

DRILL STEM TEST REPORT

Prepared For: **Sam Gary**

1515 Wynkoop Ste 700
Denver Co 80202

ATTN: Neil Sharp

30-16-15-Barton-Ks

Steinert et al # 1-30

Start Date: 2010.12.15 @ 04:20:30

End Date: 2010.12.15 @ 13:26:00

Job Ticket #: 041355 DST #: 3

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Sam Gary
1515 Wynkoop Ste 700
Denver Co 80202
ATTN: Neil Sharp

Steinert et al # 1-30
30-16-15-Barton-Ks
Job Ticket: 041355 **DST#: 3**
Test Start: 2010.12.15 @ 04:20:30

GENERAL INFORMATION:

Formation: **H-I-J LKC**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:13:30
Time Test Ended: 13:26:00
Interval: **3418.00 ft (KB) To 3481.00 ft (KB) (TVD)**
Total Depth: 3481.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole
Tester: Dan Bangle
Unit No: 38
Reference Elevations: 2005.00 ft (KB)
1997.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8354

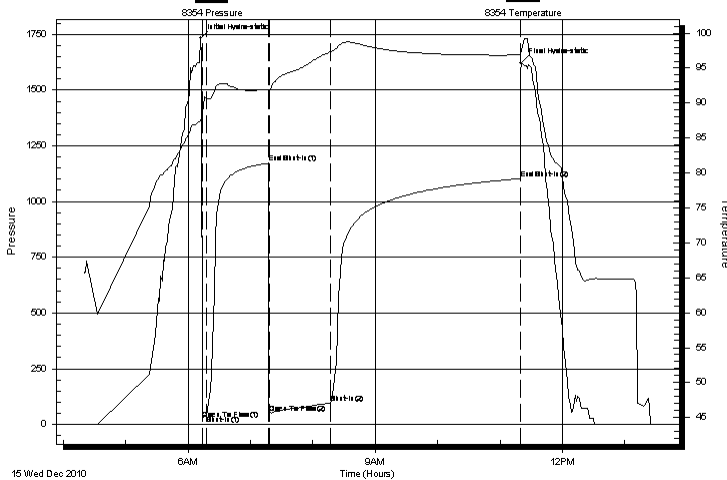
Inside

Press @ Run Depth: 95.76 psig @ 3421.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2010.12.15 End Date: 2010.12.15 Last Calib.: 2010.12.16
Start Time: 04:20:31 End Time: 13:26:00 Time On Btm: 2010.12.15 @ 06:12:15
Time Off Btm: 2010.12.15 @ 11:20:15

TEST COMMENT: IF-Weak building to 3"

FF-Strong B-B in 30 sec
FSI-Weak building to 4" died in 90 min

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1731.44	87.45	Initial Hydro-static
2	21.19	88.12	Open To Flow (1)
6	41.08	90.59	Shut-In(1)
65	1171.51	91.95	End Shut-In(1)
66	48.70	91.09	Open To Flow (2)
125	95.76	97.38	Shut-In(2)
308	1102.83	96.87	End Shut-In(2)
308	1622.67	96.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
215.00	MCGsyO 30%g 60%o 10%m	2.74
0.00	1450 GIP	0.00

Gas Rates

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



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TOOL DIAGRAM

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Test Start: 2010.12.15 @ 04:20:30

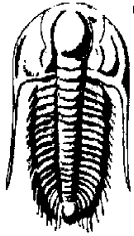
Tool Information

Drill Pipe:	Length: 3364.00 ft	Diameter: 3.80 inches	Volume: 47.19 bbl	Tool Weight: 3800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 47.34 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3418.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	65.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3384.00	
Recorder	0.00	8653	Inside	3384.00	
Blank Spacing	4.00			3388.00	
Shut In Tool	5.00			3393.00	
Sampler	3.00			3396.00	
Hydraulic tool	5.00			3401.00	
Jars	5.00			3406.00	
Safety Joint	3.00			3409.00	
Packer	5.00			3414.00	35.00 Bottom Of Top Packer
Packer	4.00			3418.00	
Stubb	1.00			3419.00	
Perforations	2.00			3421.00	
Recorder	0.00	8354	Inside	3421.00	
Recorder	0.00	8520	Outside	3421.00	
Perforations	24.00			3445.00	
Bullnose	3.00			3448.00	30.00 Bottom Packers & Anchor
Total Tool Length:	65.00				



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DRILL STEM TEST REPORT

FLUID SUMMARY

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Steinert et al # 1-30
30-16-15-Barton-Ks
Job Ticket: 041355 **DST#: 3**
Test Start: 2010.12.15 @ 04:20:30

Mud and Cushion Information

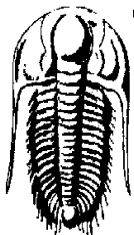
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 44.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.99 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6400.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
215.00	MCGsyO 30%g 60%o 10%m	2.743
0.00	1450 GIP	0.000

Total Length: 215.00 ft Total Volume: 2.743 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: Sampler
 1.4cu ft gas



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GAS RATES

Sam Gary
1515 Wynkoop Ste 700
Denver Co 80202
ATTN: Neil Sharp

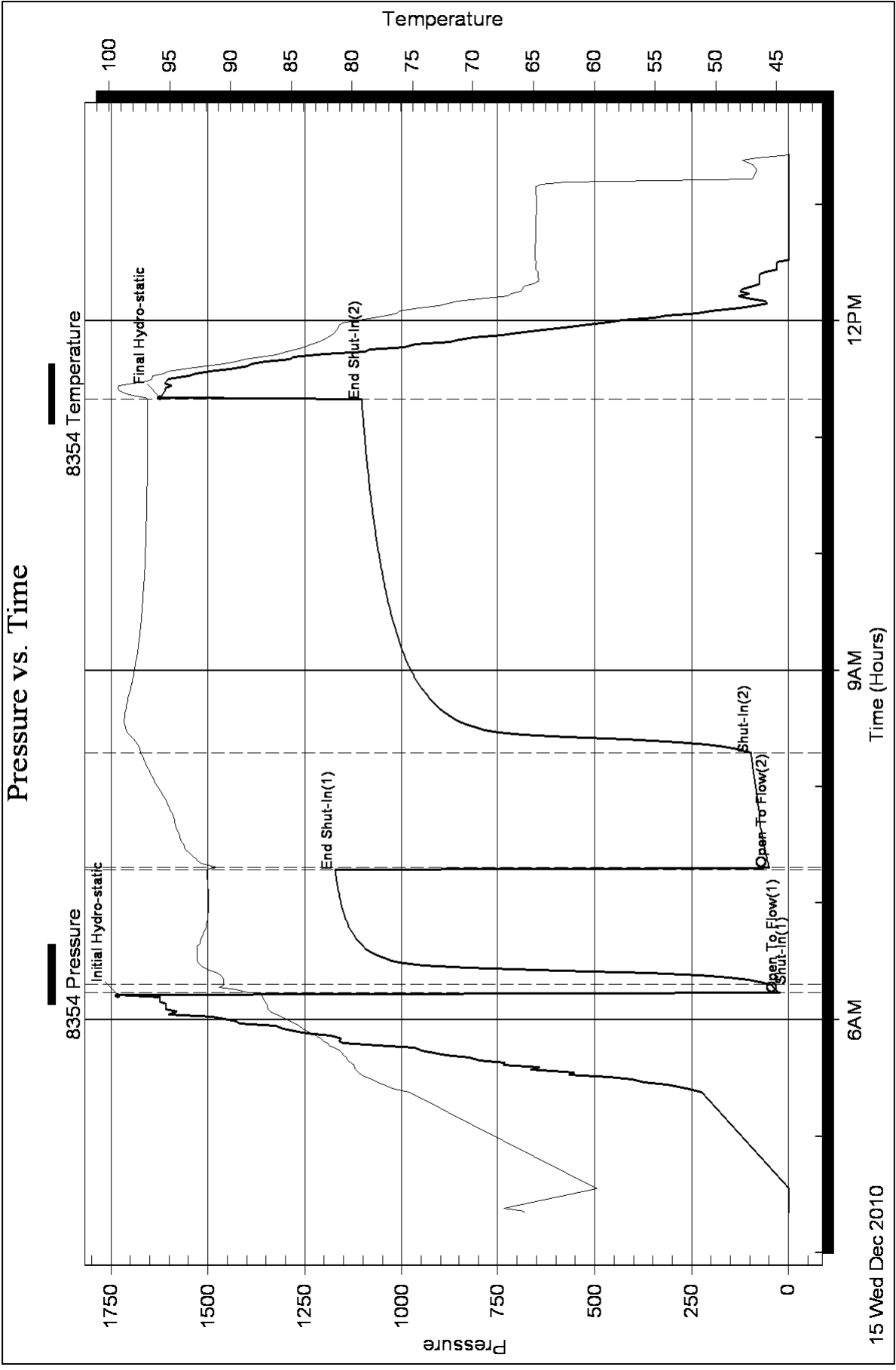
Steinert et al # 1-30
30-16-15-Barton-Ks
Job Ticket: 041355 **DST#: 3**
Test Start: 2010.12.15 @ 04:20:30

