

DRILL STEM TEST REPORT

Prepared For: **Grand Mesa Operating Comp.**

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206

ATTN: Macklin Armstrong

31-13S 31W Logan KS

Phelps #6-31

Start Date: 2010.08.15 @ 22:46:01

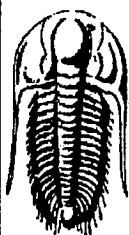
End Date: 2010.08.16 @ 06:55:45

Job Ticket #: 039708 DST #: 1

KCC
AUG 31 2010
CONFIDENTIAL

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

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TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039708

DST#: 1

Wichita KS 67206

Test Start: 2010.08.15 @ 22:46:01

ATTN: Macklin Armstrong

GENERAL INFORMATION:

Formation: **Lansing "D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:58:45

Time Test Ended: 06:55:45

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 28

Interval: **3985.00 ft (KB) To 4005.00 ft (KB) (TVD)**

Reference Elevations: 2917.00 ft (KB)

Total Depth: 4005.00 ft (KB) (TVD)

2912.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 5.00 ft

Serial #: 8673

Inside

Press@RunDepth: 80.93 psig @ 3986.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2010.08.15

End Date: 2010.08.16

Last Calib.: 2010.08.16

Start Time: 22:46:01

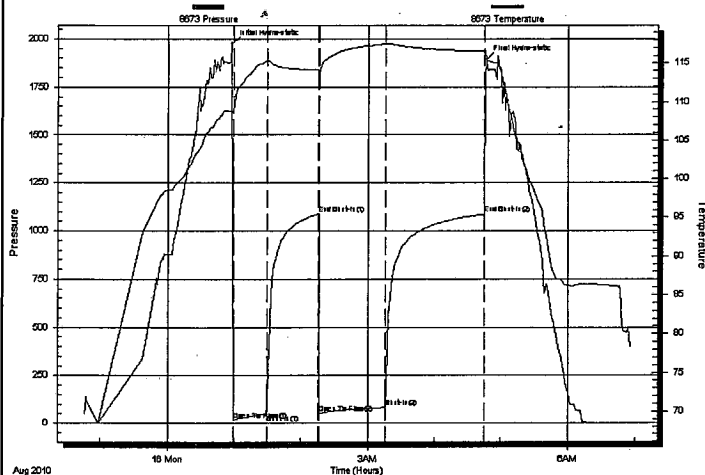
End Time: 06:55:45

Time On Btm: 2010.08.16 @ 00:57:45

Time Off Btm: 2010.08.16 @ 04:46:45

TEST COMMENT: IF: Built to 5" blow
IS: No return blow
FF: Built to 5" blow
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

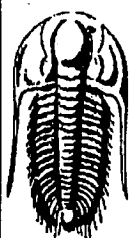
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1975.17	108.88	Initial Hydro-static
1	17.88	108.62	Open To Flow (1)
32	48.73	115.26	Shut-In(1)
78	1086.89	114.09	End Shut-In(1)
79	50.75	113.64	Open To Flow (2)
138	80.93	117.42	Shut-In(2)
228	1085.67	116.54	End Shut-In(2)
229	1893.48	115.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
121.00	mw 20% m 80% w	0.60
15.00	ocmw 10% o 40% m 50% w	0.21
15.00	free oil 100%	0.21

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039708

DST#: 1

Wichita KS 67206

Test Start: 2010.08.15 @ 22:46:01

ATTN: Macklin Armstrong

Tool Information

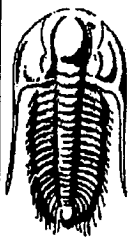
Drill Pipe:	Length: 3869.00 ft	Diameter: 3.80 inches	Volume: 54.27 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 50000.00 lb
		Total Volume:	54.87 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	35.00 ft			String Weight: Initial 43000.00 lb
Depth to Top Packer:	3985.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	50.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3956.00	
Shut In Tool	5.00			3961.00	
Sampler	3.00			3964.00	
Hydraulic tool	5.00			3969.00	
Jars	5.00			3974.00	
Safety Joint	2.00			3976.00	
Packer	5.00		Fluid	3981.00	30.00 Bottom Of Top Packer
Packer	4.00			3985.00	
Stubb	1.00			3986.00	
Recorder	0.00	8673	Inside	3986.00	
Recorder	0.00	8654	Inside	3986.00	
Perforations	16.00			4002.00	
Bullnose	3.00			4005.00	20.00 Bottom Packers & Anchor

Total Tool Length: 50.00



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039708

DST#: 1

Wichita KS 67206

Test Start: 2010.08.15 @ 22:46:01

ATTN: Macklin Armstrong

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

12000 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.11 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
121.00	mw 20% m 80% w	0.595
15.00	ocmw 10% o 40% m 50% w	0.210
15.00	free oil 100%	0.210

Total Length:

151.00 ft

Total Volume:

1.015 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

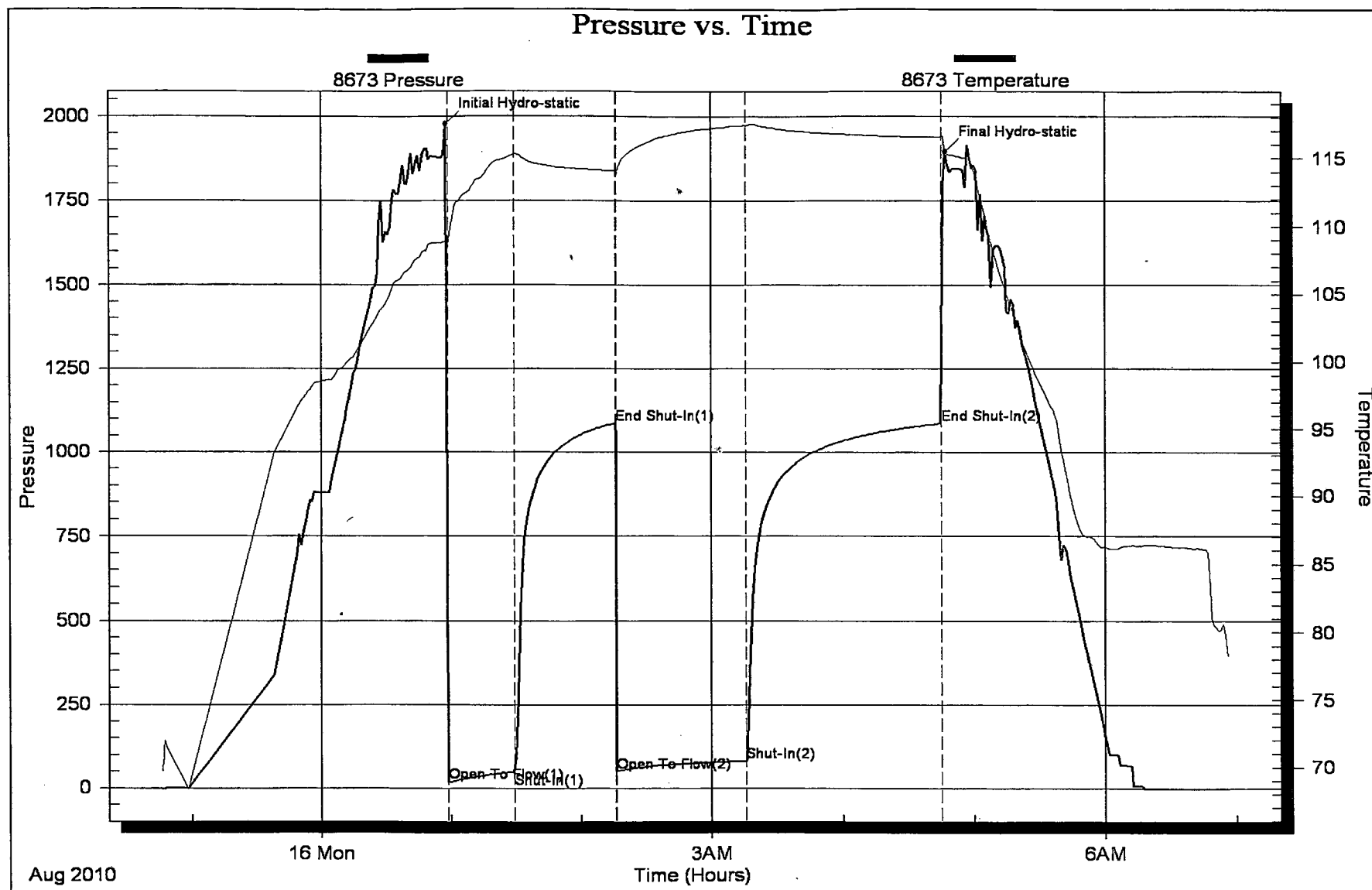
Recovery Comments: RW= .561 @ 65.8=12,000 ppm, sampler 2000ML total

