



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc
 250 N. Water Suite 300
 Wichita, KS 67202
 ATTN: Wes Hansen

Kuhlman "E" #2-35
35/12s/32w Logan KS
 Job Ticket: 040850 **DST#: 1**
 Test Start: 2011.03.25 @ 17:49:00

GENERAL INFORMATION:

Formation: **Lans "I - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:40:30
 Time Test Ended: 01:52:30
 Interval: **4210.00 ft (KB) To 4260.00 ft (KB) (TVD)**
 Total Depth: 4260.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole
 Tester: James Winder
 Unit No: 46
 Reference Elevations: 3013.00 ft (KB)
 3002.00 ft (CF)
 KB to GR/CF: 11.00 ft

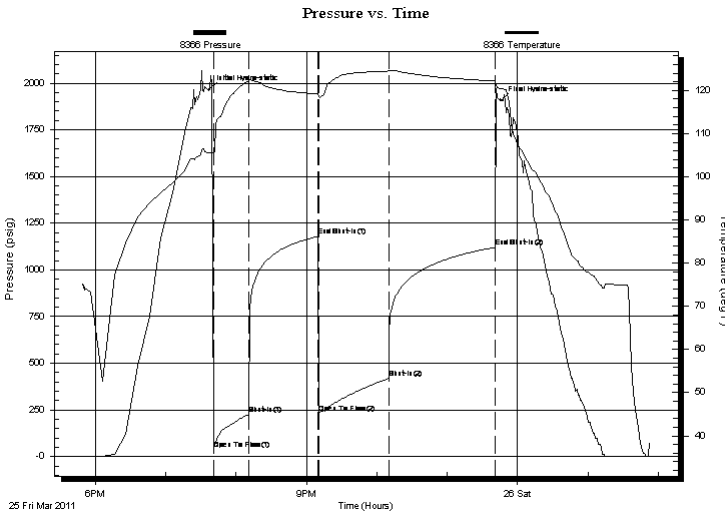
Serial #: 8366

Inside

Press @ Run Depth: 419.47 psig @ 4211.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2011.03.25 End Date: 2011.03.26 Last Calib.: 2011.03.26
 Start Time: 17:49:05 End Time: 01:52:29 Time On Btm: 2011.03.25 @ 19:37:00
 Time Off Btm: 2011.03.25 @ 23:45:30

TEST COMMENT: IF: Blow built to BOB (11") in 8 3/4 min.
 IS: Surface blow back from 8 min. to 10 min., on/off blow till 20 min., then dead
 FF: Blow built to BOB in 11 1/2 min.
 FS: Bled off, No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1963.29	105.52	Initial Hydro-static
4	40.14	105.26	Open To Flow (1)
34	227.86	122.15	Shut-In(1)
93	1179.50	119.17	End Shut-In(1)
94	232.19	118.78	Open To Flow (2)
153	419.47	124.49	Shut-In(2)
244	1120.39	122.21	End Shut-In(2)
249	1908.71	120.41	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
680.00	MCW 92%w, 8%m	7.19
62.00	MW 55%w, 45%m	0.87
130.00	WCM w /trace of oil 63%m, 37%w	1.82

Gas Rates

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



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35/12s/32w Logan KS
Job Ticket: 040850 **DST#: 1**
Test Start: 2011.03.25 @ 17:49:00

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: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1200.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
680.00	MCW 92%w , 8%m	7.188
62.00	MW 55%w , 45%m	0.870
130.00	WCM w/trace of oil 63%m, 37%w	1.824