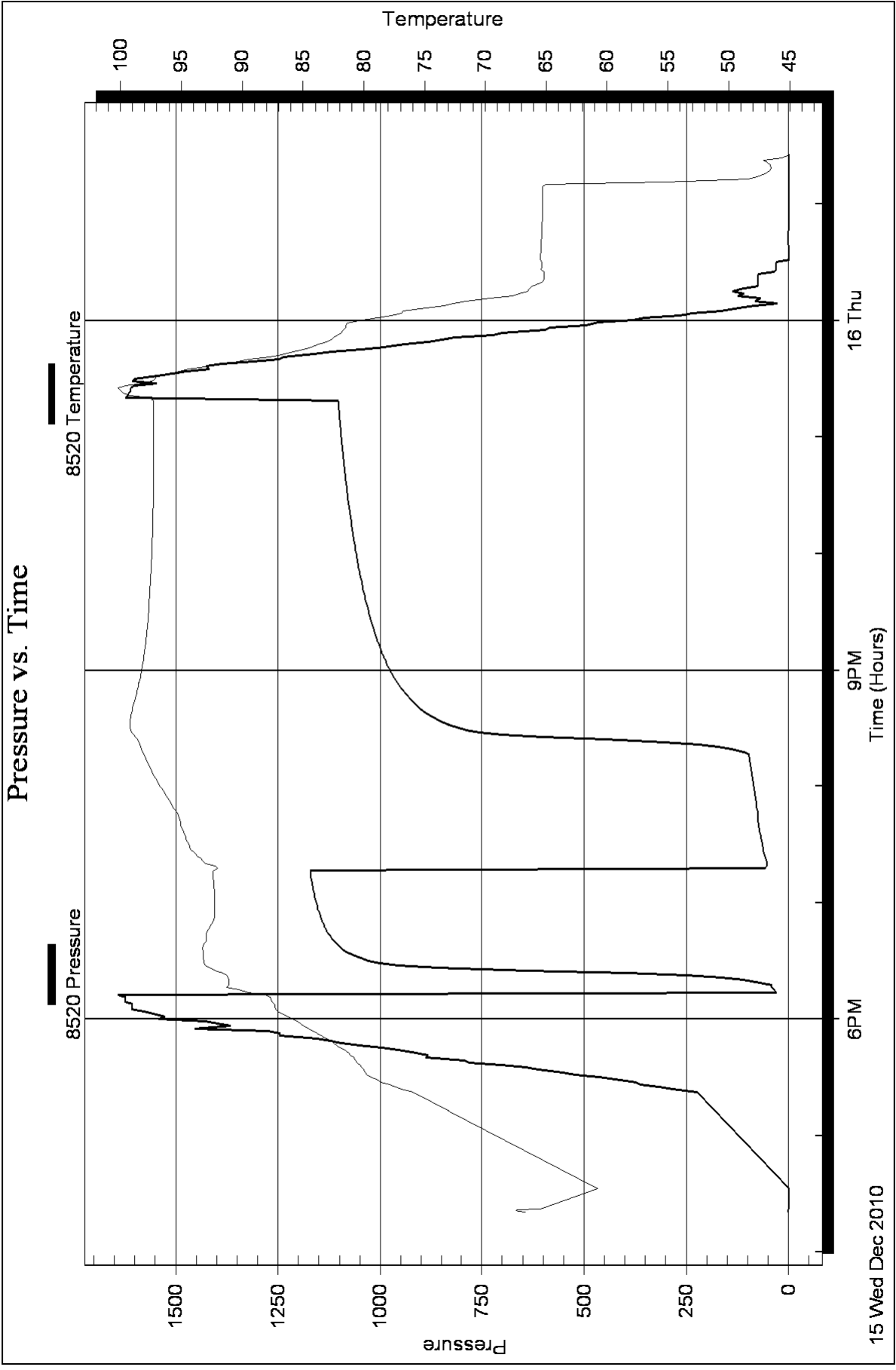
Gas Rates Information

Temperature: 59 deg C
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (mm)	Pressure (kPaa)	Gas Rate (m ³ /d)
		0.00	0.00	0.00





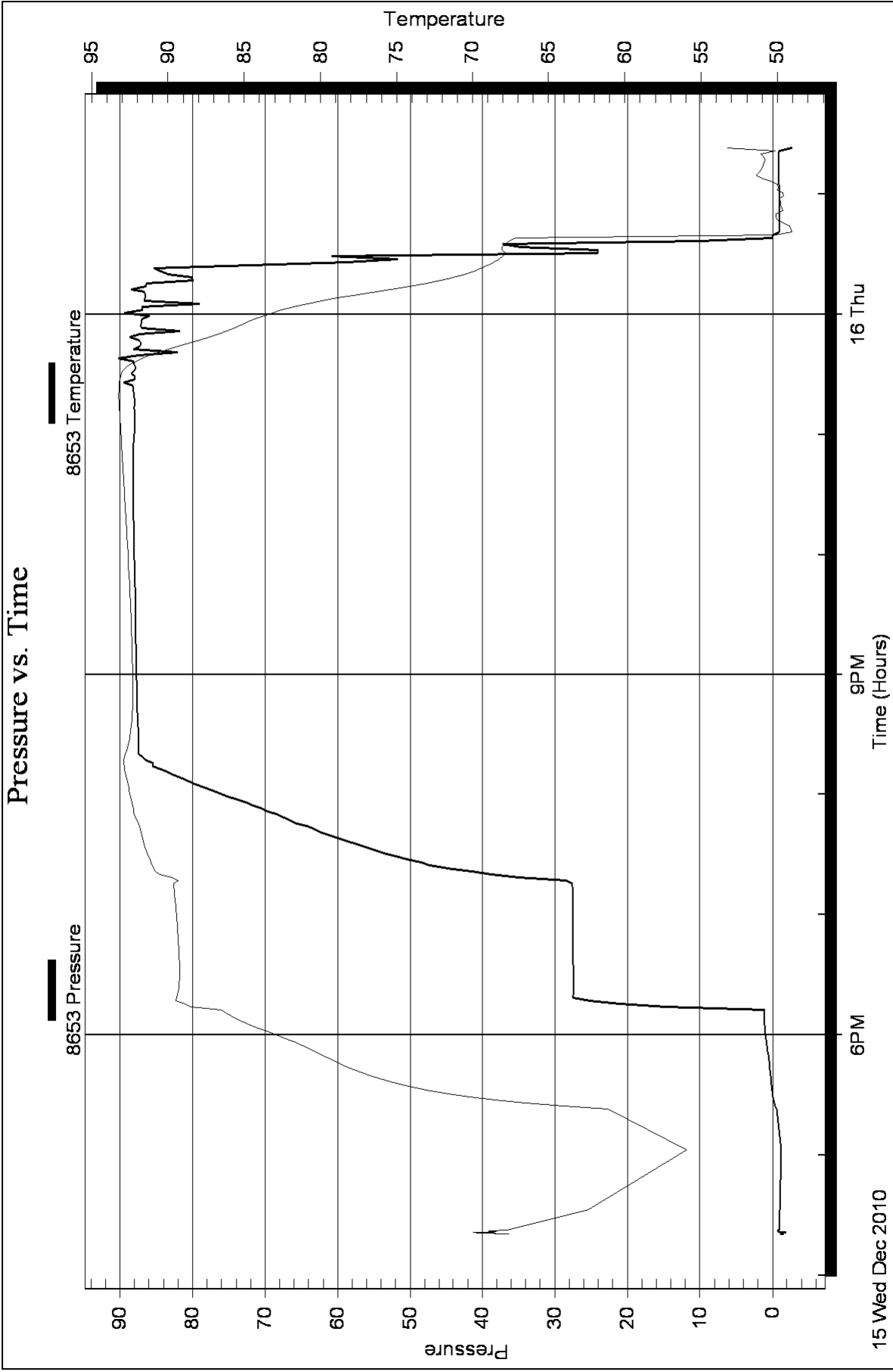
Serial #: 8653

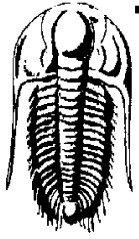
Inside

Sam Gary

30-16-15-Barton-Ks

DST Test Number: 3





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DRILL STEM TESTING - DATA LISTING

