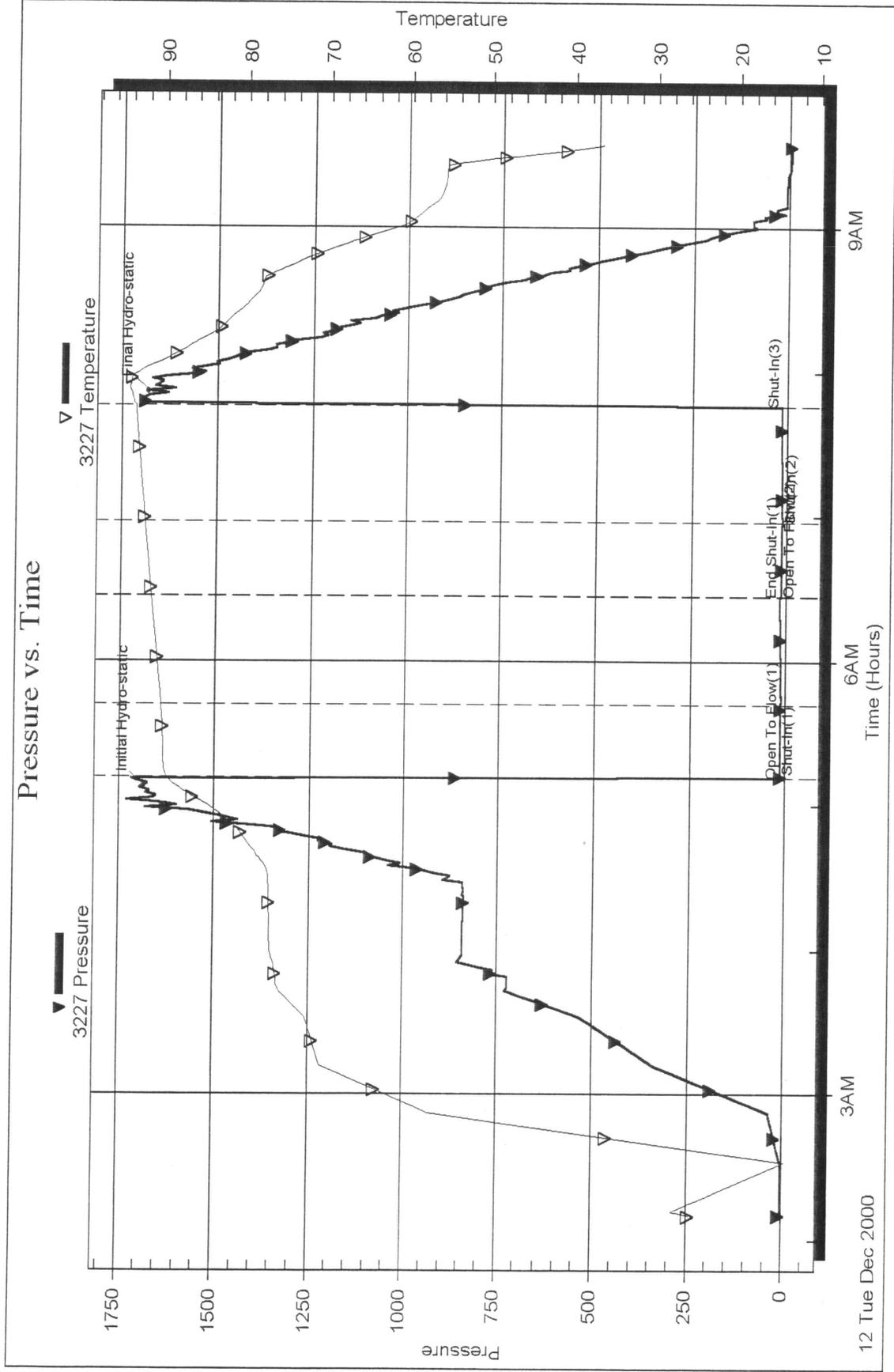
Drill Pipe:	Length: 3267.00 ft	Diameter: 3.80 inches	Volume: 45.83 bbl	Tool Weight: 2200.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight set on Packer: 20000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 65000.00 lb
Drill Pipe Above KB:	12.00 ft			Tool Chased 0.00 ft
Depth to Top Packer:	3451.00 ft			String Weight: Initial 43000.00 lb
Depth to Bottom Packer:	ft			Final 43000.00 lb
Interval between Packers:	ft			
Tool Length:	37.02 ft			
Number of Packers:	4	Diameter: 675.00 inches		