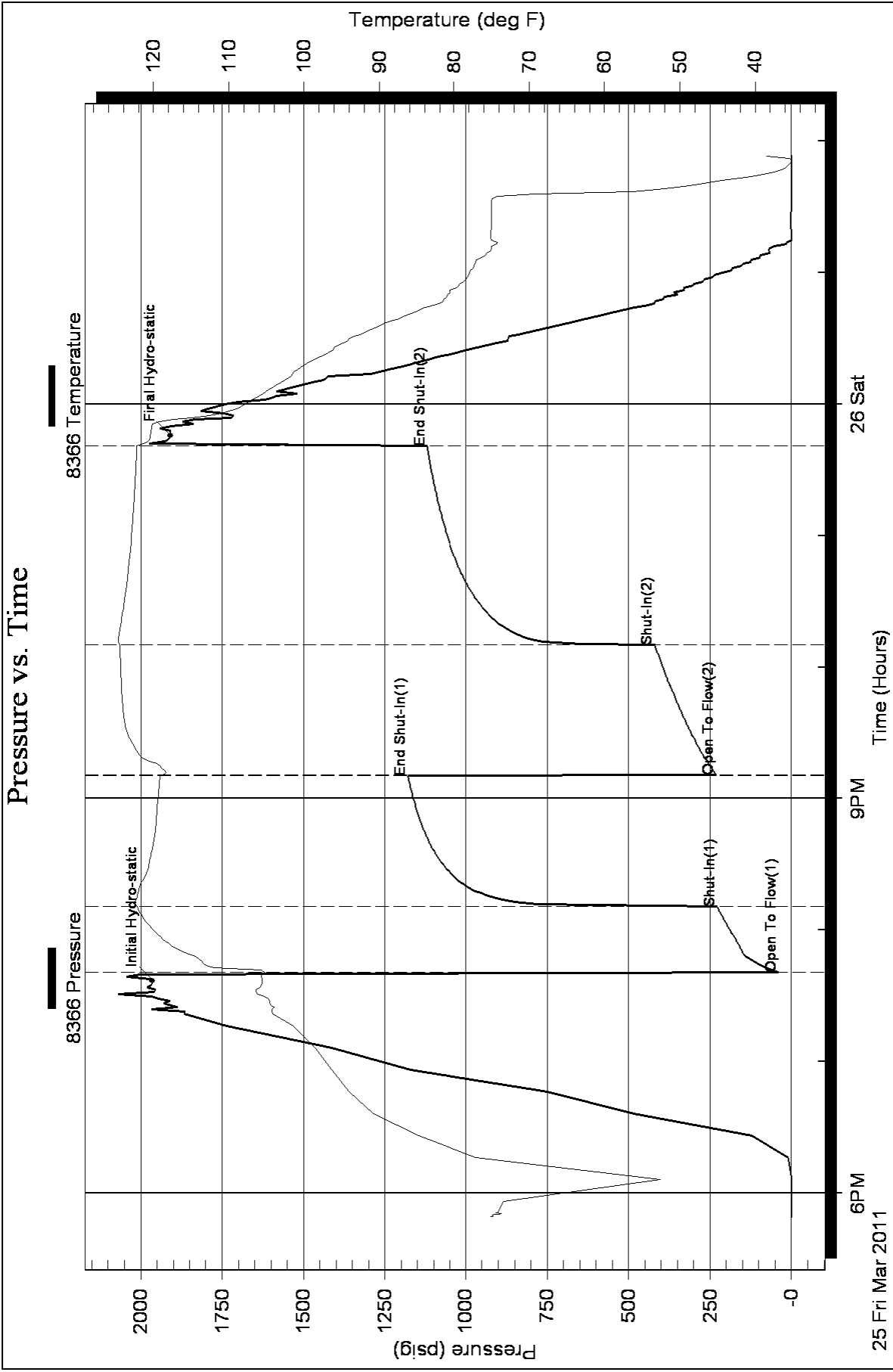
Total Length: 872.00 ft Total Volume: 9.882 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW = .378 ohms @ 36.8 deg F
Chlorides = 37,000 ppm

Pressure vs. Time





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ATTN: Wes Hansen

Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041976 **DST#: 2**
Test Start: 2011.03.26 @ 08:31:00