Sam Gary
1515 Wynkoop Ste 700
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Steinert et al # 1-30
30-16-15-Barton-Ks
Job Ticket: 041355 **DST#: 3**
Test Start: 2010.12.15 @ 04:20:30

Serial # 8354 Inside				Serial # 8354 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	0.0	-1.16	65.7		88.5	1119.92	82.4
	0.1	-1.15	65.8		90.2	1171.61	82.7
	0.2	-1.16	65.8		92.0	1244.54	83.3
	0.3	-1.17	65.8		93.7	1361.94	83.8
	0.5	-1.18	65.9		95.5	1285.55	84.3
	0.6	-1.17	65.9		97.2	1397.50	84.8
	0.7	-1.14	65.9		99.0	1457.93	85.3
	0.8	-1.17	66.0		100.7	1487.77	85.8
	0.9	-1.20	66.2		102.5	1549.26	86.5
	1.0	-1.21	66.4		104.2	1609.90	86.9
	1.2	-1.25	66.5		106.0	1606.95	87.0
	1.3	-1.28	66.5		107.7	1618.67	87.0
	1.4	-1.25	66.6		109.5	1622.61	87.3
	1.5	-1.19	66.9		111.2	1624.52	87.3
	1.6	-1.15	66.9		111.5	1619.39	87.3
	1.8	-1.12	66.9	Initial Hydro-static	111.7	1731.44	87.5
	1.9	-1.16	67.3		112.0	1656.82	87.5
	2.0	-1.26	67.5		112.2	1651.66	87.7
	62.2	224.41	75.5		112.5	1651.42	88.0
	64.0	284.07	76.9		112.7	1688.35	88.3
	65.7	313.28	77.4	Open To Flow (1)	113.0	21.19	88.1
	67.5	373.68	78.1		113.2	24.94	88.6
	69.2	448.42	78.7		113.5	29.43	88.8
	71.0	522.15	79.2		113.7	32.95	89.1
	72.7	582.12	79.6		115.5	38.56	90.9
	74.5	641.66	79.8		116.7	41.05	90.6
	76.2	702.04	80.0		117.0	41.11	90.6
	78.0	739.45	80.3	Shut-In(1)	117.2	41.08	90.6
	79.7	892.80	80.5		117.5	44.33	90.6
	81.5	883.42	80.8		117.7	50.98	90.6
	83.2	948.69	81.0		118.0	57.56	90.6
	85.0	1004.17	81.6		119.7	111.50	90.6
	86.7	1064.09	82.0		121.5	195.02	90.7

Printing every 7 samples

Serial # 8354 Inside				Serial # 8354 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	123.2	358.65	91.1		180.0	52.07	92.6
	125.0	696.44	91.9		181.7	54.96	92.8
	126.7	928.13	92.4		183.5	57.62	93.2
	128.5	1002.21	92.7		185.2	59.72	93.4
	130.2	1038.12	92.7		187.0	61.03	93.7
	132.0	1061.25	92.8		188.7	63.43	93.8
	133.7	1078.08	92.8		190.5	64.49	94.0
	135.5	1091.08	92.8		192.2	66.08	94.1
	137.2	1101.43	92.7		194.0	67.06	94.2
	139.0	1109.85	92.5		195.7	68.58	94.3
	140.7	1117.28	92.4		197.5	70.36	94.5
	142.5	1123.32	92.3		199.2	72.22	94.5
	144.2	1128.67	92.2		201.0	73.42	94.6
	146.0	1133.44	92.1		202.7	74.20	94.7
	147.7	1137.87	92.0		204.5	74.37	94.8
	149.5	1141.26	91.9		206.2	75.14	94.9
	151.2	1144.55	91.9		208.0	76.30	95.0
	153.0	1147.60	91.8		209.7	77.22	95.1
	154.7	1150.17	91.8		211.5	78.31	95.3
	156.5	1152.68	91.8		213.2	79.44	95.4
	158.2	1155.01	91.8		215.0	80.60	95.6
	160.0	1157.15	91.8		216.7	82.05	95.8
	161.7	1159.12	91.8		218.5	83.39	95.9
	163.5	1161.02	91.8		220.2	84.76	96.1
	165.2	1162.75	91.8		222.0	86.09	96.3
	167.0	1164.34	91.9		223.7	87.56	96.4
	168.7	1165.71	91.9		225.5	89.03	96.6
	170.5	1167.18	91.9		227.2	90.18	96.7
	172.2	1168.61	91.9		229.0	91.24	96.8
	174.0	1169.84	91.9		230.7	92.54	97.0
	175.7	1171.25	91.9		232.5	93.70	97.1
	176.0	1171.34	91.9		234.2	94.94	97.2
	176.2	1171.43	91.9		236.0	95.56	97.3
End Shut-In(1)	176.5	1171.51	91.9		236.2	95.57	97.4
	176.7	1165.37	91.9	Shut-In(2)	236.5	95.76	97.4
	177.0	78.15	91.5		236.7	100.29	97.4
	177.2	57.43	91.3		237.0	105.52	97.4
Open To Flow (2)	177.5	48.70	91.1		237.2	110.68	97.4
	177.7	51.12	91.2		239.0	151.05	97.5
	178.0	52.91	91.4		240.7	209.60	97.7
	178.2	53.26	91.6		242.5	330.80	97.8

Printing every 7 samples

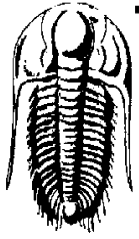
Serial # 8354 Inside				Serial # 8354 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	244.2	544.28	98.1		316.0	1035.99	97.2
	246.0	700.67	98.4		317.7	1038.02	97.2
	247.7	770.83	98.6		319.5	1039.88	97.2
	249.5	808.49	98.7		321.2	1041.76	97.2
	251.2	834.07	98.7		323.0	1043.64	97.1
	253.0	853.84	98.7		324.7	1045.32	97.1
	254.7	869.89	98.7		326.5	1047.13	97.1
	256.5	883.42	98.7		328.2	1048.80	97.1
	258.2	895.19	98.6		330.0	1050.36	97.1
	260.0	905.70	98.6		331.7	1051.94	97.1
	261.7	915.01	98.5		333.5	1053.51	97.0
	263.5	923.44	98.5		335.2	1055.06	97.0
	265.2	931.14	98.4		337.0	1056.59	97.0
	267.0	938.19	98.3		338.7	1057.99	97.0
	268.7	944.57	98.3		340.5	1059.49	97.0
	270.5	950.67	98.2		342.2	1060.82	97.0
	272.2	956.29	98.1		344.0	1062.25	97.0
	274.0	961.64	98.1		345.7	1063.59	97.0
	275.7	966.52	98.0		347.5	1064.93	97.0
	277.5	971.25	98.0		349.2	1066.20	97.0
	279.2	975.63	97.9		351.0	1067.49	97.0
	281.0	979.89	97.9		352.7	1068.71	97.0
	282.7	983.84	97.8		354.5	1069.92	96.9
	284.5	987.92	97.8		356.2	1071.16	96.9
	286.2	991.30	97.7		358.0	1072.32	96.9
	288.0	994.75	97.7		359.7	1073.41	96.9
	289.7	998.15	97.6		361.5	1074.53	96.9
	291.5	1001.53	97.6		363.2	1075.65	96.9
	293.2	1004.39	97.6		365.0	1076.77	96.9
	295.0	1007.36	97.5		366.7	1077.82	96.9
	296.7	1010.15	97.5		368.5	1078.90	96.9
	298.5	1012.91	97.5		370.2	1079.97	96.9
	300.2	1015.63	97.4		372.0	1080.98	96.9
	302.0	1018.19	97.4		373.7	1081.86	96.9
	303.7	1020.66	97.4		375.5	1082.92	96.9
	305.5	1023.02	97.4		377.2	1083.78	96.9
	307.2	1025.38	97.3		379.0	1084.71	96.9
	309.0	1027.68	97.3		380.7	1085.63	96.9
	310.7	1029.86	97.3		382.5	1086.63	96.9
	312.5	1032.00	97.3		384.2	1087.55	96.9
	314.2	1034.02	97.2		386.0	1088.45	96.9