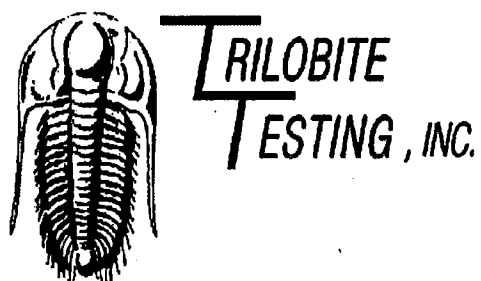
Serial #: 8673

Inside Grand Mesa Operating Comp.

31-13S 31W Logan KS

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Grand Mesa Operating Comp.**

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206

ATTN: Macklin Armstrong

31-13S 31W Logan KS

Phelps #6-31

Start Date: 2010.08.16 @ 16:34:01

End Date: 2010.08.16 @ 22:03:00

Job Ticket #: 039709 DST #: 2

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206
ATTN: Macklin Armstrong

31-13S 31W Logan KS

Job Ticket: 039709

DST#: 2

Test Start: 2010.08.16 @ 16:34:01

GENERAL INFORMATION:

Formation: **Lansing**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:22:15

Time Test Ended: 22:03:00

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 28

Interval: **4026.00 ft (KB) To 4047.00 ft (KB) (TVD)**

Total Depth: **4047.00 ft (KB) (TVD)**

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2917.00 ft (KB)

2912.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8673 Inside

Press@RunDepth: 77.72 psig @ 4028.00 ft (KB)

Start Date: 2010.08.16

End Date:

2010.08.16

Start Time: 16:34:01

End Time:

22:03:00

Capacity: 8000.00 psig

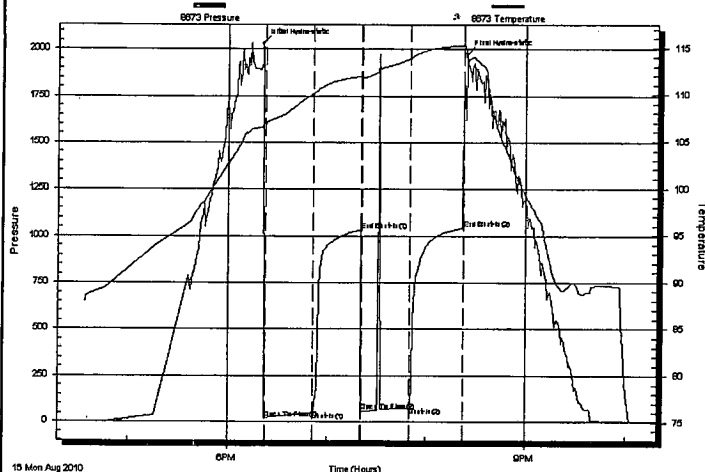
Last Calib.: 2010.08.16

Time On Btm: 2010.08.16 @ 18:20:45

Time Off Btm: 2010.08.16 @ 20:24:15

TEST COMMENT: IF: Surface blow died in 30 seconds
IS: No return blow
FF: No blow --- flushed tool --- no blow
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

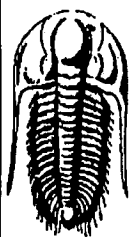
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2031.47	106.59	Initial Hydro-static
2	19.17	106.58	Open To Flow (1)
31	52.12	110.12	Shut-In(1)
60	1032.71	111.94	End Shut-In(1)
60	58.06	111.59	Open To Flow (2)
90	77.72	113.86	Shut-In(2)
122	1042.29	115.23	End Shut-In(2)
124	1976.43	113.35	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
139.00	MW w / Oil Spots 5%W 95%M	0.85
2.00	Free Oil 100%	0.03

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039709

DST#: 2

Wichita KS 67206

Test Start: 2010.08.16 @ 16:34:01

ATTN: Macklin Armstrong

Tool Information

Drill Pipe:	Length: 3899.00 ft	Diameter: 3.80 inches	Volume: 54.69 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 60000.00 lb
		Total Volume: 55.29 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	4026.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	21.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3997.00	
Shut In Tool	5.00			4002.00	
Sampler	3.00			4005.00	
Hydraulic tool	5.00			4010.00	
Jars	5.00			4015.00	
Safety Joint	2.00			4017.00	
Packer	5.00		Fluid	4022.00	30.00 Bottom Of Top Packer
Packer	4.00			4026.00	
Stubb	1.00			4027.00	
Perforations	1.00			4028.00	
Recorder	0.00	8673	Inside	4028.00	
Recorder	0.00	8654	Inside	4028.00	
Perforations	16.00			4044.00	
Bullnose	3.00			4047.00	21.00 Bottom Packers & Anchor

Total Tool Length: 51.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039709

DST#: 2

Wichita KS 67206

Test Start: 2010.08.16 @ 16:34:01

ATTN: Macklin Armstrong

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.72 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
139.00	MW w / Oil Spots 5%W 95%M	0.848
2.00	Free Oil 100%	0.028