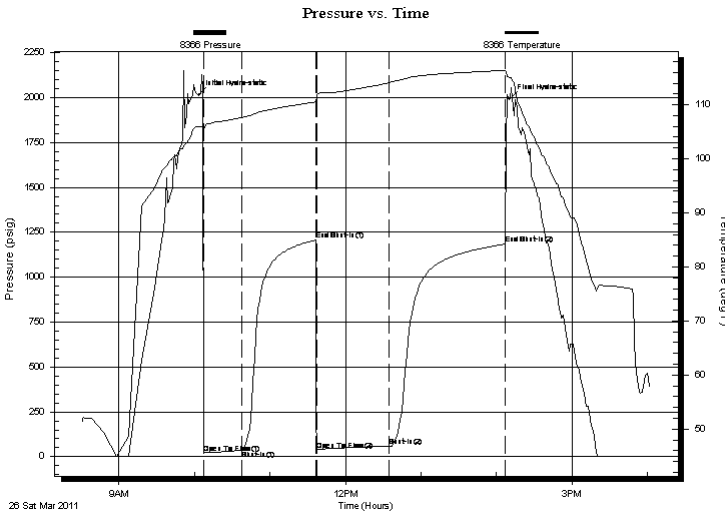
GENERAL INFORMATION:

Formation: **Lans. "K"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:07:00
Time Test Ended: 16:02:00
Interval: **4262.00 ft (KB) To 4280.00 ft (KB) (TVD)**
Total Depth: 4280.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole
Tester: James Winder
Unit No: 46
Reference Elevations: 3013.00 ft (KB)
3002.00 ft (CF)
KB to GR/CF: 11.00 ft

Serial #: 8366 Inside
Press @ Run Depth: 59.81 psig @ 4263.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2011.03.26 End Date: 2011.03.26 Last Calib.: 2011.03.26
Start Time: 08:31:05 End Time: 16:01:59 Time On Btm: 2011.03.26 @ 10:03:30
Time Off Btm: 2011.03.26 @ 14:10:30

TEST COMMENT: IF: Blow built to 5"
IS: Bled off, No blow back
FF: Blow built to 7 1/2"
FS: Bled off, No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2015.57	105.91	Initial Hydro-static
4	18.47	105.49	Open To Flow (1)
34	35.64	107.62	Shut-In(1)
93	1206.35	110.50	End Shut-In(1)
94	34.84	111.68	Open To Flow (2)
151	59.81	114.12	Shut-In(2)
243	1183.56	116.36	End Shut-In(2)
247	1993.43	114.98	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	CO 96%o, 4%m	0.05
10.00	OCM 65%m, 32%o, 3%g	0.05
60.00	WCGOM 43%m, 30%o, 20%g, 7%w	0.30
0.00	GIP = 220'	0.00

Gas Rates

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



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Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041976 **DST#: 2**
Test Start: 2011.03.26 @ 08:31:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 39.6 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 61.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.40 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1400.00 ppm		
Filter Cake: 2.00 inches		