Printing every 7 samples

Serial # 8354 Inside				Serial # 8354 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	387.7	1089.16	96.9		446.7	976.59	83.5
	389.5	1090.08	96.8		448.5	891.02	82.6
	391.2	1090.99	96.8		450.2	852.78	82.2
	393.0	1091.56	96.8		452.0	739.44	81.7
	394.7	1092.58	96.8		453.7	656.24	81.3
	396.5	1093.35	96.8		455.5	582.01	81.1
	398.2	1094.20	96.8		457.2	494.15	81.1
	400.0	1094.86	96.8		459.0	428.56	80.1
	401.7	1095.68	96.8		460.7	346.72	78.2
	403.5	1096.55	96.9		462.5	273.54	76.8
	405.2	1097.19	96.8		464.2	197.72	75.9
	407.0	1097.96	96.9		466.0	123.56	74.1
	408.7	1098.76	96.9		467.7	47.70	72.3
	410.5	1099.41	96.9		469.5	59.06	71.3
	412.2	1100.14	96.9		471.2	84.68	68.2
	414.0	1100.81	96.9		473.0	129.66	66.9
	415.7	1101.41	96.9		474.7	138.49	65.9
	417.5	1102.09	96.9		476.5	117.84	65.7
	418.5	1102.67	96.9		478.2	73.58	65.0
	418.7	1102.72	96.9		480.0	73.52	64.6
End Shut-In(2)	419.0	1102.83	96.9		481.7	73.51	64.6
	419.2	1421.65	97.0		483.5	73.45	64.6
	419.5	1576.64	97.0		485.2	28.53	64.8
Final Hydro-static	419.7	1622.67	96.9		487.0	28.42	64.8
	420.0	1621.85	97.1		488.7	28.34	64.8
	420.2	1621.98	97.5		490.5	-1.31	64.8
	420.5	1620.87	97.8		492.2	-1.27	64.9
	422.2	1613.80	98.8		494.0	-1.32	64.9
	424.0	1609.48	99.2		495.7	-1.35	64.9
	425.7	1594.56	99.2		497.5	-1.37	64.9
	427.5	1607.90	97.8		499.2	-1.28	64.8
	429.2	1603.42	96.5		501.0	-1.19	64.8
	431.0	1544.46	96.3		502.7	-1.16	64.8
	432.7	1535.30	95.3		504.5	-1.24	64.8
	434.5	1443.02	93.9		506.2	-1.34	64.8
	436.2	1425.54	91.3		508.0	-1.39	64.8
	438.0	1343.93	89.9		509.7	-1.38	64.8
	439.7	1238.27	88.7		511.5	-1.32	64.8
	441.5	1172.63	86.7		513.2	-1.29	64.8
	443.2	1096.05	85.4		515.0	-1.29	64.8
	445.0	1018.67	84.4		516.7	-1.28	64.8

Printing every 7 samples

Serial # 8354 Inside				Serial # 8520 Outside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	518.5	-1.26	64.8				
	520.2	-1.25	64.8				
	522.0	-1.24	64.8				
	523.7	-1.20	64.8				
	525.5	-1.21	64.8				
	527.2	-1.23	64.8				
	529.0	-1.31	64.7				
	530.7	-1.50	62.4				
	532.5	-1.59	46.9				
	534.2	-1.55	46.8				
	536.0	-1.54	46.7				
	537.7	-1.48	46.7				
	539.5	-1.40	46.9				
	541.2	-1.35	47.6				
	543.0	-1.48	47.3				
	544.7	-1.27	43.5				
	545.5	-1.55	49.4				



**TRILOBITE
TESTING, INC.**

DRILL STEM TESTING - DATA LISTING

Sam Gary
1515 Wynkoop Ste 700
Denver Co 80202
ATTN: Neil Sharp

Steinert et al # 1-30
30-16-15-Barton-Ks
Job Ticket: 041355 **DST#: 3**
Test Start: 2010.12.15 @ 04:20:30

Serial # 8520 Outside				Serial # 8520 Outside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	0.0	-0.49	66.7		80.2	895.43	81.0
	0.1	-0.55	66.9		81.7	903.13	81.2
	0.2	-0.54	66.9		83.2	944.08	81.5
	0.3	-0.54	67.0		84.7	1003.57	82.0
	0.4	-0.51	67.0		86.2	1063.92	82.3
	0.5	-0.51	67.0		87.7	1092.70	82.6
	0.6	-0.54	67.1		89.2	1155.70	82.9
	0.7	-0.55	67.3		90.7	1245.64	83.4
	0.8	-0.53	67.4		92.2	1245.08	83.9
	0.9	-0.53	67.4		93.7	1308.04	84.3
	1.0	-0.53	67.4		95.2	1335.99	84.7
	1.1	-0.52	67.3		96.7	1413.16	85.1
	1.2	-0.51	67.1		98.2	1426.74	85.5
	1.3	-0.53	66.9		99.7	1488.18	86.0
	1.4	-0.52	66.6		101.2	1518.58	86.4
	1.5	-0.51	66.4		102.7	1624.95	86.9
	1.6	-0.52	66.1		104.2	1608.94	87.2
	1.7	-0.51	65.8		105.7	1606.63	87.3
	1.8	-0.55	65.6		107.2	1606.33	87.3
	1.9	-0.65	65.3		108.7	1623.26	87.6
	12.0	-0.95	60.8		110.2	1622.01	87.7
	62.2	227.95	76.1		111.7	1646.36	87.9
	63.7	283.99	77.2		113.2	30.47	89.5
	65.2	313.38	77.8		114.7	37.30	90.7
	66.7	373.67	78.4		116.2	41.62	91.1
	68.2	424.05	79.0		117.7	56.79	91.1
	69.7	497.01	79.5		119.2	101.52	91.1
	71.2	576.29	79.8		120.7	165.19	91.1
	72.7	581.78	79.9		122.2	271.20	91.3
	74.2	641.59	80.1		123.7	479.54	91.8
	75.7	701.88	80.3		125.2	788.03	92.5
	77.2	768.68	80.6		126.7	942.73	92.9
	78.7	857.36	80.8		128.2	1001.37	93.1