Total Length: 141.00 ft

Total Volume: 0.876 bbl

Num Fluid Samples: 0

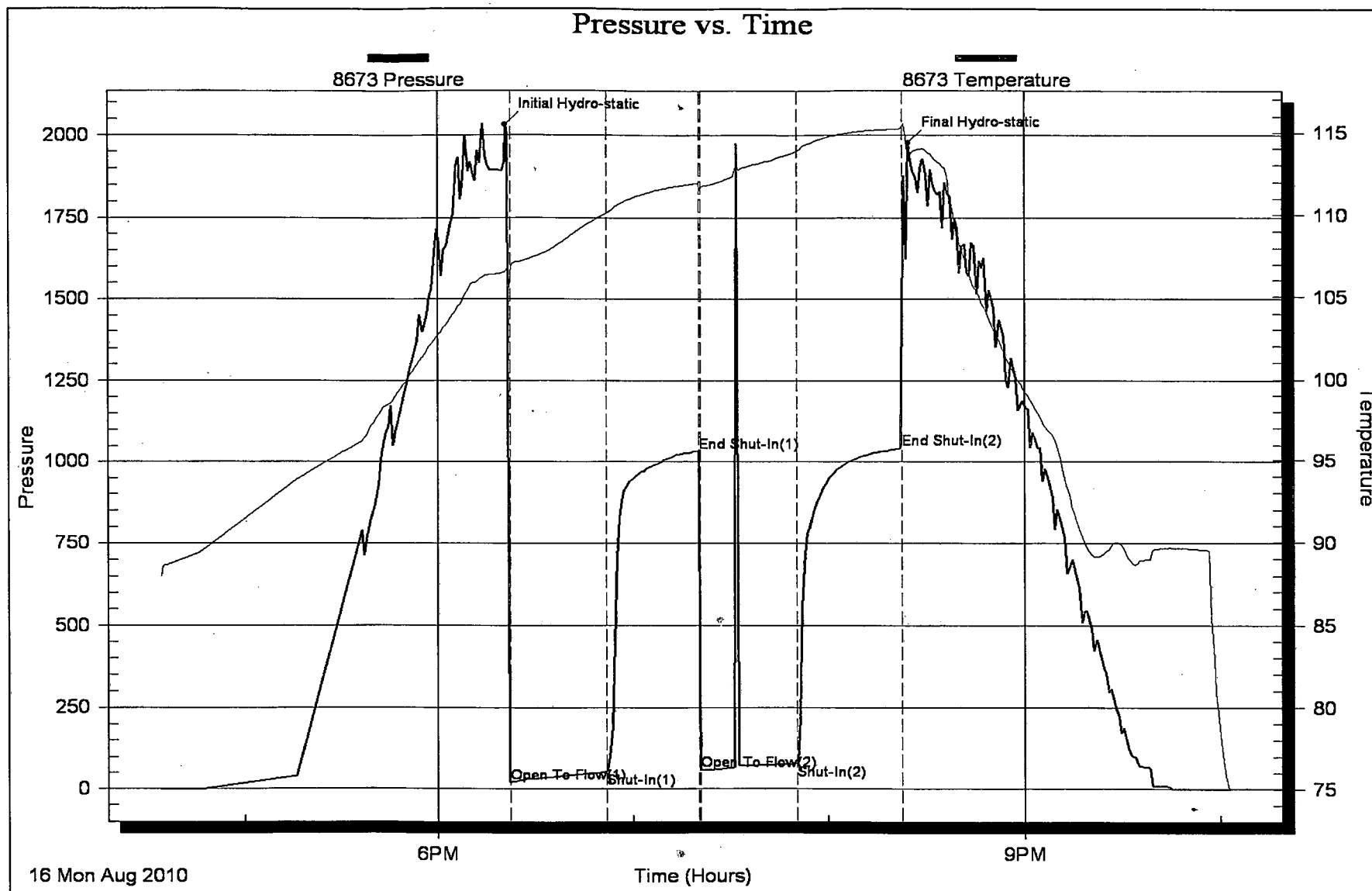
Num Gas Bombs: 0

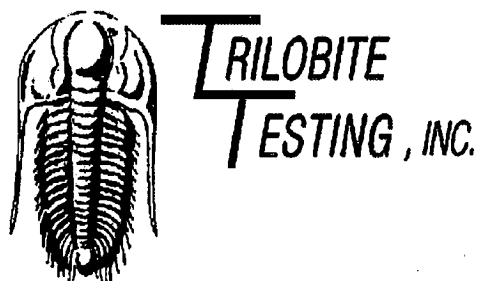
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





DRILL STEM TEST REPORT

Prepared For: **Grand Mesa Operating Comp.**

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206

ATTN: Macklin Armstrong

31-13S 31W Logan KS

Phelps #6-31

Start Date: 2010.08.17 @ 08:23:01

End Date: 2010.08.17 @ 15:47:45

Job Ticket #: 039710 DST #: 3

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206
ATTN: Macklin Armstrong

Phelps #6-31

31-13S 31W Logan KS

Job Ticket: 039710

DST#: 3

Test Start: 2010.08.17 @ 08:23:01

GENERAL INFORMATION:

Formation: **Lansing "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:09:45

Time Test Ended: 15:47:45

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 28

Interval: **4101.00 ft (KB) To 4129.00 ft (KB) (TVD)**

Total Depth: 4129.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Poor

Reference Elevations: 2917.00 ft (KB)

2912.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8673

Inside

Press@RunDepth: 90.72 psig @ 4102.00 ft (KB)

Start Date: 2010.08.17

End Date:

2010.08.17

Start Time: 08:23:01

End Time:

15:47:45

Capacity: 8000.00 psig

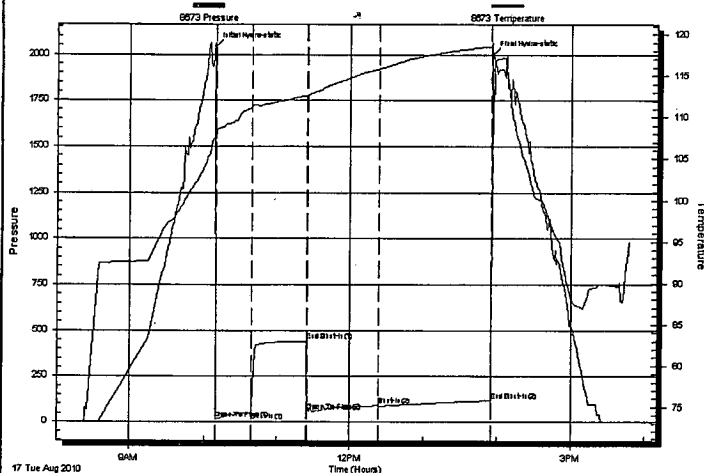
Last Calib.: 2010.08.17

Time On Btm: 2010.08.17 @ 10:09:15

Time Off Btm: 2010.08.17 @ 13:56:15

TEST COMMENT: IF: Built to 2" blow
IS: No return blow
FF: Built to 2" blow
FS: 1/8" return blow

Pressure vs. Time



PRESSURE SUMMARY

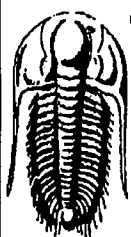
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2040.96	107.83	Initial Hydro-static
1	18.00	107.41	Open To Flow (1)
30	52.46	111.19	Shut-In(1)
76	442.71	112.62	End Shut-In(1)
76	61.29	112.54	Open To Flow (2)
134	90.72	115.81	Shut-In(2)
226	118.42	118.53	End Shut-In(2)
227	1994.83	118.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
121.00	MCSW 5% M 95%SW	0.60
62.00	M 100%M	0.87