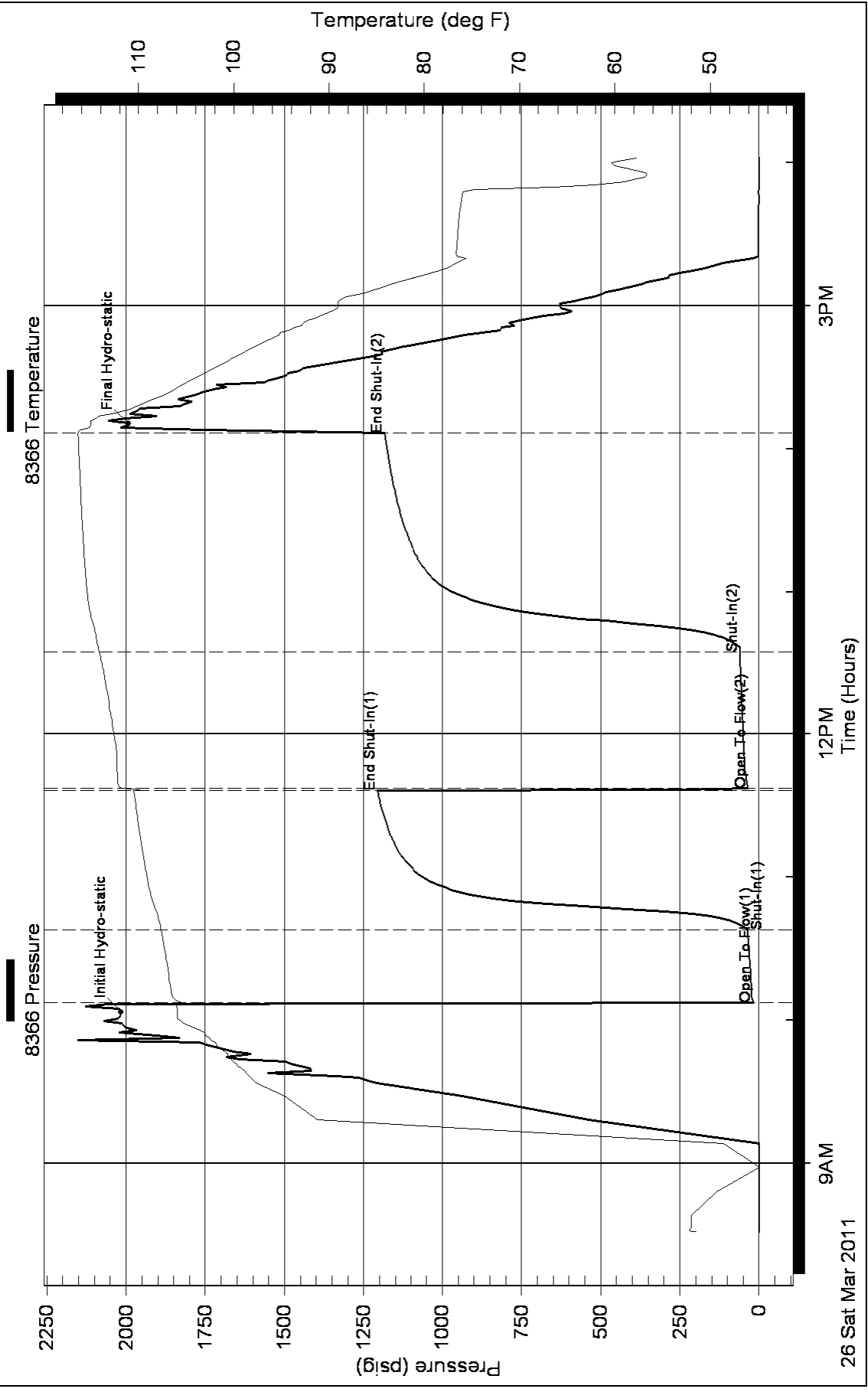
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	CO 96%o, 4%m	0.049
10.00	OCM 65%m, 32%o, 3%g	0.049
60.00	WCGOM 43%m, 30%o, 20%g, 7%w	0.295
0.00	GIP = 220'	0.000

Total Length: 80.00 ft Total Volume: 0.393 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: Gravity = 38.6 api @ 50 deg F
 Corrected Gravity = 39.6 api

Pressure vs. Time





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Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041977 **DST#: 3**
Test Start: 2011.03.27 @ 08:47:00

GENERAL INFORMATION:

Formation: **Marmaton / Upper Paw**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:32:00

Time Test Ended: 15:38:30

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 46

Interval: 4328.00 ft (KB) To 4490.00 ft (KB) (TVD)

Total Depth: 4490.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3013.00 ft (KB)

3002.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8366

Inside

Press @ Run Depth: 253.96 psig @ 4329.00 ft (KB)

Start Date: 2011.03.27

End Date:

2011.03.27

Start Time: 08:47:05

End Time:

15:38:29

Capacity: 8000.00 psig

Last Calib.: 2011.03.27

Time On Btm: 2011.03.27 @ 10:28:30

Time Off Btm: 2011.03.27 @ 13:37:00

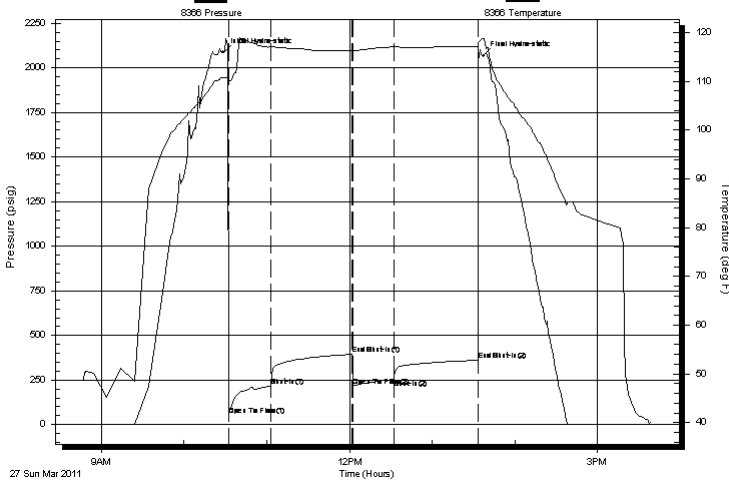
TEST COMMENT: IF: Blow built to BOB (11") in 6 1/2 min.