Printing every 6 samples

Serial # 8520 Outside				Serial # 8520 Outside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	129.7	1033.31	93.1		191.2	65.62	94.5
	131.2	1054.76	93.2		192.7	66.77	94.6
	132.7	1070.85	93.2		194.2	67.95	94.7
	134.2	1083.41	93.2		195.7	69.45	94.8
	135.7	1093.84	93.2		197.2	70.82	94.9
	137.2	1102.13	93.2		198.7	72.41	95.0
	138.7	1109.18	93.0		200.2	73.43	95.0
	140.2	1115.62	92.9		201.7	74.44	95.1
	141.7	1121.20	92.9		203.2	74.76	95.2
	143.2	1126.03	92.9		204.7	74.52	95.3
	144.7	1130.38	92.9		206.2	75.62	95.4
	146.2	1134.16	92.7		207.7	76.57	95.6
	147.7	1137.67	92.6		209.2	77.31	95.7
	149.2	1140.97	92.4		210.7	78.06	95.9
	150.7	1143.80	92.3		212.2	79.14	96.0
	152.2	1146.46	92.3		213.7	80.11	96.1
	153.7	1148.76	92.3		215.2	81.32	96.3
	155.2	1150.81	92.3		216.7	82.45	96.5
	156.7	1152.86	92.3		218.2	83.62	96.6
	158.2	1154.92	92.3		219.7	84.90	96.8
	159.7	1156.82	92.3		221.2	85.94	96.9
	161.2	1158.50	92.3		222.7	87.07	97.0
	162.7	1160.08	92.3		224.2	88.48	97.2
	164.2	1161.63	92.3		225.7	89.50	97.3
	165.7	1162.95	92.3		227.2	90.50	97.4
	167.2	1164.41	92.3		228.7	91.48	97.5
	168.7	1165.63	92.3		230.2	92.50	97.6
	170.2	1166.86	92.3		231.7	93.52	97.8
	171.7	1168.07	92.4		233.2	94.62	97.9
	173.2	1169.08	92.4		234.7	95.69	98.0
	174.7	1170.11	92.4		236.2	95.93	98.1
	176.2	1171.14	92.4		237.7	126.18	98.2
	177.7	52.51	92.0		239.2	164.59	98.3
	179.2	51.72	92.9		240.7	220.09	98.4
	180.7	53.68	93.2		242.2	329.31	98.5
	182.2	55.04	93.5		243.7	513.11	98.6
	183.7	58.60	93.7		245.2	666.41	98.8
	185.2	60.46	93.9		246.7	746.18	99.0
	186.7	61.32	94.2		248.2	788.58	99.1
	188.2	63.57	94.3		249.7	815.93	99.2
	189.7	63.49	94.4		251.2	836.54	99.2

Printing every 6 samples

Serial # 8520 Outside				Serial # 8520 Outside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	252.7	853.13	99.2		314.2	1033.84	97.6
	254.2	867.16	99.2		315.7	1035.40	97.6
	255.7	879.12	99.1		317.2	1037.21	97.6
	257.2	889.77	99.1		318.7	1038.86	97.6
	258.7	899.24	99.0		320.2	1040.42	97.6
	260.2	907.88	98.9		321.7	1042.06	97.5
	261.7	915.73	98.9		323.2	1043.57	97.5
	263.2	922.80	98.8		324.7	1045.01	97.5
	264.7	929.58	98.8		326.2	1046.67	97.5
	266.2	935.66	98.7		327.7	1048.08	97.5
	267.7	941.40	98.6		329.2	1049.45	97.5
	269.2	946.80	98.6		330.7	1050.81	97.5
	270.7	951.82	98.5		332.2	1052.11	97.5
	272.2	956.49	98.5		333.7	1053.54	97.5
	273.7	961.03	98.4		335.2	1054.84	97.4
	275.2	965.27	98.4		336.7	1056.10	97.4
	276.7	969.25	98.3		338.2	1057.32	97.4
	278.2	973.25	98.3		339.7	1058.60	97.4
	279.7	976.96	98.2		341.2	1059.96	97.4
	281.2	980.75	98.2		342.7	1061.05	97.4
	282.7	983.72	98.1		344.2	1062.22	97.4
	284.2	987.03	98.1		345.7	1063.39	97.4
	285.7	990.56	98.1		347.2	1064.38	97.4
	287.2	993.20	98.0		348.7	1065.68	97.4
	288.7	996.08	98.0		350.2	1066.70	97.3
	290.2	998.80	98.0		351.7	1067.73	97.3
	291.7	1001.55	97.9		353.2	1068.84	97.3
	293.2	1004.15	97.9		354.7	1069.82	97.3
	294.7	1006.67	97.9		356.2	1070.89	97.3
	296.2	1009.17	97.9		357.7	1071.84	97.3
	297.7	1011.64	97.8		359.2	1072.90	97.3
	299.2	1013.93	97.8		360.7	1073.83	97.3
	300.7	1016.07	97.8		362.2	1074.70	97.3
	302.2	1018.34	97.8		363.7	1075.75	97.3
	303.7	1020.39	97.7		365.2	1076.68	97.3
	305.2	1022.41	97.7		366.7	1077.62	97.3
	306.7	1024.53	97.7		368.2	1078.46	97.3
	308.2	1026.33	97.7		369.7	1079.41	97.3
	309.7	1028.28	97.7		371.2	1080.20	97.3
	311.2	1030.24	97.7		372.7	1081.22	97.3
	312.7	1032.12	97.6		374.2	1082.07	97.3

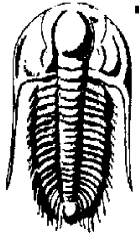
Printing every 6 samples

Serial # 8520 Outside				Serial # 8520 Outside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	375.7	1082.80	97.3		437.2	1355.57	91.3
	377.2	1083.66	97.3		438.7	1313.36	90.0
	378.7	1084.45	97.3		440.2	1216.81	88.4
	380.2	1085.25	97.3		441.7	1198.48	86.9
	381.7	1086.05	97.3		443.2	1119.24	85.8
	383.2	1086.91	97.3		444.7	1018.18	84.9
	384.7	1087.68	97.3		446.2	970.26	84.1
	386.2	1088.42	97.3		447.7	927.54	83.3
	387.7	1089.02	97.3		449.2	849.09	82.7
	389.2	1089.84	97.3		450.7	815.44	82.5
	390.7	1090.50	97.3		452.2	738.40	82.1
	392.2	1091.01	97.3		453.7	653.90	81.8
	393.7	1091.87	97.3		455.2	584.43	81.6
	395.2	1092.65	97.3		456.7	546.58	81.5
	396.7	1093.39	97.3		458.2	467.61	81.4
	398.2	1094.02	97.3		459.7	386.41	79.8
	399.7	1094.79	97.3		461.2	317.87	78.6
	401.2	1095.41	97.3		462.7	247.04	77.3
	402.7	1095.95	97.3		464.2	200.41	76.7
	404.2	1096.75	97.3		465.7	123.13	75.0
	405.7	1097.24	97.3		467.2	48.71	73.3
	407.2	1097.96	97.3		468.7	75.51	72.2
	408.7	1098.45	97.3		470.2	83.40	70.4
	410.2	1099.16	97.3		471.7	128.06	67.9
	411.7	1099.68	97.3		473.2	108.46	67.2
	413.2	1100.45	97.3		474.7	151.48	66.5
	414.7	1100.96	97.3		476.2	118.10	66.4
	416.2	1101.57	97.3		477.7	73.89	65.7
	417.7	1102.38	97.3		479.2	73.80	65.3
	419.2	1576.30	97.5		480.7	73.95	65.1
	420.7	1617.66	99.2		482.2	73.98	65.1
	422.2	1612.98	99.8		483.7	73.99	65.2
	423.7	1610.15	100.0		485.2	29.43	65.3
	425.2	1591.43	100.2		486.7	29.46	65.4
	426.7	1611.84	98.2		488.2	29.35	65.3
	428.2	1606.44	97.4		489.7	29.30	65.3
	429.7	1600.19	97.1		491.2	-0.64	65.5
	431.2	1570.51	96.4		492.7	-0.62	65.4
	432.7	1535.25	95.6		494.2	-0.61	65.4
	434.2	1444.30	94.5		495.7	-0.59	65.4
	435.7	1425.47	92.6		497.2	-0.58	65.4

Printing every 6 samples

Serial # 8520 Outside				Serial # 8653 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	498.7	-0.53	65.4				
	500.2	-0.50	65.4				
	501.7	-0.49	65.4				
	503.2	-0.52	65.4				
	504.7	-0.56	65.4				
	506.2	-0.58	65.3				
	507.7	-0.61	65.3				
	509.2	-0.63	65.3				
	510.7	-0.71	65.3				
	512.2	-0.78	65.3				
	513.7	-0.84	65.3				
	515.2	-0.86	65.3				
	516.7	-0.90	65.3				
	518.2	-0.89	65.3				
	519.7	-0.88	65.3				
	521.2	-0.91	65.3				
	522.7	-0.94	65.3				
	524.2	-0.92	65.3				
	525.7	-0.92	65.3				
	527.2	-0.91	65.3				
	528.7	-0.92	65.3				
	530.2	-0.91	64.7				
	531.7	-0.89	48.6				
	533.2	-1.09	47.7				
	534.7	-1.09	47.1				
	536.2	-1.08	46.8				
	537.7	-1.10	46.5				
	539.2	-1.12	46.6				
	540.7	-1.05	46.8				
	542.2	-1.17	47.2				
	543.7	-0.82	44.7				
	545.2	-1.32	46.2				