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039710

DST#: 3

Wichita KS 67206

Test Start: 2010.08.17 @ 08:23:01

ATTN: Macklin Armstrong

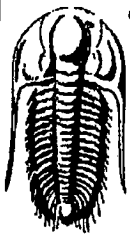
Tool Information

Drill Pipe:	Length: 3959.00 ft	Diameter: 3.80 inches	Volume: 55.53 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 60000.00 lb
			Total Volume: 56.13 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	4101.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	58.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4072.00	
Shut In Tool	5.00			4077.00	
Sampler	3.00			4080.00	
Hydraulic tool	5.00			4085.00	
Jars	5.00			4090.00	
Safety Joint	2.00			4092.00	
Packer	5.00		Fluid	4097.00	30.00 Bottom Of Top Packer
Packer	4.00			4101.00	
Stubb	1.00			4102.00	
Recorder	0.00	8673	Inside	4102.00	
Recorder	0.00	8654	Inside	4102.00	
Perforations	24.00			4126.00	
Bullnose	3.00			4129.00	28.00 Bottom Packers & Anchor

Total Tool Length: 58.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039710

DST#: 3

Wichita KS 67206

Test Start: 2010.08.17 @ 08:23:01

ATTN: Macklin Armstrong

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

15000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.72 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
121.00	MCSW 5% M 95%SW	0.595
62.00	M 100%M	0.870

Total Length:

183.00 ft

Total Volume:

1.465 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

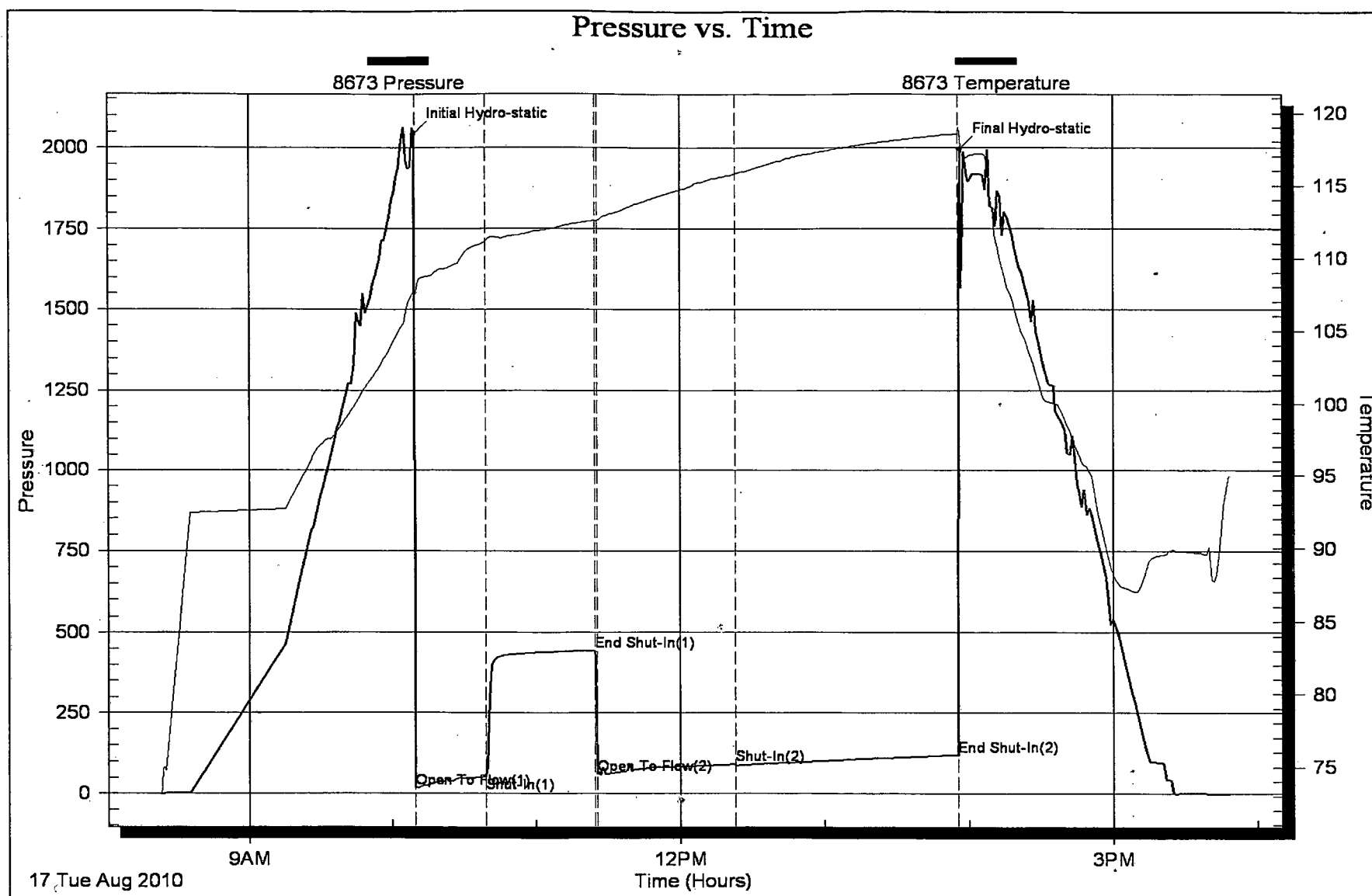
Recovery Comments: RW=148 @ 87.9 degrees=15,000 ppm

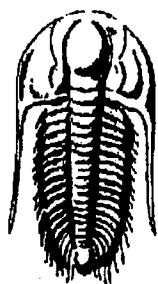
Serial #: 8673

Inside Grand Mesa Operating Comp.

31-13S 31W Logan KS

DST Test Number: 3





TRILOBITE
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DRILL STEM TEST REPORT

Prepared For: **Grand Mesa Operating Comp.**

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206

ATTN: Macklin Armstrong

31-13S 31W Logan KS

Phelps #6-31

Start Date: 2010.08.18 @ 01:29:01

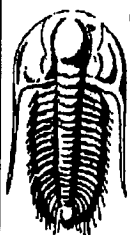
End Date: 2010.08.18 @ 07:57:15

Job Ticket #: 039711 DST #: 4

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206
ATTN: Macklin Armstrong

31-13S 31W Logan KS

Job Ticket: 039711

DST#: 4

Test Start: 2010.08.18 @ 01:29:01

GENERAL INFORMATION:

Formation: **Lansing "J"**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: 03:53:45

Time Test Ended: 07:57:15

Test Type: **Conventional Bottom Hole**

Tester: **Mike Roberts**

Unit No: **28**

Interval: **4170.00 ft (KB) To 4194.00 ft (KB) (TVD)**

Total Depth: **4005.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Poor**

Reference Elevations: **2917.00 ft (KB)**

2912.00 ft (CF)

KB to GR/CF: **5.00 ft**

Serial #: 8673

Inside

Press@RunDepth: **44.55 psig @ 4171.00 ft (KB)**

Start Date: **2010.08.18**

End Date:

2010.08.18

Start Time: **01:29:01**

End Time:

07:57:15

Capacity: **8000.00 psig**

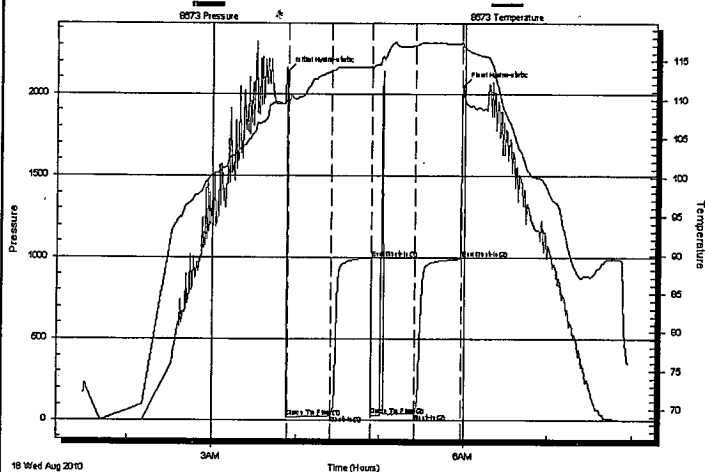
Last Calib.: **2010.08.18**

Time On Btm: **2010.08.18 @ 03:53:30**

Time Off Btm: **2010.08.18 @ 05:59:00**

TEST COMMENT: IF: Built to weak surface blow
IS: No return blow
FF: No blow --- flushed tool --- no blow
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

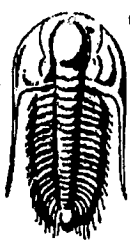
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2135.83	109.93	Initial Hydro-static
1	20.91	108.56	Open To Flow (1)
32	29.24	113.65	Shut-In(1)
60	997.56	114.24	End Shut-In(1)
61	33.11	113.86	Open To Flow (2)
91	44.55	116.99	Shut-In(2)
125	991.47	117.19	End Shut-In(2)
126	2046.37	117.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	Mud	0.30

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039711

DST#: 4

Wichita KS 67206

Test Start: 2010.08.18 @ 01:29:01

ATTN: Macklin Armstrong

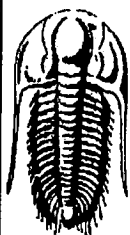
Tool Information

Drill Pipe:	Length: 4052.00 ft	Diameter: 3.80 inches	Volume: 56.84 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 50000.00 lb
		Total Volume: 57.44 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	4170.00 ft			Final 44000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	54.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4141.00	
Shut In Tool	5.00			4146.00	
Sampler	3.00			4149.00	
Hydraulic tool	5.00			4154.00	
Jars	5.00			4159.00	
Safety Joint	2.00			4161.00	
Packer	5.00		Fluid	4166.00	30.00 Bottom Of Top Packer
Packer	4.00			4170.00	
Stubb	1.00			4171.00	
Recorder	0.00	8673	Inside	4171.00	
Recorder	0.00	8654	Inside	4171.00	
Perforations	20.00			4191.00	
Bullnose	3.00			4194.00	24.00 Bottom Packers & Anchor

Total Tool Length: 54.00



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039711

DST#: 4

Wichita KS 67206

Test Start: 2010.08.18 @ 01:29:01

ATTN: Macklin Armstrong

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbl

Water Loss: 9.54 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	Mud	0.305

Total Length:

62.00 ft

Total Volume:

0.305 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

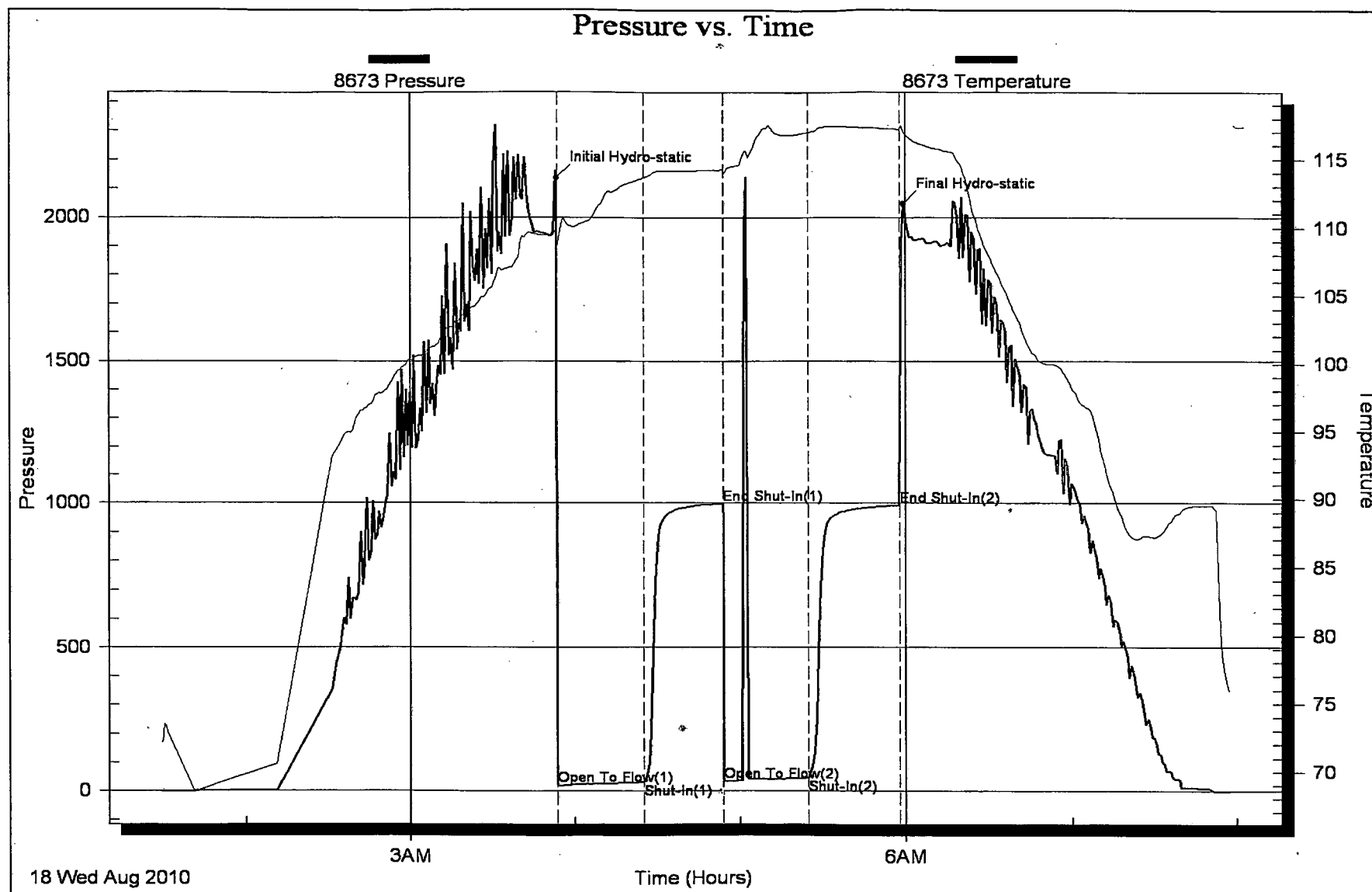
Recovery Comments:

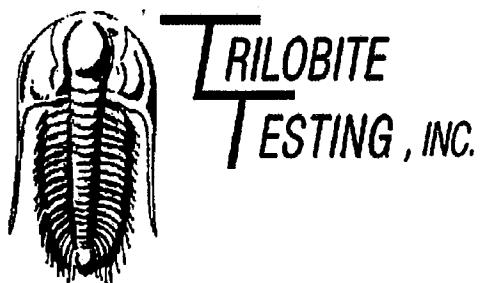
Serial #: 8673

Inside Grand Mesa Operating Comp.