IS: Bled off, No blow back

FF: Blow built to 8"

FS: Bled off, No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2086.09	110.72	Initial Hydro-static
4	51.77	110.10	Open To Flow (1)
35	216.70	117.08	Shut-In(1)
93	394.49	116.23	End Shut-In(1)
94	217.93	116.19	Open To Flow (2)
124	253.96	117.06	Shut-In(2)
185	360.84	117.17	End Shut-In(2)
189	2068.08	118.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
238.00	SO/GWCM 70% m, 19% w, 10% g, 1% o	1.17
126.00	SOGM 90% m, 9% g, 1% o	1.59
126.00	Mud 100% w / trace of oil	1.77

Gas Rates

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



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Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041977 **DST#: 3**
Test Start: 2011.03.27 @ 08:47:00

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:	25000 ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.00 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1400.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
238.00	SO/GWCM 70%m, 19%w , 10%g, 1%o	1.170
126.00	SOGM 90%m, 9%g, 1%o	1.585
126.00	Mud 100% w /trace of oil	1.767

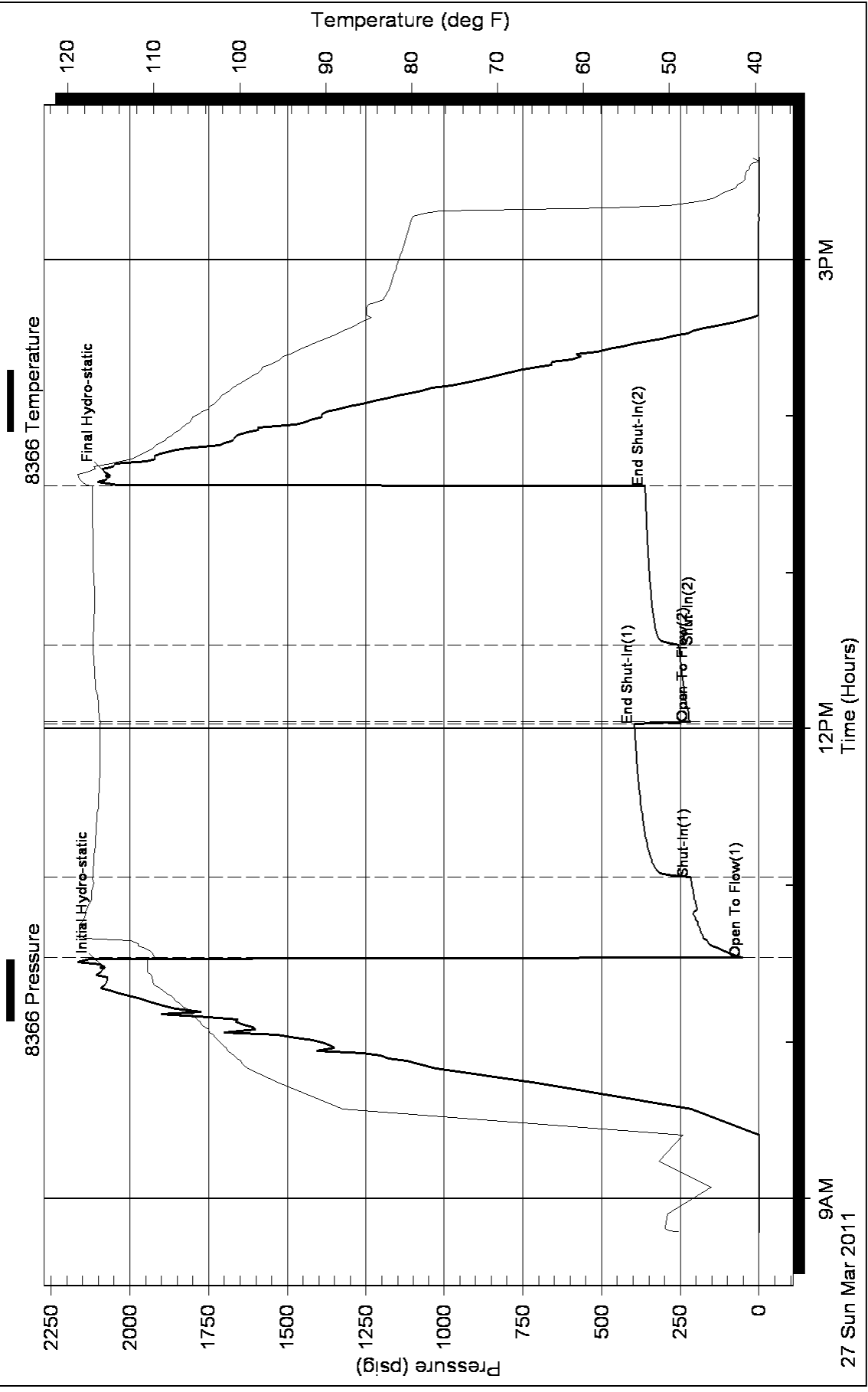
Total Length: 490.00 ft Total Volume: 4.522 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW = .538 ohms @ 36.5 deg F Chlorides = 25,000 ppm

