



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57177

DST#: 1

ATTN: Dave Gould

Test Start: 2014.06.21 @ 07:45:00

GENERAL INFORMATION:

Formation: **Lansing**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:09:50

Time Test Ended: 15:00:50

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Smith

Unit No: 62

Interval: 3977.00 ft (KB) To 4067.00 ft (KB) (TVD)

Reference Elevations: 2703.00 ft (KB)

Total Depth: 4067.00 ft (KB) (TVD)

2694.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8357 Inside

Press@RunDepth: 103.07 psig @ 3980.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.21

End Date:

2014.06.21

Last Calib.: 2014.06.21

Start Time: 07:45:12

End Time:

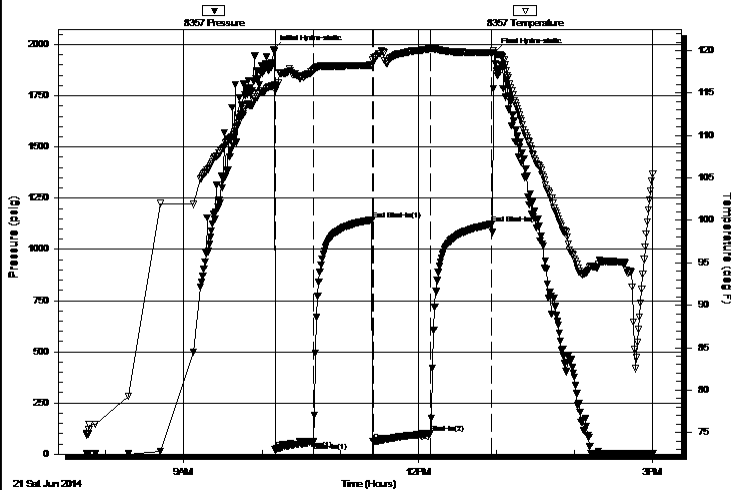
15:01:00

Time On Btm: 2014.06.21 @ 10:08:40

Time Off Btm: 2014.06.21 @ 12:58:40

TEST COMMENT: 30- 3" Blow .
45- No return.
45- 2" Blow .
45- No return.

Pressure vs. Time



PRESSURE SUMMARY

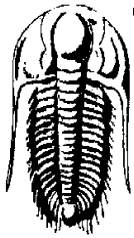
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1977.10	115.89	Initial Hydro-static
2	21.95	115.31	Open To Flow (1)
32	60.18	117.73	Shut-In(1)
76	1144.38	118.29	End Shut-In(1)
77	63.21	118.96	Open To Flow (2)
121	103.07	120.23	Shut-In(2)
168	1122.81	119.78	End Shut-In(2)
170	1962.88	119.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	RW: .175 @ 78 Degrees F = 37000 PPM	0.00
59.00	M 100m	0.29
116.00	WM 40w 60m	0.57

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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TESTING, INC.

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Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57177

DST#: 1

ATTN: Dave Gould

Test Start: 2014.06.21 @ 07:45:00

GENERAL INFORMATION:

Formation: **Lansing**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:09:50

Time Test Ended: 15:00:50

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Smith

Unit No: 62

Interval: 3977.00 ft (KB) To 4067.00 ft (KB) (TVD)

Total Depth: 4067.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2703.00 ft (KB)

2694.00 ft (CF)

KB to GR/CF: 9.00 ft

Serial #: 6751 Outside

Press@RunDepth: psig @ 3980.00 ft (KB)

Start Date: 2014.06.21

End Date:

2014.06.21

Start Time: 07:45:02

End Time:

15:01:00

Capacity: 8000.00 psig

Last Calib.:

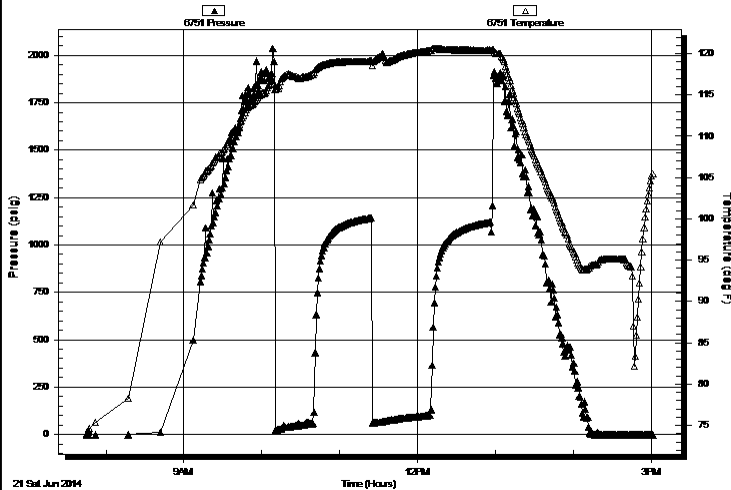
2014.06.21

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- 3" Blow .
45- No return.
45- 2" Blow .
45- No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
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Recovery

Length (ft)	Description	Volume (bbl)
0.00	RW: .175 @ 78 Degrees F = 37000 PPM	0.00
59.00	M 100m	0.29
116.00	WM 40w 60m	0.57

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57177

DST#: 1

ATTN: Dave Gould

Test Start: 2014.06.21 @ 07:45:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 60.00 sec/qt

Water Loss: 8.19 in³

Resistivity: ohm.m

Salinity: 1500.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

Oil API:

Water Salinity: 37000 ppm

ft

bbl

psig

deg API

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	RW: .175 @ 78 Degrees F = 37000 PPM	0.000
59.00	M 100m	0.290
116.00	WM 40w 60m	0.570