Printing every 3 samples



**TRILOBITE
TESTING, INC.**

DRILL STEM TESTING - DATA LISTING

Sam Gary
1515 Wynkoop Ste 700
Denver Co 80202
ATTN: Neil Sharp

Steinert et al # 1-30
30-16-15-Barton-Ks
Job Ticket: 041355 **DST#: 3**
Test Start: 2010.12.15 @ 04:20:30

Serial # 8653 Inside				Serial # 8653 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	0.0	-1.12	67.6		1.6	-0.64	68.5
	0.1	-1.23	67.9		1.7	-0.64	68.3
	0.1	-1.30	68.1		1.8	-0.64	68.2
	0.2	-1.36	68.5		1.8	-0.67	68.1
	0.2	-1.51	68.4		1.9	-0.77	68.0
	0.3	-1.58	68.5		1.9	-0.81	67.9
	0.3	-1.59	68.9		2.0	-0.88	67.7
	0.3	-1.57	69.4		12.0	-1.03	62.4
	0.4	-1.51	69.5		42.0	-1.24	56.0
	0.4	-1.47	69.5		62.5	-0.56	61.1
	0.5	-1.48	69.6		64.0	-0.37	64.0
	0.6	-1.50	69.6		65.5	-0.27	66.5
	0.6	-1.54	69.6		67.0	-0.17	68.5
	0.6	-1.57	69.6		68.5	-0.09	70.2
	0.7	-1.59	69.9		70.0	-0.04	71.6
	0.8	-1.62	69.9		71.5	0.02	72.8
	0.8	-1.67	70.0		73.0	0.06	73.8
	0.9	-1.67	70.0		74.5	0.11	74.6
	0.9	-1.70	69.9		76.0	0.16	75.4
	0.9	-1.78	69.8		77.5	0.20	76.1
	1.0	-1.03	68.6		79.0	0.24	76.7
	1.0	-0.96	68.5		80.5	0.26	77.3
	1.1	-0.87	68.5		82.0	0.30	77.8
	1.1	-0.90	68.5		83.5	0.34	78.3
	1.2	-0.89	68.7		85.0	0.38	78.7
	1.3	-0.85	68.8		86.5	0.44	79.1
	1.3	-0.81	69.0		88.0	0.50	79.5
	1.4	-0.76	69.0		89.5	0.56	79.9
	1.4	-0.73	69.0		91.0	0.62	80.3
	1.5	-0.69	68.9		92.5	0.67	80.7
	1.5	-0.66	68.8		94.0	0.74	81.2
	1.5	-0.65	68.7		95.5	0.79	81.6
	1.6	-0.65	68.6		97.0	0.85	82.0

Printing every 3 samples

Serial # 8653 Inside				Serial # 8653 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	98.5	0.91	82.5		160.0	27.47	89.4
	100.0	0.96	83.0		161.5	27.48	89.5
	101.5	1.00	83.5		163.0	27.48	89.5
	103.0	1.04	84.1		164.5	27.50	89.5
	104.5	1.05	84.6		166.0	27.50	89.5
	106.0	1.05	85.1		167.5	27.49	89.5
	107.5	1.06	85.5		169.0	27.51	89.5
	109.0	1.07	85.8		170.5	27.52	89.6
	110.5	1.07	86.2		172.0	27.51	89.6
	112.0	1.06	86.5		173.5	27.52	89.6
	113.5	14.75	88.5		175.0	27.53	89.6
	115.0	20.97	88.9		176.5	28.47	89.3
	116.5	25.21	89.5		178.0	34.93	89.7
	118.0	27.47	89.4		179.5	38.68	90.6
	119.5	27.41	89.4		181.0	41.46	90.8
	121.0	27.36	89.3		182.5	44.77	90.9
	122.5	27.34	89.3		184.0	47.35	91.0
	124.0	27.33	89.3		185.5	48.50	91.1
	125.5	27.35	89.3		187.0	50.53	91.2
	127.0	27.35	89.2		188.5	51.97	91.3
	128.5	27.37	89.2		190.0	53.65	91.3
	130.0	27.37	89.2		191.5	54.87	91.4
	131.5	27.39	89.2		193.0	56.12	91.5
	133.0	27.39	89.2		194.5	57.39	91.5
	134.5	27.40	89.2		196.0	58.72	91.6
	136.0	27.41	89.3		197.5	59.93	91.6
	137.5	27.41	89.3		199.0	61.25	91.7
	139.0	27.41	89.3		200.5	62.47	91.8
	140.5	27.42	89.3		202.0	63.19	91.8
	142.0	27.41	89.3		203.5	64.29	91.8
	143.5	27.41	89.3		205.0	65.62	91.9
	145.0	27.42	89.3		206.5	66.39	92.0
	146.5	27.43	89.3		208.0	67.40	92.1
	148.0	27.43	89.3		209.5	68.18	92.2
	149.5	27.43	89.3		211.0	69.54	92.2
	151.0	27.44	89.4		212.5	70.39	92.3
	152.5	27.44	89.4		214.0	71.61	92.3
	154.0	27.44	89.4		215.5	72.56	92.3
	155.5	27.46	89.4		217.0	73.84	92.4
	157.0	27.47	89.4		218.5	75.21	92.4
	158.5	27.46	89.4		220.0	76.22	92.5

Printing every 3 samples

Serial # 8653 Inside				Serial # 8653 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	221.5	77.29	92.5		283.0	87.67	92.3
	223.0	78.47	92.6		284.5	87.67	92.3
	224.5	79.55	92.6		286.0	87.70	92.3
	226.0	80.46	92.7		287.5	87.71	92.3
	227.5	81.46	92.7		289.0	87.72	92.3
	229.0	82.53	92.7		290.5	87.73	92.3
	230.5	83.35	92.8		292.0	87.73	92.3
	232.0	84.33	92.8		293.5	87.74	92.3
	233.5	85.56	92.9		295.0	87.75	92.4
	235.0	85.46	92.9		296.5	87.76	92.4
	236.5	86.49	92.9		298.0	87.77	92.4
	238.0	86.87	92.8		299.5	87.77	92.4
	239.5	87.35	92.8		301.0	87.77	92.4
	241.0	87.37	92.7		302.5	87.77	92.4
	242.5	87.37	92.7		304.0	87.76	92.4
	244.0	87.38	92.6		305.5	87.75	92.4
	245.5	87.40	92.6		307.0	87.77	92.4
	247.0	87.38	92.5		308.5	87.78	92.4
	248.5	87.40	92.5		310.0	87.81	92.4
	250.0	87.42	92.4		311.5	87.83	92.4
	251.5	87.44	92.4		313.0	87.85	92.4
	253.0	87.46	92.4		314.5	87.85	92.4
	254.5	87.48	92.4		316.0	87.84	92.5
	256.0	87.49	92.4		317.5	87.85	92.5
	257.5	87.51	92.4		319.0	87.86	92.5
	259.0	87.53	92.3		320.5	87.87	92.5
	260.5	87.56	92.3		322.0	87.87	92.5
	262.0	87.56	92.3		323.5	87.90	92.5
	263.5	87.57	92.3		325.0	87.91	92.5
	265.0	87.58	92.3		326.5	87.91	92.5
	266.5	87.58	92.3		328.0	87.92	92.5
	268.0	87.57	92.3		329.5	87.93	92.5
	269.5	87.59	92.3		331.0	87.92	92.6
	271.0	87.60	92.3		332.5	87.93	92.6
	272.5	87.61	92.3		334.0	87.93	92.6
	274.0	87.62	92.3		335.5	87.95	92.6
	275.5	87.64	92.3		337.0	87.98	92.6
	277.0	87.65	92.3		338.5	87.99	92.6
	278.5	87.66	92.3		340.0	88.01	92.6
	280.0	87.66	92.3		341.5	88.02	92.6
	281.5	87.66	92.3		343.0	88.03	92.6