Pressure vs. Time





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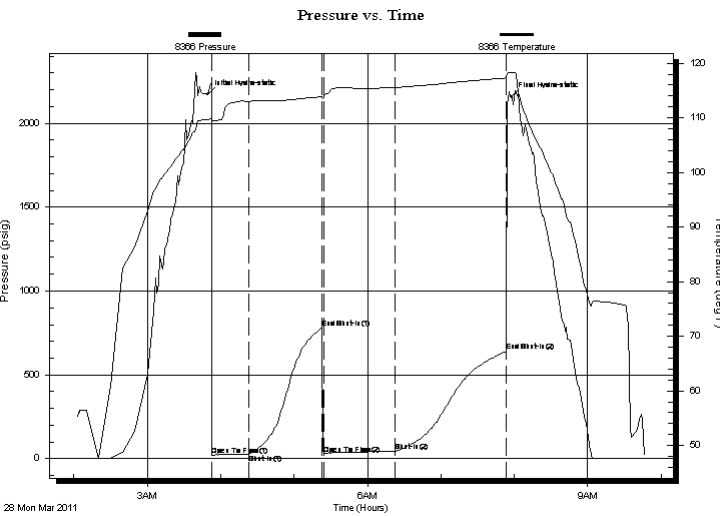
Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041978 **DST#: 4**
Test Start: 2011.03.28 @ 02:03:00

GENERAL INFORMATION:

Formation: **Myrick Station / Ft.**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole
 Time Tool Opened: 03:53:00 Tester: James Winder
 Time Test Ended: 09:47:00 Unit No: 46
 Interval: **4490.00 ft (KB) To 4550.00 ft (KB) (TVD)** Reference Elevations: 3013.00 ft (KB)
 Total Depth: 4550.00 ft (KB) (TVD) 3002.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

Serial #: 8366 Inside
 Press @ Run Depth: 43.91 psig @ 4491.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2011.03.28 End Date: 2011.03.28 Last Calib.: 2011.03.28
 Start Time: 02:03:05 End Time: 09:46:59 Time On Btm: 2011.03.28 @ 03:49:30
 Time Off Btm: 2011.03.28 @ 07:57:30

TEST COMMENT: IF: Blow built to 5"
 IS: Surface blow back at 13 min., built to 1/4"
 FF: 1 1/2" blow at open, built to 9 1/2"
 FS: Surface blow back, did not build



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2171.61	109.65	Initial Hydro-static
4	19.78	109.56	Open To Flow (1)
34	29.07	113.01	Shut-In(1)
94	778.97	113.87	End Shut-In(1)
95	27.98	113.72	Open To Flow (2)
153	43.91	115.53	Shut-In(2)
244	639.18	117.29	End Shut-In(2)
248	2157.99	118.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	CO 93%o, 5%m, 2%g	0.00
60.00	GMCO 45%o, 30%m, 25%g	0.30
0.00	GIP = 240'	0.00