Total Length: 175.00 ft

Total Volume: 0.860 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

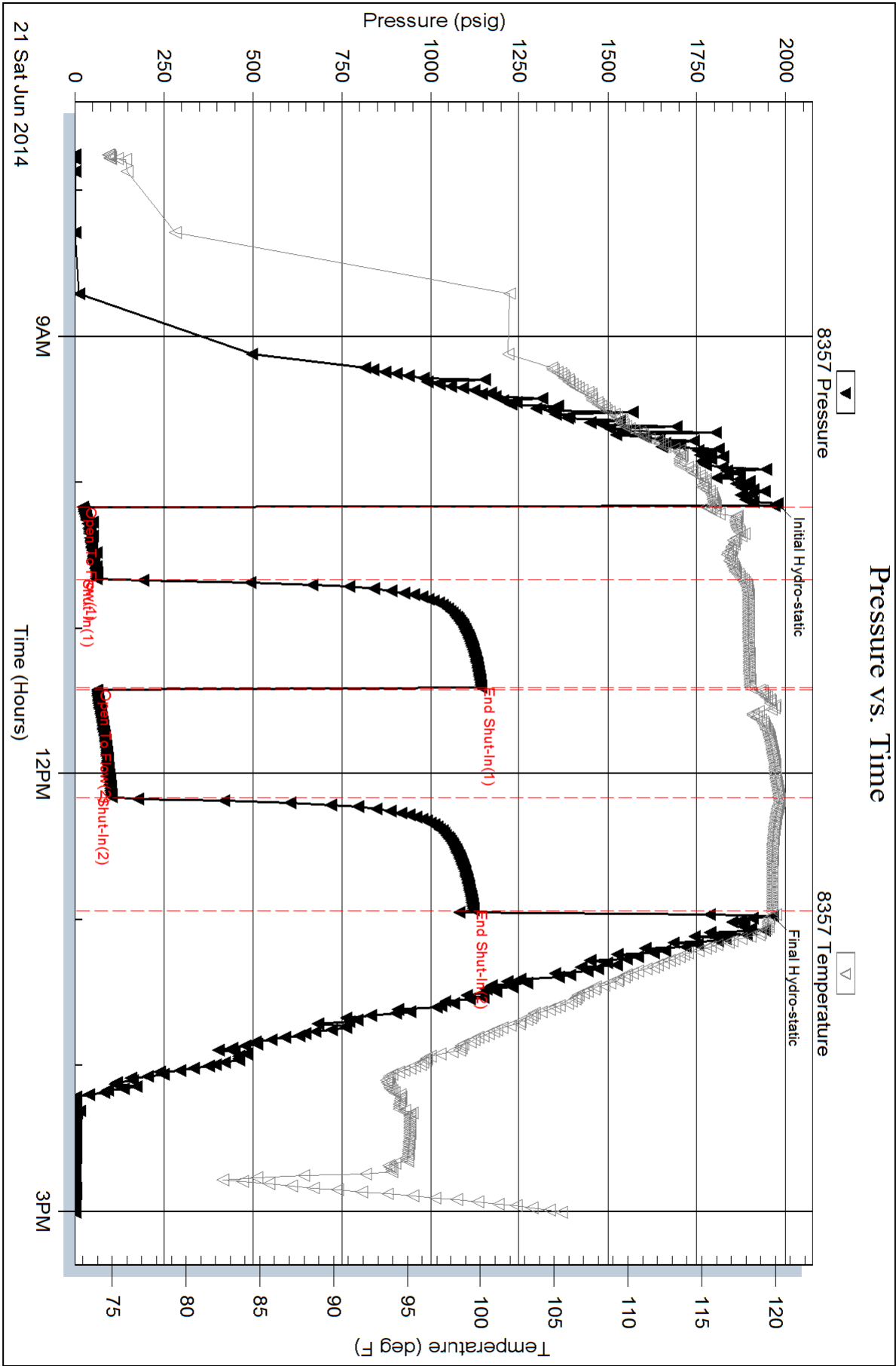
Serial #: 8357

Inside

Hess Oil Co.