Printing every 3 samples

Serial # 8653 Inside				Serial # 8653 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	344.5	88.03	92.6		406.0	87.95	93.1
	346.0	88.03	92.7		407.5	87.95	93.1
	347.5	88.04	92.7		409.0	87.95	93.2
	349.0	88.03	92.7		410.5	87.94	93.2
	350.5	88.03	92.7		412.0	87.98	93.2
	352.0	88.04	92.7		413.5	87.97	93.2
	353.5	88.05	92.7		415.0	87.95	93.2
	355.0	88.06	92.7		416.5	87.95	93.2
	356.5	88.08	92.7		418.0	88.01	93.2
	358.0	88.10	92.7		419.5	88.01	93.2
	359.5	88.11	92.8		421.0	88.08	93.2
	361.0	88.11	92.8		422.5	88.14	93.2
	362.5	88.10	92.8		424.0	88.21	93.2
	364.0	88.09	92.8		425.5	89.50	93.2
	365.5	88.08	92.8		427.0	87.99	93.1
	367.0	88.09	92.8		428.5	87.95	93.1
	368.5	88.10	92.8		430.0	88.39	93.0
	370.0	88.10	92.8		431.5	88.01	92.9
	371.5	88.11	92.8		433.0	87.75	92.7
	373.0	88.11	92.9		434.5	88.01	92.5
	374.5	88.10	92.9		436.0	88.12	92.1
	376.0	88.10	92.9		437.5	90.18	91.7
	377.5	88.10	92.9		439.0	87.39	91.2
	379.0	88.11	92.9		440.5	82.10	90.6
	380.5	88.12	92.9		442.0	88.14	90.0
	382.0	88.12	92.9		443.5	87.23	89.3
	383.5	88.13	92.9		445.0	87.13	88.6
	385.0	88.13	93.0		446.5	87.40	88.0
	386.5	88.12	93.0		448.0	88.67	87.3
	388.0	88.13	93.0		449.5	87.31	86.7
	389.5	88.13	93.0		451.0	81.77	86.1
	391.0	88.12	93.0		452.5	86.94	85.6
	392.5	88.13	93.0		454.0	87.21	85.2
	394.0	88.12	93.0		455.5	87.02	84.8
	395.5	88.10	93.0		457.0	87.00	84.3
	397.0	88.06	93.1		458.5	85.94	83.7
	398.5	88.01	93.1		460.0	89.42	83.1
	400.0	87.98	93.1		461.5	86.87	82.6
	401.5	87.95	93.1		463.0	87.00	81.8
	403.0	87.96	93.1		464.5	79.01	80.8
	404.5	87.96	93.1		466.0	86.65	79.9

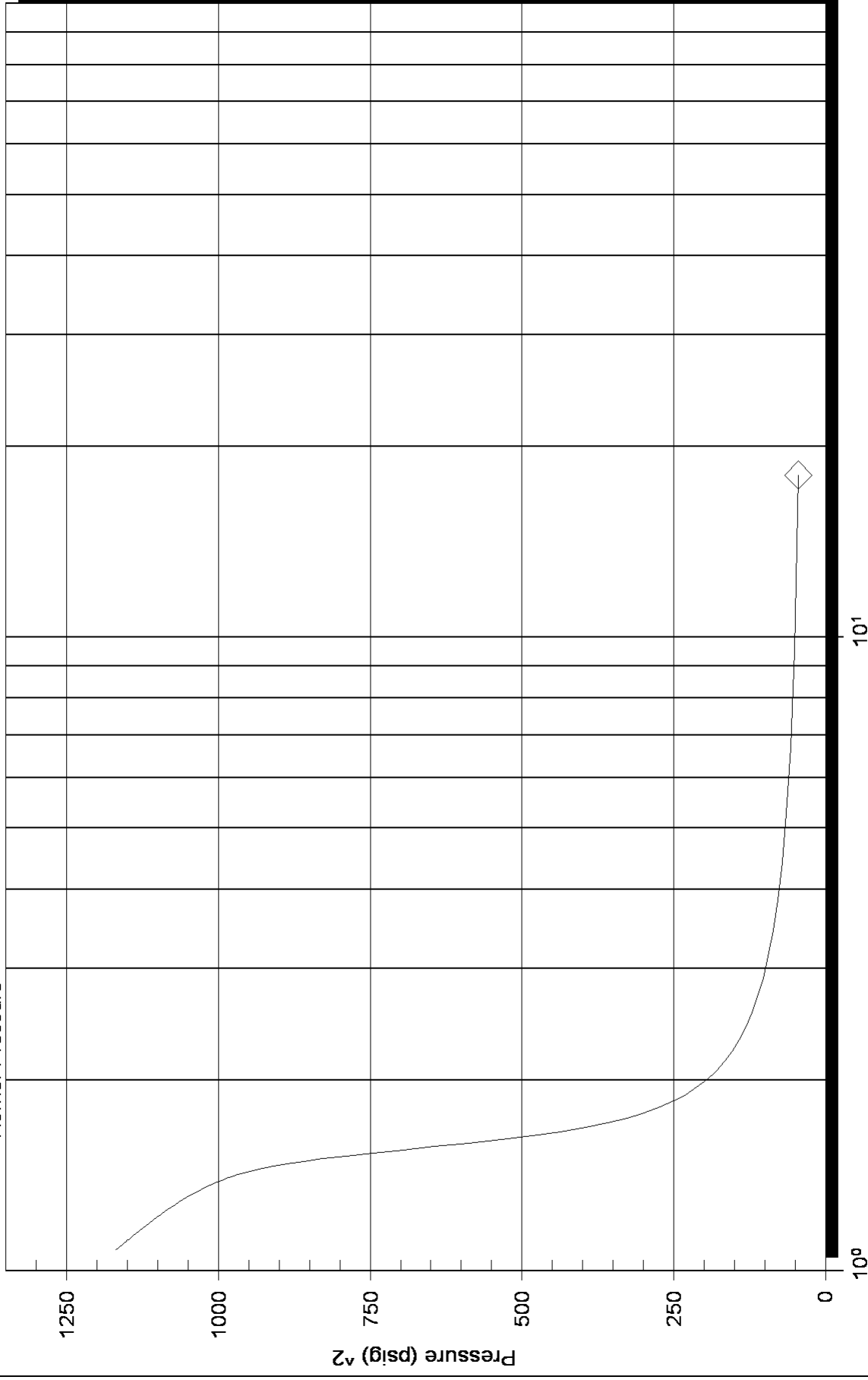
Printing every 3 samples

Serial # 8653 Inside				Serial # 8653 Inside			
Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)	Comments	Time (Min.)	Pressure (psig)	Temp. (deg F)
	467.5	86.58	78.9		529.0	-0.88	51.4
	469.0	86.49	77.9		530.5	-0.87	51.2
	470.5	86.70	76.6		532.0	-0.87	51.1
	472.0	88.41	75.4		533.5	-0.88	50.9
	473.5	86.43	74.1		535.0	-0.88	50.9
	475.0	86.30	73.1		536.5	-0.87	50.8
	476.5	79.87	72.1		538.0	-0.84	50.9
	478.0	80.10	71.2		539.5	-0.92	51.1
	479.5	83.29	70.5		541.0	-0.89	50.2
	481.0	84.31	69.9		542.5	-2.65	53.3
	482.5	85.25	69.4		543.0	-2.92	52.7
	484.0	72.10	69.0				
	485.5	58.70	68.6				
	487.0	51.80	68.2				
	488.5	60.84	68.0				
	490.0	24.16	67.8				
	491.5	24.05	68.1				
	493.0	34.75	68.0				
	494.5	37.20	67.8				
	496.0	10.08	67.6				
	497.5	-0.05	67.2				
	499.0	-0.05	50.2				
	500.5	-0.93	49.1				
	502.0	-0.98	49.1				
	503.5	-0.98	49.2				
	505.0	-0.99	49.7				
	506.5	-0.99	50.0				
	508.0	-0.99	50.1				
	509.5	-1.01	50.1				
	511.0	-1.02	49.6				
	512.5	-1.02	49.7				
	514.0	-1.01	49.8				
	515.5	-1.01	49.8				
	517.0	-0.99	49.8				
	518.5	-0.99	49.6				
	520.0	-0.97	49.7				
	521.5	-0.97	50.0				
	523.0	-0.94	50.0				
	524.5	-0.93	50.0				
	526.0	-0.90	50.5				
	527.5	-0.88	51.0				