Tool Comments

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			3436.00	
S.I. Tool	5.00			3441.00	
HYD S.I. Tool	5.00			3446.00	
Packer	5.00			3451.00	16.00 Bottom Of Top Packer
Packer	5.00			3456.00	
Stubb	1.00			3457.00	
Recorder	0.01	3227	Inside	3457.01	
Perforations	12.00			3469.01	
Recorder	0.01	11085	Outside	3469.02	
Bullnose	3.00			3472.02	21.02 Bottom Packers & Anchor
Total Tool Length:	37.02				

Pressure vs. Time



6-11-17W



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Hertel Oil CO

Jaco #1

704 E 12th St
Hays Ks 67601

6-11s-17w Ellis coKS

Job Ticket: 14127

DST#: 4

ATTN: Randy Killian

Test Start: 2000.12.12 @ 16:00:00

GENERAL INFORMATION:

Formation: **arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:57:18

Time Test Ended: 21:45:00

Test Type: Conventional Bottom Hole

Tester: Ray Schwager

Unit No: 16

Interval: **3451.00 ft (KB) To 3473.00 ft (KB) (TVD)**

Total Depth: 3473.00 ft (KB)

Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 1906.00 ft (KB)

1901.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: **3227** Inside

Press@RunDepth: 182.48 psig @ 3457.01 ft (KB)

Start Date: 2000.12.12

End Date:

2000.12.12

Capacity: 7000.00 psig

Last Calib.: 2000.12.13

Start Time: 15:56:23

End Time:

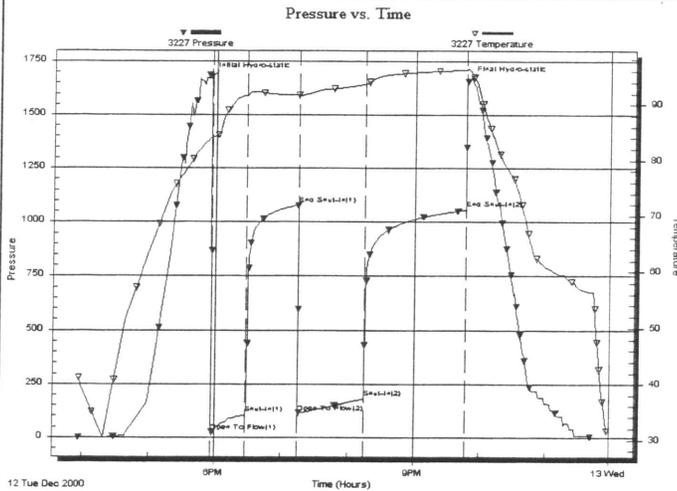
23:57:47

Time On Btm: 2000.12.12 @ 17:55:18

Time Off Btm: 2000.12.12 @ 21:49:17

TEST COMMENT: times 30-45-60-90

recovery is in reverse order to so program will figure volumes correctly IFP-w k to gd bl 1/2"to6"bl
FFP-w k to fr bl 1" to 4 1/2"bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
119	1672.25	84.04	Initial Hydro-static
121	19.72	84.22	Open To Flow (1)
152	104.60	91.78	Shut-In(1)
199	1078.60	91.68	End Shut-In(1)
199	112.67	91.61	Open To Flow (2)
258	182.48	93.70	Shut-In(2)
351	1061.28	96.22	End Shut-In(2)
353	1658.67	96.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	muddy oil 30% mud 70% oil	0.30
360.00	clean oil	3.96