Helen #1

DST Test Number: 1

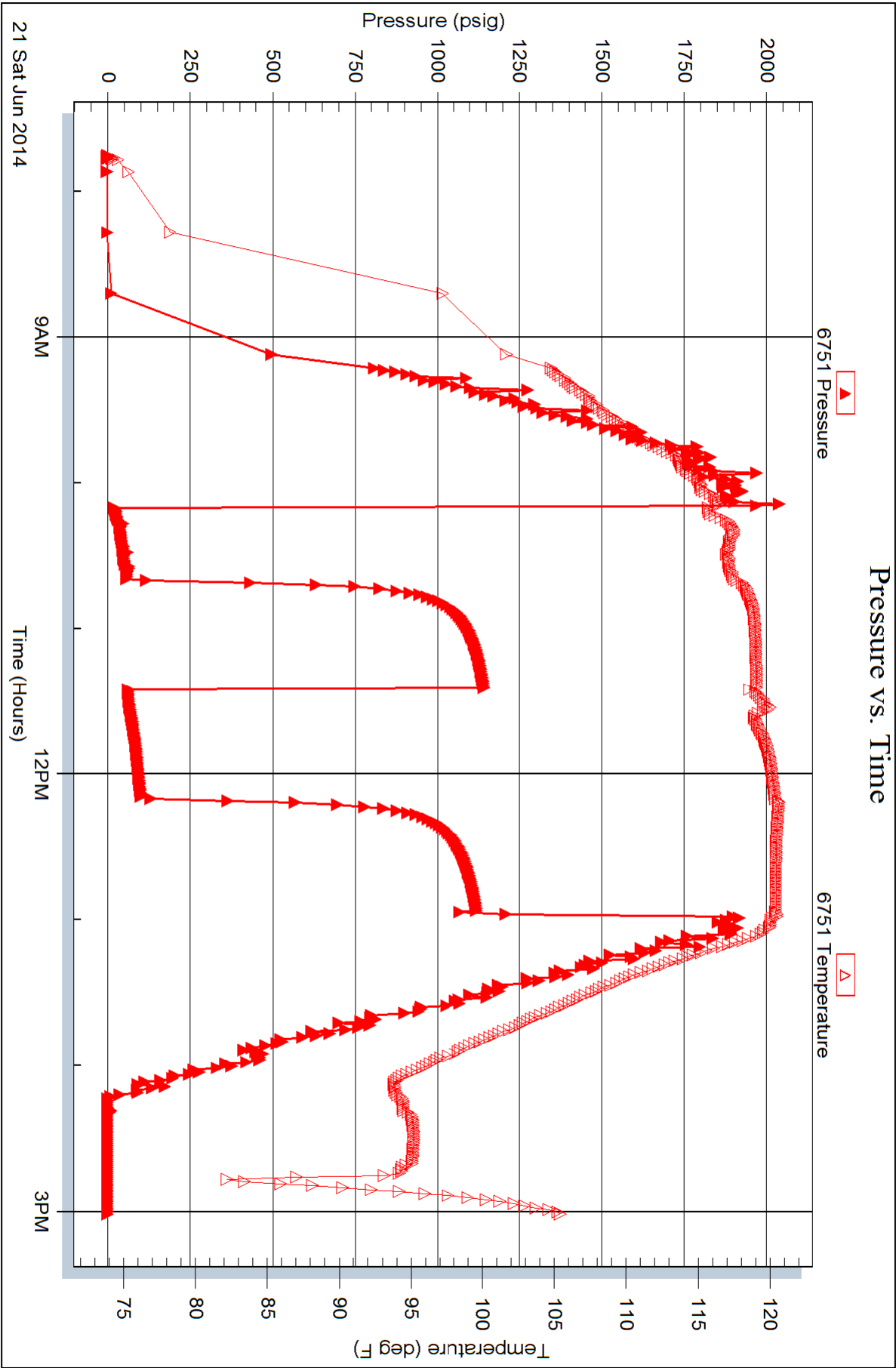


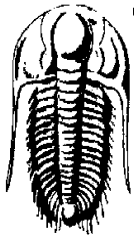
Serial #: 6751

Outside Hess Oil Co.

Helen #1

DST Test Number: 1





TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57178

DST#: 2

ATTN: Dave Gould

Test Start: 2014.06.22 @ 17:00:00

GENERAL INFORMATION:

Formation: **KC**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:17:20

Time Test Ended: 00:37:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 62

Interval: 4139.00 ft (KB) To 4218.00 ft (KB) (TVD)

Total Depth: 4218.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2703.00 ft (KB)

2692.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8357 Inside

Press@RunDepth: 73.96 psig @ 4141.00 ft (KB)

Start Date: 2014.06.22

End Date:

2014.06.23

Start Time: 17:00:02

End Time:

00:37:30

Capacity: 8000.00 psig

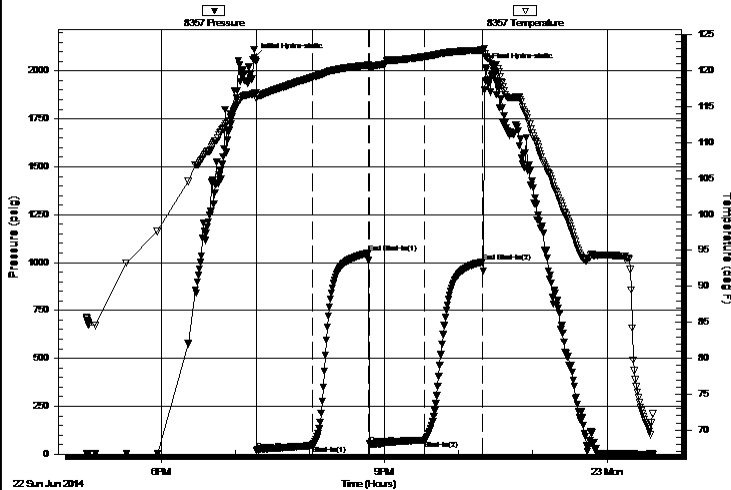
Last Calib.: 2014.06.23

Time On Btm: 2014.06.22 @ 19:15:30

Time Off Btm: 2014.06.22 @ 22:22:09

TEST COMMENT: 45- 1 1/2" Blow .
45- No return.
45- No blow , flushed tool, no blow .
45- No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2071.96	116.85	Initial Hydro-static
2	21.16	116.09	Open To Flow (1)
47	44.53	119.07	Shut-In(1)
92	1049.88	120.77	End Shut-In(1)
93	53.15	120.59	Open To Flow (2)
138	73.96	121.95	Shut-In(2)
184	1003.90	122.86	End Shut-In(2)
187	2019.88	121.98	Final Hydro-static

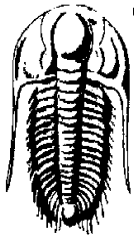
Recovery

Length (ft)	Description	Volume (bbl)
0.00	RW: .194 @ 70 Degrees F = 38000 PPM	0.00
118.00	OSWM 15w 85m	0.58
1.00	O 100o	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57178

DST#: 2

ATTN: Dave Gould

Test Start: 2014.06.22 @ 17:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 65.00 sec/qt

Water Loss: 11.99 in³

Resistivity: ohm.m

Salinity: 1400.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

Oil API:

Water Salinity: 38000 ppm

deg API

ft

bbl

psig

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	RW: .194 @ 70 Degrees F = 38000 PPM	0.000
118.00	OSWM 15w 85m	0.580
1.00	O 100o	0.005