Printing every 3 samples

Homer Plot

Horner Pressure



10¹

10⁰

Horner Time: (Twf + dt) / dt

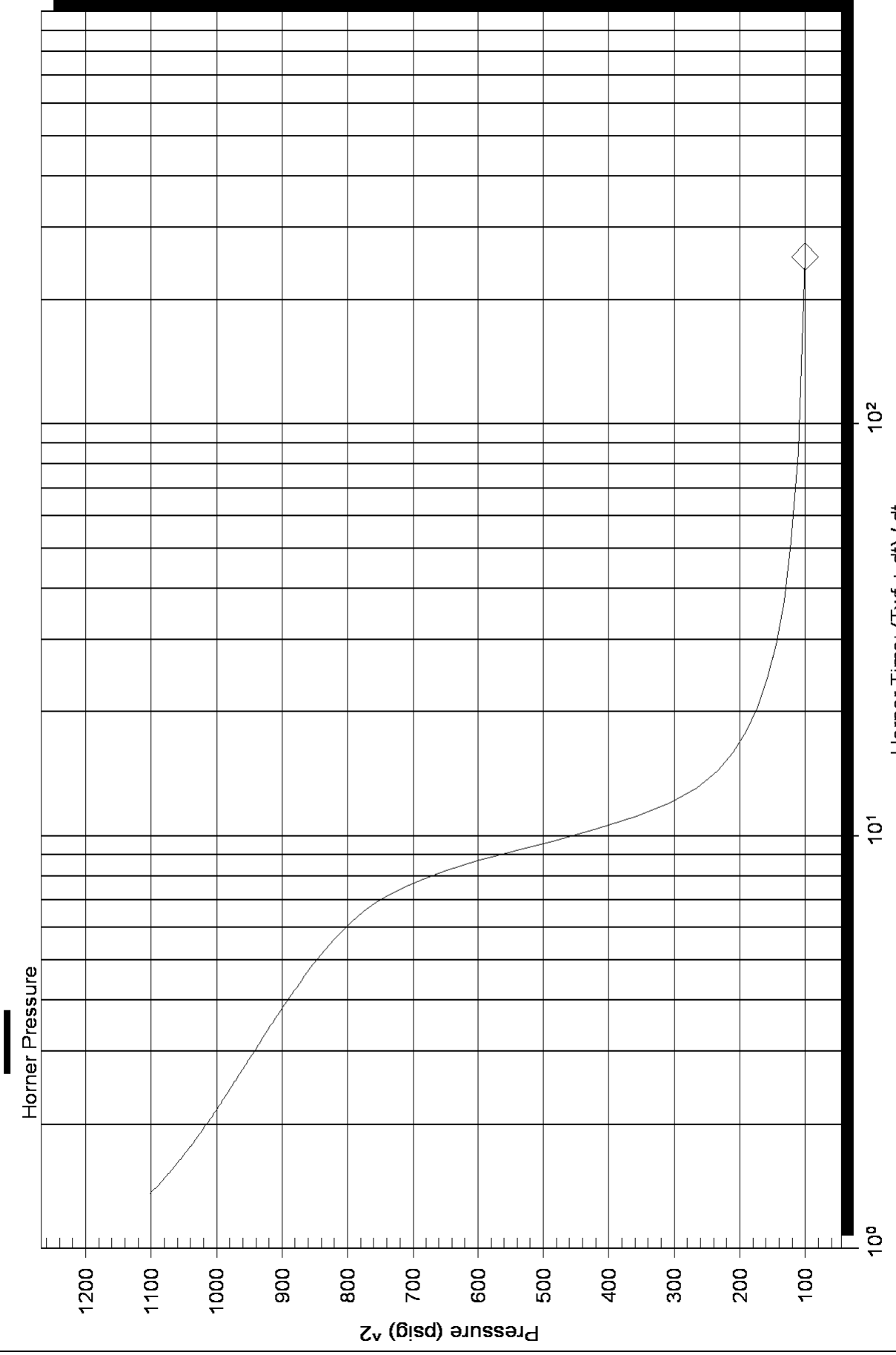
Slope (m) : kpa/log cycle

P* :

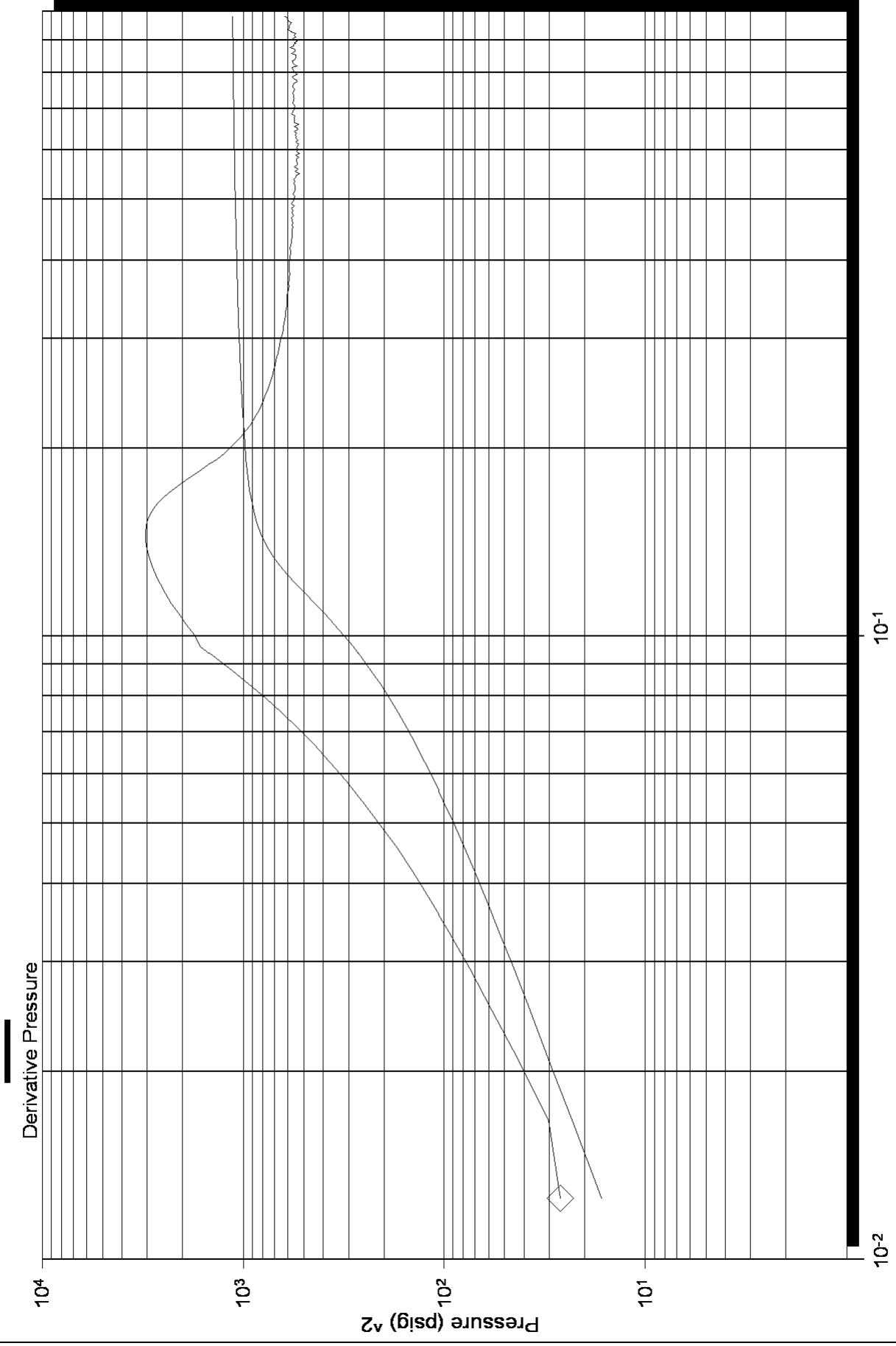
Serial Number: 8354 (Inside)

Flow Cycle: 1

Homer Plot



Log-Log and Pseudo-Derivative



Log-Log and Pseudo-Derivative