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil CO

Jaco #1

704 E 12th St
Hays Ks 67601

6-11s-17w Ellis coKS

Job Ticket: 14127

DST#: 4

ATTN: Randy Killian

Test Start: 2000.12.12 @ 16:00:00

Tool Information

Drill Pipe:	Length: 3267.00 ft	Diameter: 3.80 inches	Volume: 45.83 bbl	Tool Weight: 2200.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight set on Packer: 20000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 55000.00 lb
Drill Pipe Above KB:	12.00 ft			Tool Chased 0.00 ft
Depth to Top Packer:	3451.00 ft			String Weight: Initial 44000.00 lb
Depth to Bottom Packer:	ft			Final 45000.00 lb
Interval between Packers:	ft			
Tool Length:	43.02 ft			
Number of Packers:	4	Diameter: 675.00 inches		

Tool Comments

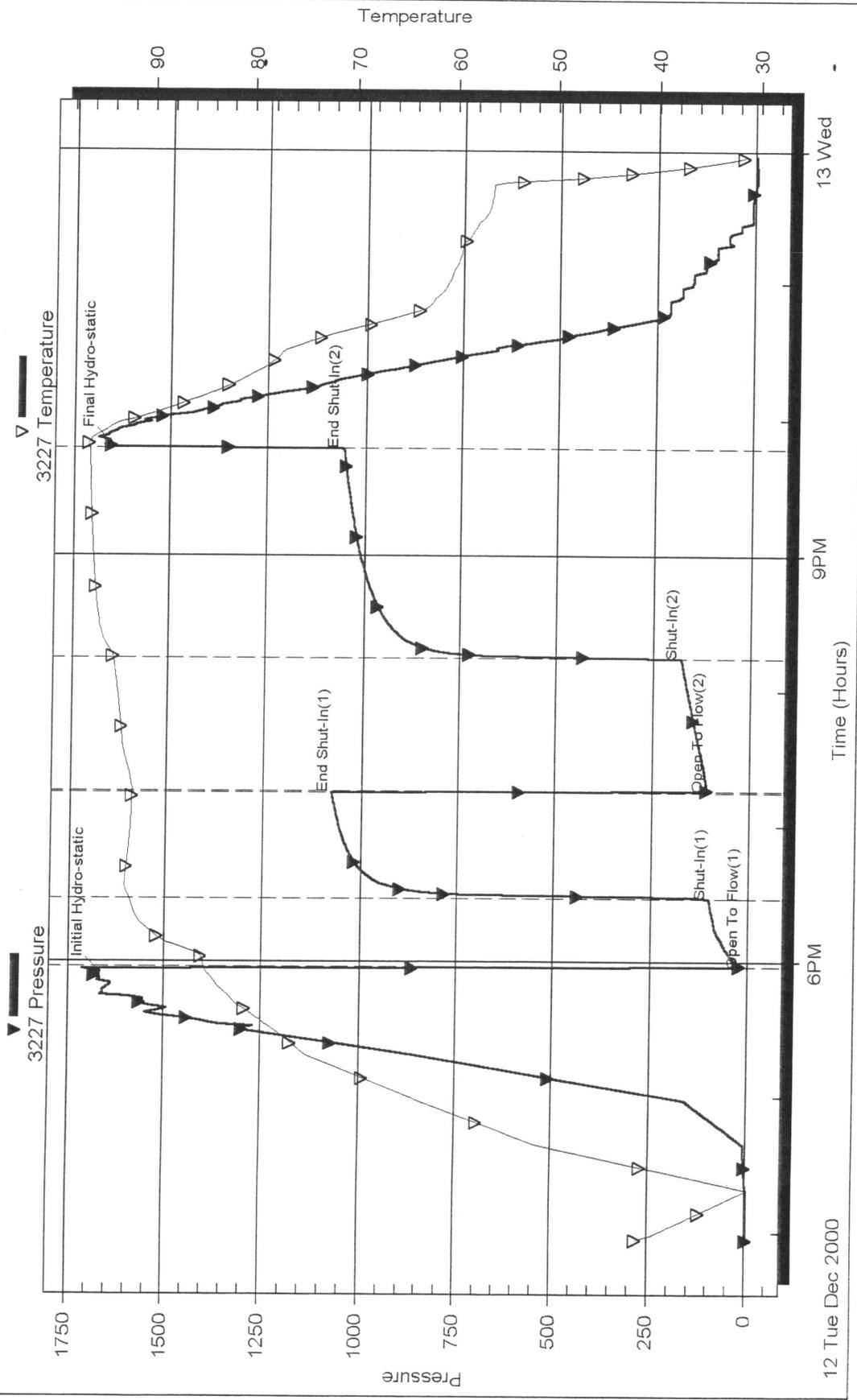
Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			3436.00	
S.I. Tool	5.00			3441.00	
HYD S.I. Tool	5.00			3446.00	
Packer	5.00			3451.00	16.00 Bottom Of Top Packer
Packer	5.00			3456.00	
Stubb	1.00			3457.00	
Recorder	0.01	3227	Inside	3457.01	
Perforations	18.00			3475.01	
Recorder	0.01	11085	Outside	3475.02	
Bullnose	3.00			3478.02	27.02 Bottom Packers & Anchor
Total Tool Length:	43.02				