Total Length: 119.00 ft

Total Volume: 0.585 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

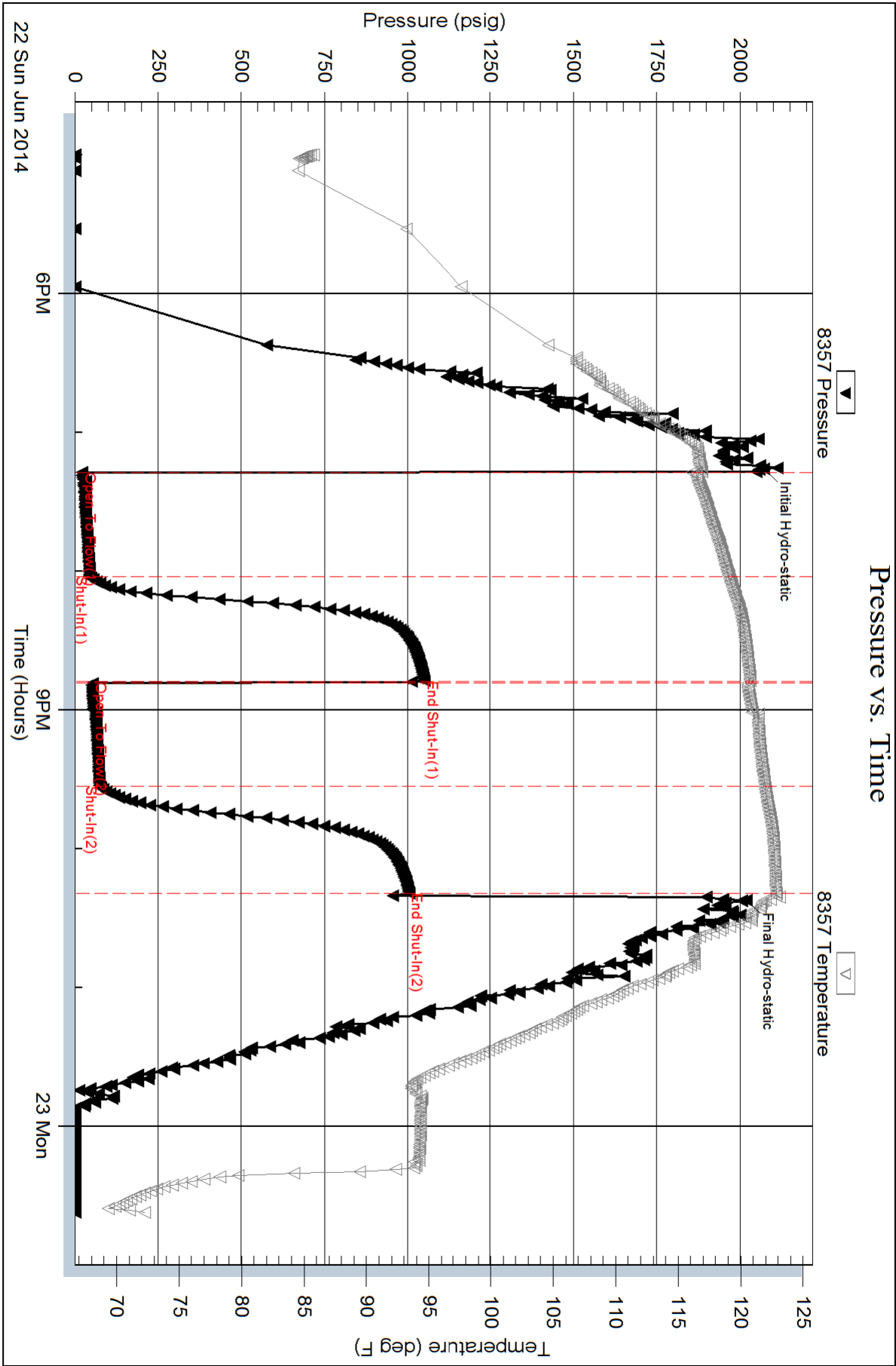
Serial #: 8357

Inside

Hess Oil Co.

Helen #1

DST Test Number: 2





TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hess Oil Co.

S23-16s-17w Lane, KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57179

DST#: 3

ATTN: Dave Gould

Test Start: 2014.06.23 @ 16:25:00

GENERAL INFORMATION:

Formation: **K. C.**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:22:20

Time Test Ended: 00:42:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 62

Interval: 4240.00 ft (KB) To 4287.00 ft (KB) (TVD)

Total Depth: 4287.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2703.00 ft (KB)

2692.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8357 Inside

Press@RunDepth: 122.63 psig @ 4241.00 ft (KB)

Start Date: 2014.06.23

End Date:

2014.06.24

Start Time: 16:25:02

End Time:

00:42:30

Capacity: 8000.00 psig

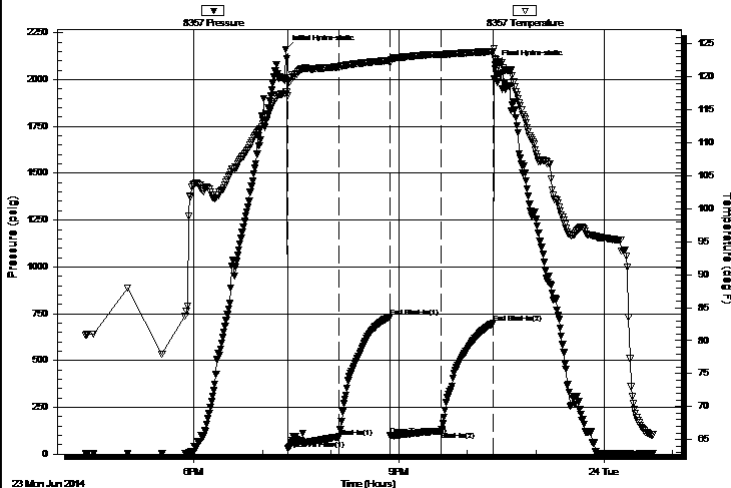
Last Calib.: 2014.06.24

Time On Btm: 2014.06.23 @ 19:20:20

Time Off Btm: 2014.06.23 @ 22:24:30

TEST COMMENT: 45- B.O.B. @ 20 min.
45- 1/4" Return died @ 35 min.
45- B.O.B. @ 12 min.
45- 4" Return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2161.83	117.79	Initial Hydro-static
2	27.86	117.09	Open To Flow (1)
47	92.05	121.52	Shut-In(1)
92	733.34	122.46	End Shut-In(1)
92	98.56	122.19	Open To Flow (2)
137	122.63	123.37	Shut-In(2)
183	698.61	123.83	End Shut-In(2)
185	2078.45	122.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
118.00	GOWM Emulsion 15g 3o 25w 45m 12 Em	0.58
118.00	GOCM Emulsion 25g 12o 28m 35 Emulsi	0.58
30.00	GMCO 10g 40m 50o	0.42
0.00	570' GIP	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57179

DST#: 3

ATTN: Dave Gould

Test Start: 2014.06.23 @ 16:25:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 60.00 sec/qt

Water Loss: 11.58 in³

Resistivity: ohm.m

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API: 36 deg API

Water Salinity: 51000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
118.00	GOWM Emulsion 15g 3o 25w 45m 12 Emulsio	0.580
118.00	GOCM Emulsion 25g 12o 28m 35 Emulsion	0.580
30.00	GMCO 10g 40m 50o	0.421
0.00	570' GIP	0.000

Total Length: 266.00 ft Total Volume: 1.581 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: 37 @ 70 Degrees F = 36. RW: .160 @ 66 Degrees F = 51000 PPM

Serial #: 8357

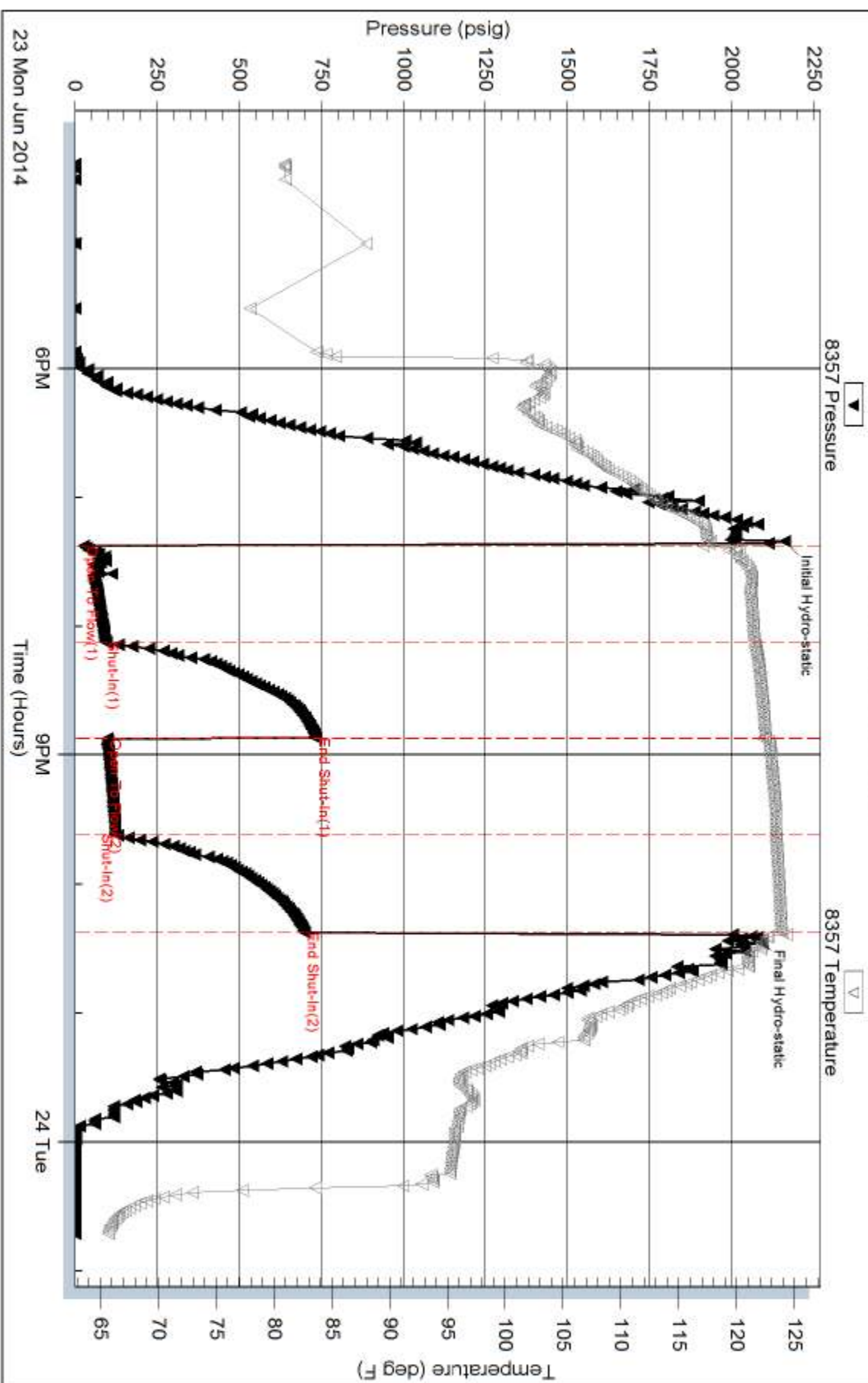
Inside

Hess Oil Co.