,31-13S 31W Logan KS

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Grand Mesa Operating Comp.**

1700 N Waterfront Pkwy.
Bldg 600
Wichita KS 67206

ATTN: Macklin Armstrong

31-13S 31W Logan KS

Phelps #6-31

Start Date: 2010.08.19 @ 13:53:00

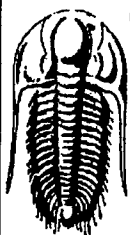
End Date: 2010.08.19 @ 20:46:00

Job Ticket #: 039712 DST #: 5

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

Bldg 600

Wichita KS 67206

ATTN: Macklin Armstrong

31-13S 31W Logan KS

Job Ticket: 039712

DST#: 5

Test Start: 2010.08.19 @ 13:53:00

GENERAL INFORMATION:

Formation: **Lower Fort Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:00:30

Time Test Ended: 20:46:00

Test Type: Conventional Bottom Hole

Tester: Mike Roberts

Unit No: 28

Interval: **4432.00 ft (KB) To 4500.00 ft (KB) (TVD)**

Total Depth: 4500.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Poor

Reference Elevations: 2917.00 ft (KB)

2912.00 ft (CF)

KB to GRVCF: 5.00 ft

Serial #: 8673 Inside

Press@RunDepth: 76.19 psig @ 4471.00 ft (KB)

Start Date: 2010.08.19

End Date: 2010.08.19

Capacity: 8000.00 psig

Last Calib.: 2010.08.20

Start Time: 13:53:03

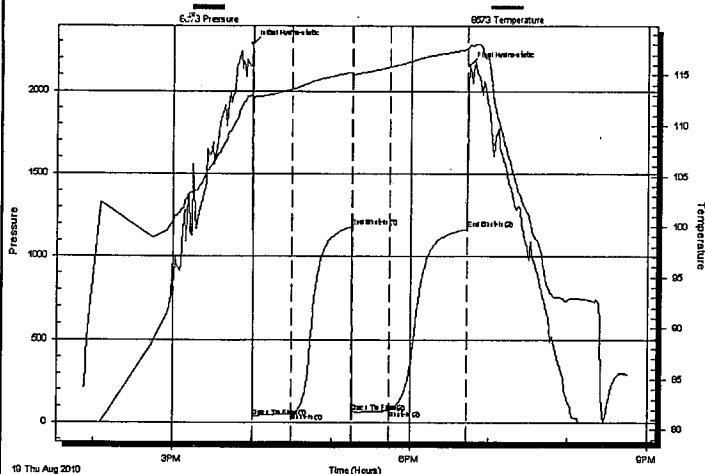
End Time: 20:46:02

Time On Btm: 2010.08.19 @ 15:59:47

Time Off Btm: 2010.08.19 @ 18:44:17

TEST COMMENT: IF: built to 1" blow
IS: no return blow
FF: built to 1" blow
FS: no return blow

Pressure vs. Time



PRESSURE SUMMARY

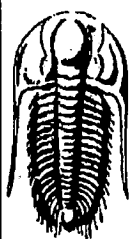
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2283.89	113.09	Initial Hydro-static
1	39.20	111.89	Open To Flow (1)
31	58.08	113.61	Shut-In(1)
76	1180.31	115.28	End Shut-In(1)
76	67.86	114.84	Open To Flow (2)
105	76.19	115.79	Shut-In(2)
164	1166.15	117.54	End Shut-In(2)
165	2155.39	117.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	Oil Spotted Mud 100%M	0.34

Gas Rates

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



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

TOOL DIAGRAM

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039712

DST#: 5

Wichita KS 67206

Test Start: 2010.08.19 @ 13:53:00

ATTN: Macklin Armstrong

Tool Information

Drill Pipe:	Length: 4306.00 ft	Diameter: 3.80 inches	Volume: 60.40 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 50000.00 lb
		Total Volume:	61.00 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	4432.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	98.00 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			4403.00	
Shut In Tool	5.00			4408.00	
Sampler	3.00			4411.00	
Hydraulic tool	5.00			4416.00	
Jars	5.00			4421.00	
Safety Joint	2.00			4423.00	
Packer	5.00		Fluid	4428.00	30.00 Bottom Of Top Packer
Packer	4.00			4432.00	
Stubb	1.00			4433.00	
Perforations	5.00			4438.00	
Change Over Sub	1.00			4439.00	
Blank Spacing	31.00			4470.00	
Change Over Sub	1.00			4471.00	
Recorder	0.00	8673	Inside	4471.00	
Recorder	0.00	8654	Inside	4471.00	
Perforations	26.00			4497.00	
Bullnose	3.00			4500.00	68.00 Bottom Packers & Anchor
Total Tool Length:		98.00			



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

Grand Mesa Operating Comp.

Phelps #6-31

1700 N Waterfront Pkwy.

31-13S 31W Logan KS

Bldg 600

Job Ticket: 039712

DST#: 5

Wichita KS 67206

Test Start: 2010.08.19 @ 13:53:00

ATTN: Macklin Armstrong

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.20 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	Oil Spotted Mud 100%M	0.344

Total Length:

70.00 ft

Total Volume:

0.344 bbl

Num Fluid Samples: 0

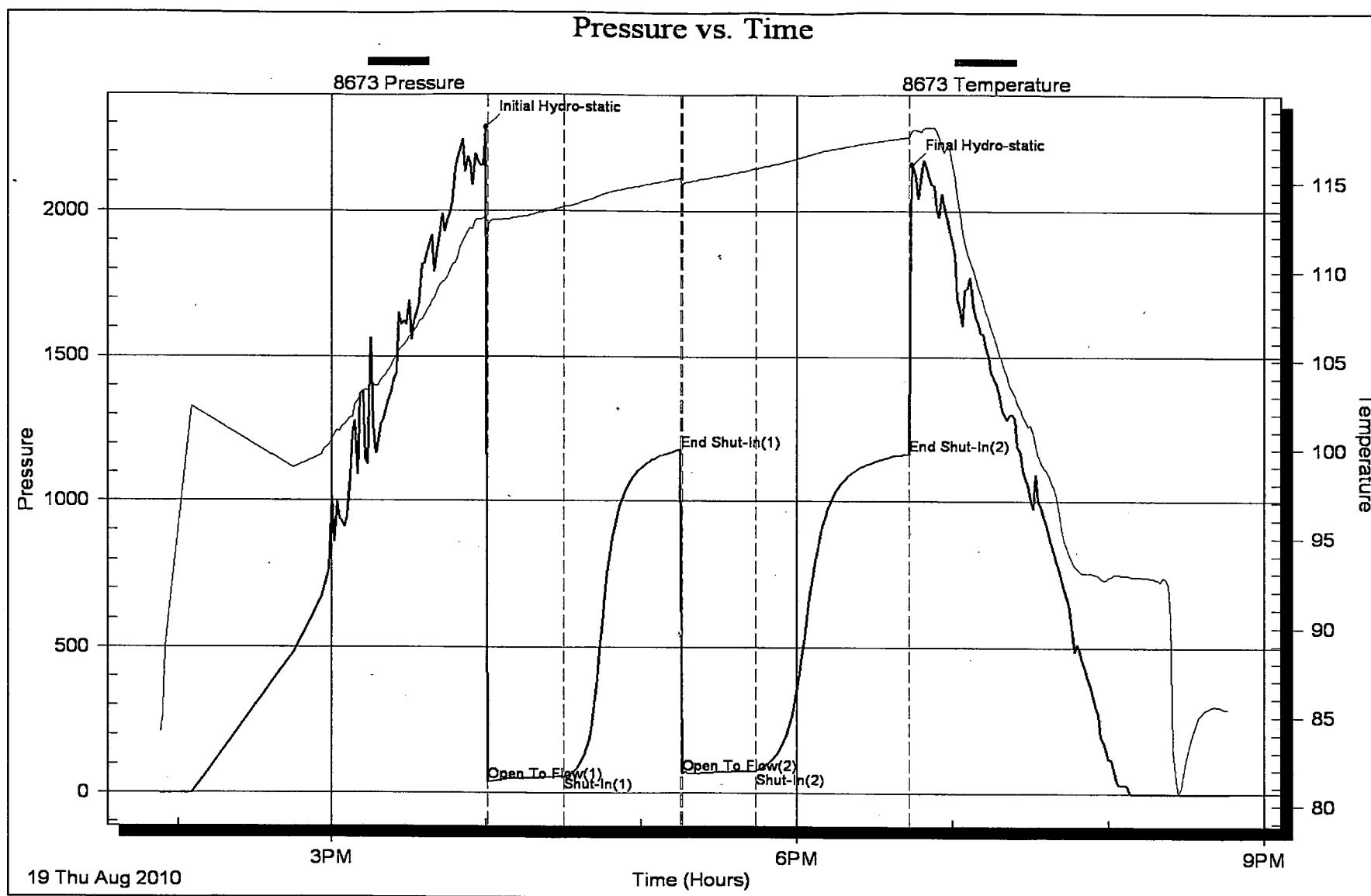
Num Gas Bombs: 0

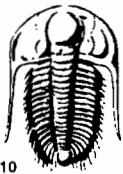
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE
TESTING INC.**

P.O. Box 1733 • Hays, Kansas 67601.

RECEIVED
AUG 24 2010

Test Ticket

NO. 03970814670

Well Name & No. Phelps #6-31 Test No. 1 Date 8-15-10
 Company Grand Mesa Operating Comp Elevation 2917 KB 2912 GL
 Address 1700 N. Waterfront Pkwy Bldg. 600 Wichita KS 67206
 Co. Rep / Geo. Macklin Armstrong Rig Murfin #24
 Location: Sec. 31 Twp. 13S Rge. 31W Co. Logan Grove State KS

Interval Tested 3985-4005 Zone Tested Lansing "D"
 Anchor Length 20' Drill Pipe Run 3869 Mud Wt. 8.7
 Top Packer Depth 3980 Drill Collars Run 121 Vis 56
 Bottom Packer Depth 3985 Wt. Pipe Run Ø WL 7.2
 Total Depth 4005 Chlorides 1800 ppm System LCM 2

Blow Description IF: Built to 5" Blow
IS: NO Return Blow
FF: Built to 5" Blow
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>Free Oil</u>	<u>100</u>			
<u>15</u>	<u>OCMW</u>	<u>10</u>	<u>50</u>	<u>40</u>	
<u>121</u>	<u>MW</u>		<u>80</u>	<u>20</u>	

Rec Total 151 BHT 116 Gravity 1 API RW 36.1 @ 68.8 °F Chlorides 12000 ppm
 (A) Initial Hydrostatic 1975 ☒ Test 1225.00 T-On Location 20:54
 (B) First Initial Flow 17 ☒ Jars 250.00 T-Started 22:46
 (C) First Final Flow 48 ☒ Safety Joint 475.00 T-Open 12:58
 (D) Initial Shut-In 1086 ☒ Circ Sub _____ T-Pulled 04:45
 (E) Second Initial Flow 50 ☐ Hourly Standby _____ T-Out 06:55
 (F) Second Final Flow 80 ☒ Mileage 80 RT = \$100.00 Comments _____
 (G) Final Shut-In 1085 ☒ Sampler 250.00 _____
 (H) Final Hydrostatic 1893 ☐ Straddle _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 60
 Final Shut-In 90

☐ Shale Packer _____
☐ Extra Packer _____
☐ Extra Recorder _____
☐ Day Standby _____
☐ Accessibility _____
 Sub Total \$1900.00

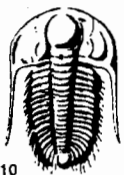
☐ Ruined Shale Packer _____
☐ Ruined Packer _____
☐ Extra Copies _____
 Sub Total Ø
 Total 1900
 MP/DST Disc't _____

Approved By Macklin M. Armstrong

Our Representative Mike Roberts

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RECEIVED
AUG 24 2010

Test Ticket

NO. 039709

4/10

BY:

Well Name & No. Phelps #6-31 Test No. 2 Date 8-16-10
Company Grand Mesa Operating Comp Elevation 2917 KB 2912 GL
Address 1700 N. Water front Pkwy Bldg 600 Wichita KS 67206
Co. Rep / Geo. Macklin Armstrong Rig Murfin #24
Location: Sec. 31 Twp. 13S Rge. 31W Co. Grove State KS

Interval Tested 4026-4047 Zone Tested Lansing "F"
Anchor Length 21' Drill Pipe Run 3899 Mud Wt. 9.0
Top Packer Depth 4021 Drill Collars Run 121 Vis 50
Bottom Packer Depth 4026 Wt. Pipe Run 0 WL 8.8
Total Depth 4047 Chlorides 2500 ppm System LCM 1

Blow Description IF: Surface blow died in 30 sec.
IS: No Return Blow
FF: No blow - flushed tool - No blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Free Oil</u>	<u>100</u>			
<u>139</u>	<u>MW Oil spots</u>		<u>5</u>	<u>95</u>	

Rec Total 141 BHT 115 Gravity ✓ API RW ✓ @ ✓ ° F Chlorides ✓ ppm
(A) Initial Hydrostatic 2035 ☒ Test 1225.00 T-On Location 16:06
(B) First Initial Flow 19 ☒ Jars 250.00 T-Started 16:34
(C) First Final Flow 52 ☒ Safety Joint 75.00 T-Open 18:21
(D) Initial Shut-In 1032 ☒ Circ Sub NC T-Pulled 20:20
(E) Second Initial Flow 58 ☐ Hourly Standby ✓ T-Out 22:03
(F) Second Final Flow 77 ☒ Mileage 80 RT = \$100.00 Comments
(G) Final Shut-In 1042 ☐ Sampler
(H) Final Hydrostatic 1976 ☐ Straddle ☐ Ruined Shale Packer