Serial #: 3227

Inside Hertel Oil CO

6-11s-17w Ellis coKS

Pressure vs. Time



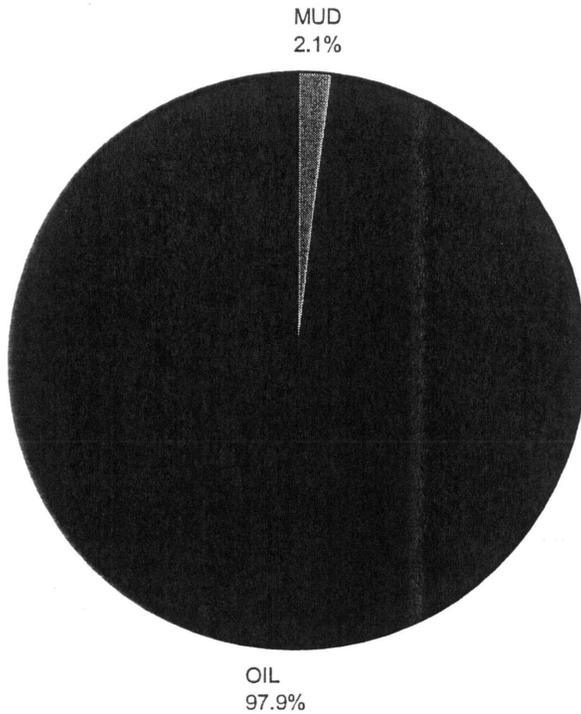
CALCULATED RECOVERY ANALYSIS

DST 4

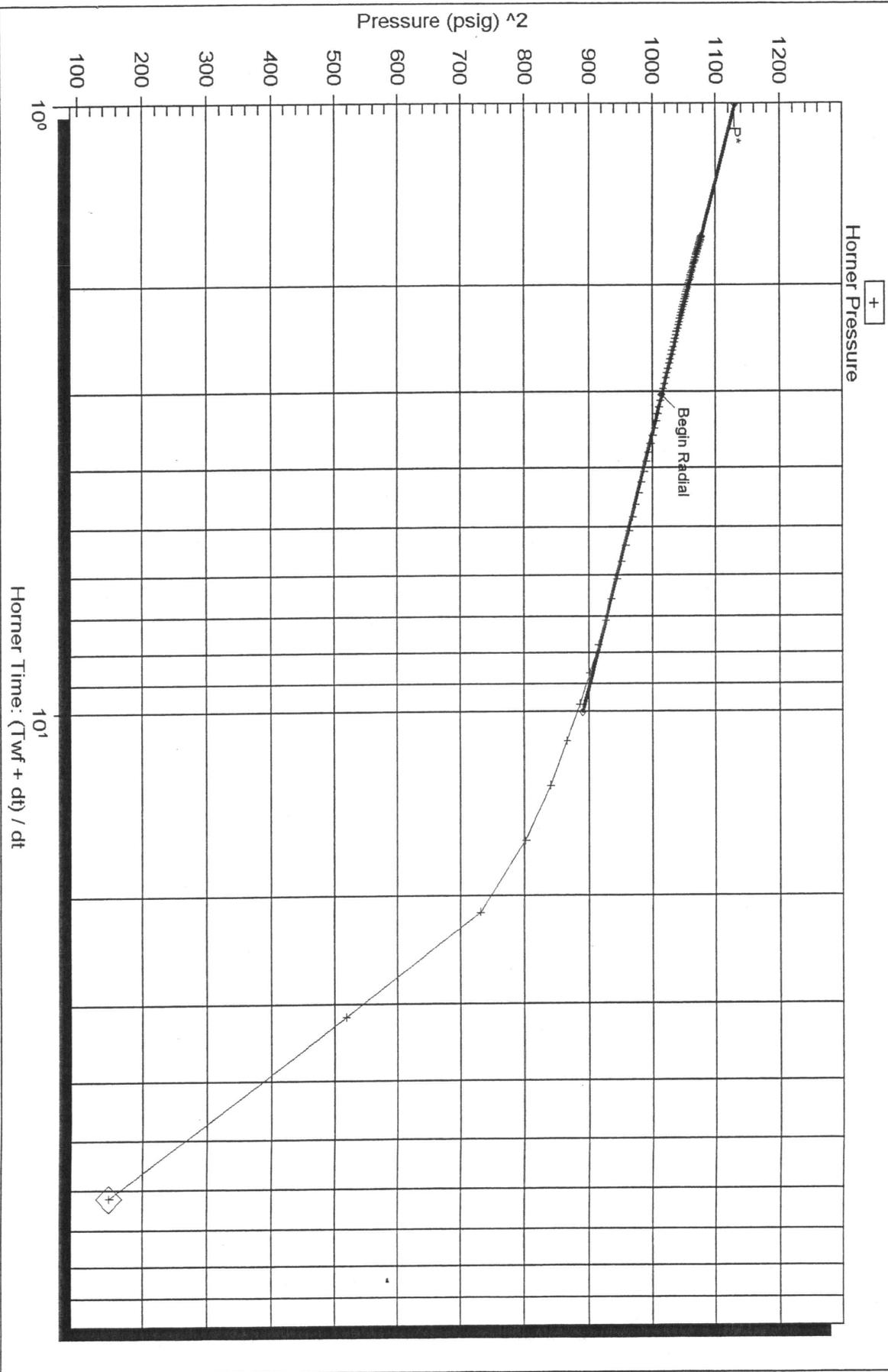
TICKET 14127

SAMPLE #	TOTAL FEET	GAS		OIL		WATER		MUD		
		%	FEET	%	FEET	%	FEET	%	FEET	
DRILL	1	240	0	0	100	240	0	0	0	0
PIPE	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0
WEIGHT	1	0	0	0	0	0	0	0	0	0
PIPE	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0
DRILL	1	120	0	0	100	120	0	0	0	0
COLLARS	2	60	0	0	70	42	0	0	30	18
	3	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0
TOTAL		420	0	0	0	402	0	0	0	18