Helen #1

DST Test Number: 3

Pressure vs. Time





TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hess Oil Co.
POB 1009
McPherson, KS 67460
ATTN: Dave Gould

S23-16s-17w Lane, KS

Helen #1

Job Ticket: 57180

DST#: 4

Test Start: 2014.06.25 @ 04:02:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:54:40

Time Test Ended: 09:54:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 62

Interval: 4292.00 ft (KB) To 4410.00 ft (KB) (TVD)

Total Depth: 4410.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2703.00 ft (KB)

2692.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8357 Inside

Press@RunDepth: 32.92 psig @ 4295.00 ft (KB)

Start Date: 2014.06.25

End Date:

2014.06.25

Start Time: 04:02:02

End Time:

09:54:50

Capacity: 8000.00 psig

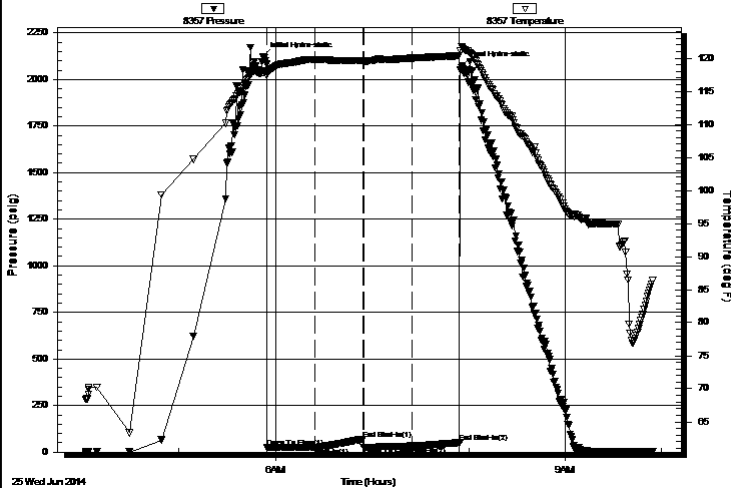
Last Calib.: 2014.06.25

Time On Btm: 2014.06.25 @ 05:52:20

Time Off Btm: 2014.06.25 @ 07:56:00

TEST COMMENT: 30- 1/2" Blow died @ 20 min.
30- No return.
30- No blow, flushed tool, no blow.
30- No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2123.90	117.87	Initial Hydro-static
3	23.74	117.39	Open To Flow (1)
32	26.64	119.78	Shut-In(1)
62	70.55	119.62	End Shut-In(1)
63	26.47	119.60	Open To Flow (2)
93	32.92	120.02	Shut-In(2)
122	51.25	120.37	End Shut-In(2)
124	2072.28	121.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	OSM 100m	0.15

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hess Oil Co.

S23-16s-17w Lane, KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57180

DST#: 4

ATTN: Dave Gould

Test Start: 2014.06.25 @ 04:02:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 53.00 sec/qt

Water Loss: 10.39 in³

Resistivity: ohm.m

Salinity: 1200.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	OSM 100m	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: @ Degrees F =