Gas Rates

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



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35/12s/32w Logan KS
Job Ticket: 041978 **DST#: 4**
Test Start: 2011.03.28 @ 02:03:00

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: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1400.00 ppm			
Filter Cake: 2.00 inches			

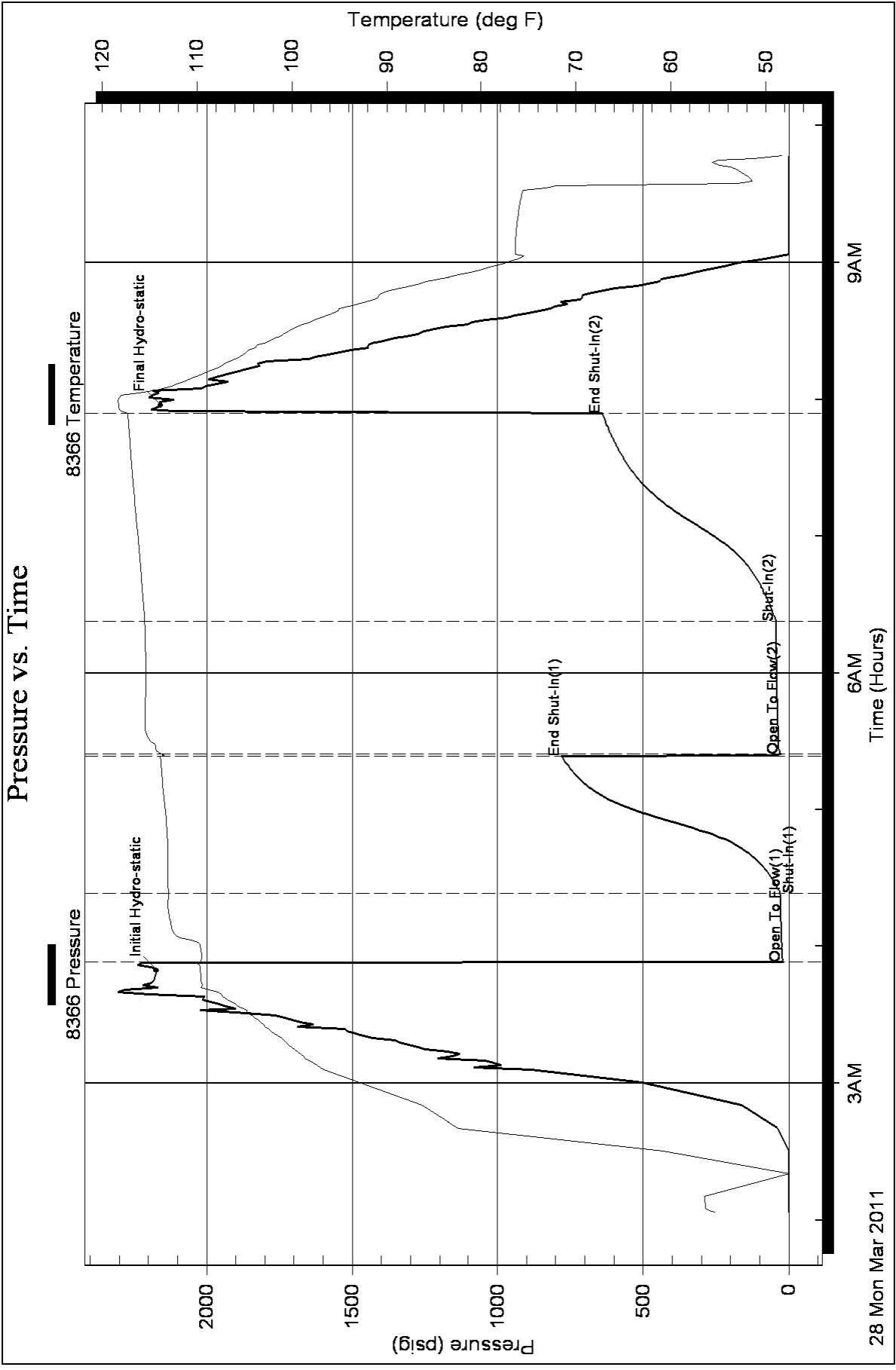
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	CO 93%o, 5%m, 2%g	0.005
60.00	GMCO 45%o, 30%m, 25%g	0.295
0.00	GIP = 240'	0.000