BBL OIL= 4.20498 * HRS OPEN 1.5 = BBL/DAY 67.27968
 BBL WATER= 0 * = 0
 BBL MUD= 0.08802
 BBL GAS = 0



Horner Plot



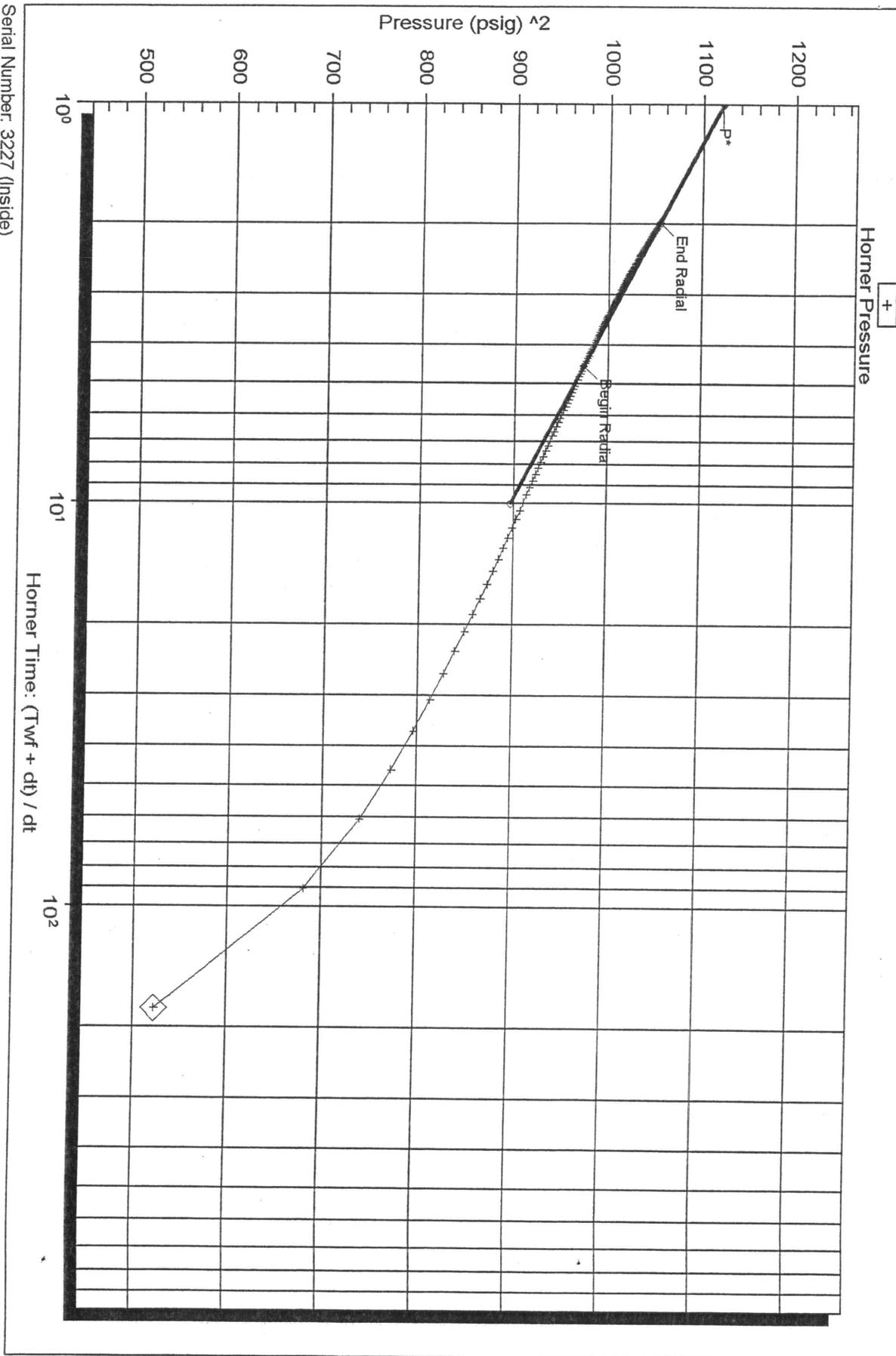
Serial Number: 3227 (inside)

P* : 1130.43

Slope (m) : 238.91 kpa/log cycle

Flow Cycle: 1

Horner Plot



Serial Number: 3227 (inside)

Flow Cycle: 2