Serial #: 8357

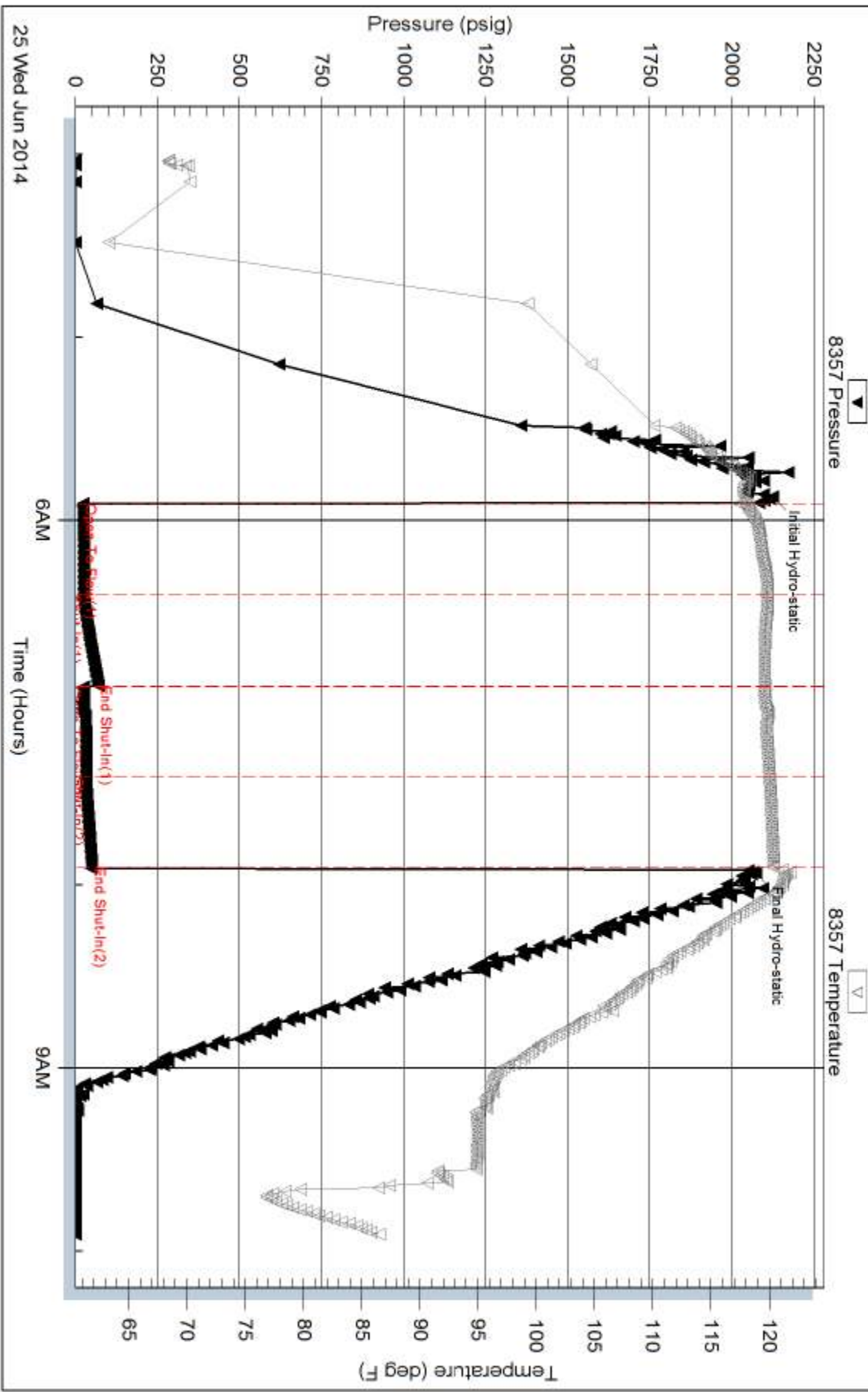
Inside

Hess Oil Co.

Helen #1

DST Test Number: 4

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 57180

Printed: 2014.06.25 @ 11:10:50



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hess Oil Co.

S23-16s-17w Lane, KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57181

DST#: 5

ATTN: Dave Gould

Test Start: 2014.06.26 @ 07:10:00

GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:58:20

Time Test Ended: 15:20:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 62

Interval: 4478.00 ft (KB) To 4510.00 ft (KB) (TVD)

Total Depth: 4510.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2703.00 ft (KB)

2692.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8357 Inside

Press@RunDepth: 42.10 psig @ 4481.00 ft (KB)

Start Date: 2014.06.26

End Date:

2014.06.26

Start Time: 07:10:02

End Time:

15:20:10

Capacity: 8000.00 psig

Last Calib.: 2014.06.26

Time On Btm: 2014.06.26 @ 09:56:00

Time Off Btm: 2014.06.26 @ 13:00:20

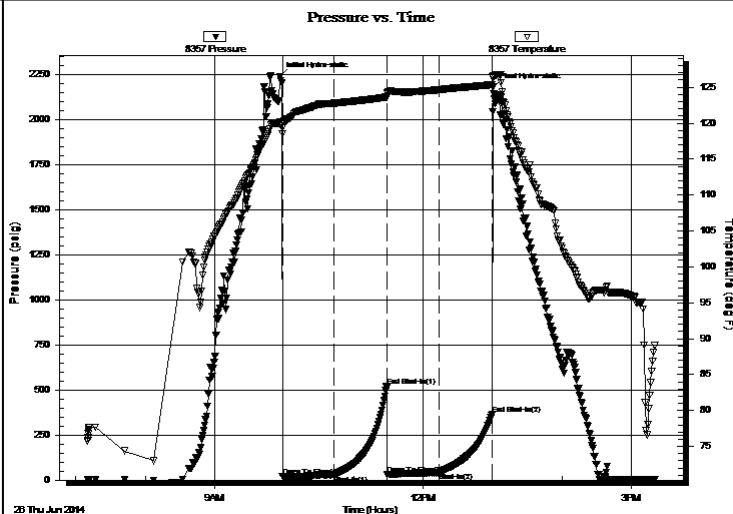
TEST COMMENT: 45- 1 1/2" Blow .

45- No return.

45- 5" Blow .

45- No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2234.74	120.19	Initial Hydro-static
3	19.54	118.52	Open To Flow (1)
47	27.73	122.77	Shut-In(1)
93	518.80	123.64	End Shut-In(1)
94	30.22	124.19	Open To Flow (2)
138	42.10	124.64	Shut-In(2)
184	366.51	125.36	End Shut-In(2)
185	2177.17	126.47	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GSOCM 20g 2o 78m	0.30
0.00	118' Weak GIP	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57181

DST#: 5

ATTN: Dave Gould

Test Start: 2014.06.26 @ 07:10:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 58.00 sec/qt

Water Loss: 12.79 in³

Resistivity: ohm.m

Salinity: 1300.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GSOCM 20g 2o 78m	0.295
0.00	118' Weak GIP	0.000