Total Length: 61.00 ft Total Volume: 0.300 bbl
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Pressure vs. Time





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Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041979 **DST#: 5**
Test Start: 2011.03.28 @ 19:31:00

GENERAL INFORMATION:

Formation: **Johnson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:27:00
Time Test Ended: 04:06:30
Interval: **4576.00 ft (KB) To 4614.00 ft (KB) (TVD)**
Total Depth: 4614.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole
Tester: James Winder
Unit No: 46
Reference Elevations: 3013.00 ft (KB)
3002.00 ft (CF)
KB to GR/CF: 11.00 ft

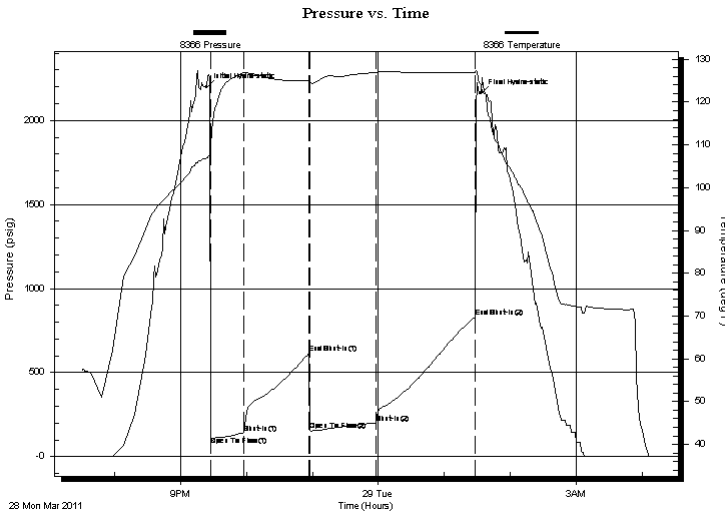
Serial #: 8366

Inside

Press @ Run Depth: 200.45 psig @ 4577.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2011.03.28 End Date: 2011.03.29 Last Calib.: 2011.03.29
Start Time: 19:31:05 End Time: 04:06:30 Time On Btm: 2011.03.28 @ 21:23:30
Time Off Btm: 2011.03.29 @ 01:33:00

TEST COMMENT: IF: Blow built to BOB (11") in 4 1/4 min.
IS: Blow back built to BOB in 28 min.
FF: Blow built to BOB in 14 min.
FS: Blow back built to 7 3/4"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2196.43	106.87	Initial Hydro-static
4	66.14	108.93	Open To Flow (1)
34	142.70	126.90	Shut-In(1)
94	617.47	124.91	End Shut-In(1)
94	154.66	124.69	Open To Flow (2)
154	200.45	126.94	Shut-In(2)
245	832.31	126.84	End Shut-In(2)
250	2161.69	124.04	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCO 45%o, 35%g, 20%m	0.30
178.00	GMCO 72%o, 20%g, 8%m	0.88
85.00	GMCO 54%o, 35%g, 11%m	1.19
160.00	CGO 67%o, 30%g, 3%m	2.24
0.00	GIP = 800'	0.00

Gas Rates

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



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Kuhlman "E" #2-35
35/12s/32w Logan KS
Job Ticket: 041979 **DST#: 5**
Test Start: 2011.03.28 @ 19:31:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 26.2 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 69.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.39 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3200.00 ppm		
Filter Cake: 2.00 inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GMCO 45%o, 35%g, 20%m	0.295
178.00	GMCO 72%o, 20%g, 8%m	0.875
85.00	GMCO 54%o, 35%g, 11%m	1.192
160.00	CGO 67%o, 30%g, 3%m	2.244
0.00	GIP = 800'	0.000

Total Length: 483.00 ft Total Volume: 4.606 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: Gravity = 24 api @ 38 deg F
Corrected Gravity = 26.2 api

Pressure vs. Time