Total Length: 60.00 ft

Total Volume: 0.295 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8357

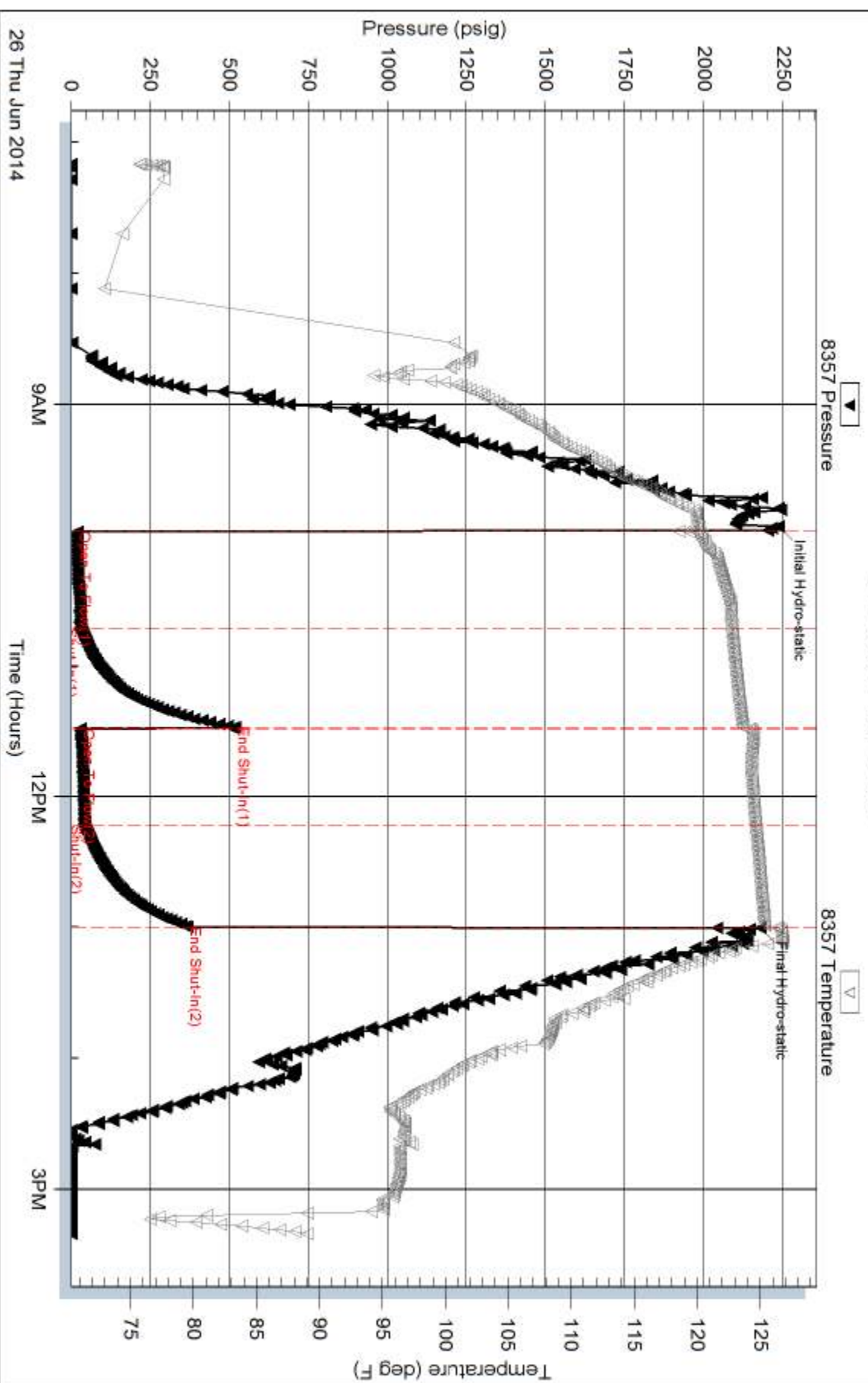
Inside

Hess Oil Co.

Helen #1

DST Test Number: 5

Pressure vs. Time





TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Hess Oil Co.

S23-16s-17w Lane, KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57182

DST#: 6

ATTN: David Gould

Test Start: 2014.06.26 @ 23:22:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:13:00

Time Test Ended: 07:58:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 62

Interval: 4478.00 ft (KB) To 4530.00 ft (KB) (TVD)

Total Depth: 4530.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2703.00 ft (KB)

2692.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8357 Inside

Press@RunDepth: 41.59 psig @ 4480.00 ft (KB)

Start Date: 2014.06.26

End Date:

2014.06.27

Start Time: 23:22:02

End Time:

07:58:30

Capacity: 8000.00 psig

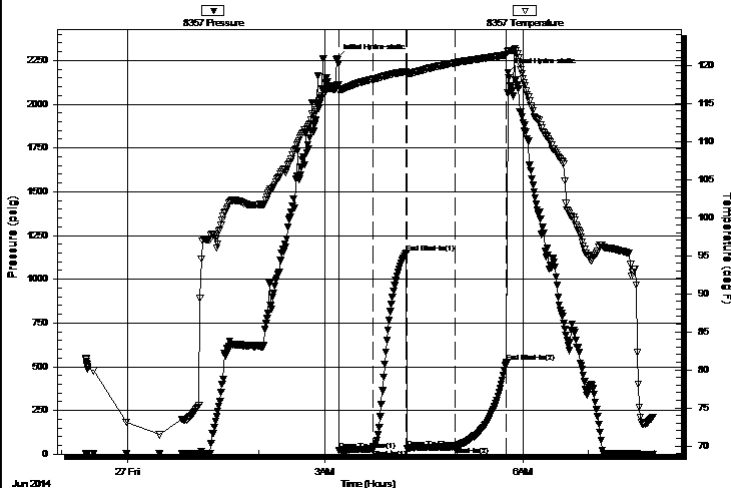
Last Calib.: 2014.06.27

Time On Btm: 2014.06.27 @ 03:10:50

Time Off Btm: 2014.06.27 @ 05:46:39

TEST COMMENT: 30- 1/2" Blow died @ 23 min.
30- No return.
45- No blow, flushed tool, 1" blow.
45- No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2259.39	117.38	Initial Hydro-static
3	21.64	116.71	Open To Flow (1)
33	29.57	118.17	Shut-In(1)
64	1151.18	119.19	End Shut-In(1)
64	34.48	118.80	Open To Flow (2)
108	41.59	120.33	Shut-In(2)
155	524.68	121.38	End Shut-In(2)
156	2182.71	121.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSM 100m	0.30

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Hess Oil Co.

S23-16s-17w Lane,KS

POB 1009
McPherson, KS 67460

Helen #1

Job Ticket: 57182

DST#: 6

ATTN: David Gould

Test Start: 2014.06.26 @ 23:22:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 60.00 sec/qt

Water Loss: 9.99 in³

Resistivity: ohm.m

Salinity: 3500.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	OSM 100m	0.295

Total Length: 60.00 ft

Total Volume: 0.295 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8357

Inside

Hess Oil Co.

Helen #1

DST Test Number: 6

Pressure vs. Time