Initial Open 30
Initial Shut-In 30
Final Flow 30
Final Shut-In 30

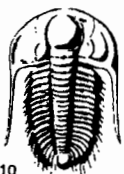
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility
Sub Total \$1650.00

☐ Ruined Packer
☐ Extra Copies
Sub Total 0
Total 1650
MP/DST Disc't

Approved By Macklin M. Armstrong

Our Representative

Mike Roberts



TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED
AUG 24 2010

Test Ticket

NO. 039710

Well Name & No. Phelps #6-31 Test No. 3 Date 8-17-10
Company Grand Mesa Operating Comp Elevation 2917 KB 2912 GL
Address 1700 N Waterfront Pkwy Bldg 600 Wichita 67206
Co. Rep / Geo. MAC Armstrong Rig Murfin 24
Location: Sec. 31 Twp. 13S Rge. 31W Co. Grove State KS

Interval Tested 4101-4129 Zone Tested Lansing "H"
Anchor Length 28 Drill Pipe Run 3959 Mud Wt. 9.0
Top Packer Depth 4096 Drill Collars Run 121 Vis 50
Bottom Packer Depth 4101 Wt. Pipe Run Ø WL 8.8
Total Depth 4129 Chlorides 2500 ppm System LCM 1

Blow Description IF: Built to 2" Blow
IS: NO Return Blow
FF: Built to 2" Blow
FS: ~~NO Return Blow~~ 1/8" Return Blow

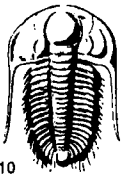
Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>M</u>			<u>100</u>	
<u>121</u>	<u>MCSW</u>			<u>95</u>	<u>5</u>

Rec Total 183 BHT 118 Gravity — API RW 148 @ 87.9 °F Chlorides 15,000 ppm
(A) Initial Hydrostatic 2040 ☒ Test \$1225.00 T-On Location 07:30
(B) First Initial Flow 18 ☒ Jars \$250.00 T-Started 08:23
(C) First Final Flow 52 ☒ Safety Joint \$75.00 T-Open 10:10
(D) Initial Shut-In 442 ☒ Circ Sub NC T-Pulled 12:25
(E) Second Initial Flow 61 ☐ Hourly Standby — T-Out —
(F) Second Final Flow 90 ☒ Mileage 80 RT = 100.00 Comments —
(G) Final Shut-In 118 ☐ Sampler —
(H) Final Hydrostatic 1994 ☐ Straddle —

Initial Open 30 ☐ Shale Packer — ☐ Ruined Shale Packer —
Initial Shut-In 45 ☐ Extra Packer — ☐ Ruined Packer —
Final Flow 60 ☐ Extra Recorder — ☐ Extra Copies —
Final Shut-In 90 ☐ Day Standby — Sub Total —
☐ Accessibility — Total —
MP/DST Disc't —

Approved By Harold M. Amtey Sub Total \$1650.00 Our Representative Mike Roberts

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RECEIVED
AUG 24 2010

Test Ticket

NO. 039711

Well Name & No. Phelps #6-31 Test No. 4 Date 8-18-10
 Company Grand Mesa Operating Corp Elevation 2917 KB 2912 GL
 Address 1700 N Waterfront Plany Bldg 600 Wichita KS 67206
 Co. Rep / Geo. MAC Armstrong Rig Murfin #24
 Location: Sec. 31 Twp. 13S Rge. 31W Co. Grove State KS

Interval Tested 4170-4194 Zone Tested Lansing "J"
 Anchor Length 24' Drill Pipe Run 4052 Mud Wt. 9.1
 Top Packer Depth 4165 Drill Collars Run 121 Vis 50
 Bottom Packer Depth 4170 Wt. Pipe Run Ø WL 9.6
 Total Depth 4194 Chlorides 3400 ppm System LCM 1

Blow Description IF: Built to Weak Surface Blow
IS: NO Return Blow
EF: No Blow-flushed tool - NO Blow
ES: NO Return Blow

Rec <u>62</u>	Feet of <u>m</u>	%gas	%oil	%water <u>100</u>	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 62 BHT 117 Gravity ✓ API RW ✓ @ ✓ ° F Chlorides ✓ ppm
 (A) Initial Hydrostatic 2135 ☒ Test 1225.00 T-On Location 12:33 AM
 (B) First Initial Flow 20 ☒ Jars 250.00 T-Started 03:54 01:29
 (C) First Final Flow 29 ☒ Safety Joint 25.00 T-Open 03:54
 (D) Initial Shut-In 997 ☒ Circ Sub NL T-Pulled 05:54
 (E) Second Initial Flow 33 ☐ Hourly Standby ✓ T-Out 07:57
 (F) Second Final Flow 44 ☒ Mileage 80 RT = \$1100.00 Comments
 (G) Final Shut-In 991 ☐ Sampler
 (H) Final Hydrostatic 2046 ☐ Straddle ☐ Ruined Shale Packer
☐ Shale Packer ☐ Ruined Packer
☐ Extra Packer ☐ Extra Copies
☐ Extra Recorder Sub Total Ø
☐ Day Standby Total 1650
☐ Accessibility MP/DST Disc't

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Sub Total 1650.00
 Approved By Mauri M. Amity Our Representative Mike Roberts

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**TRILOBITE
TESTING INC.**

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED
AUG 24 2010

Test Ticket

NO. 039712

Well Name & No. Phelps-#6-31 Test No. 5 Date 8-19-10
 Company Grand Mesa Operating Comp. Elevation 2917 KB 2912 GL
 Address 1700 N. Waterfront Pkwy Bldg 600 Wichita KS 67206
 Co. Rep / Geo. MAC Armstrong Rig Murtra #24
 Location: Sec. 31 Twp. 13S Rge. 31W Co. Grove State KS

Interval Tested 4432-4500 Zone Tested ~~4305~~ Lansing H
 Anchor Length 68' Drill Pipe Run ~~4305~~ Mud Wt. 9.2
 Top Packer Depth 4427 Drill Collars Run 121 Vis 61
 Bottom Packer Depth 4432 Wt. Pipe Run 0 WL 7.2
 Total Depth 4500 Chlorides 3500 ppm System LCM 1

Blow Description IF: Built to 1" Blow
IS: NO Return Blow
FF: Built to 1" Blow
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>70</u>	<u>Oil Spotted Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 70 BHT 117 Gravity 1 API RW 1 °F Chlorides 1 ppm
 (A) Initial Hydrostatic 2283 ☒ Test 1225.00 T-On Location 12:45 PM
 (B) First Initial Flow 37 ☒ Jars 250.00 T-Started 13:53
 (C) First Final Flow 58 ☒ Safety Joint 75.00 T-Open 16:00
 (D) Initial Shut-In 1180 ☒ Circ Sub NL T-Pulled 18:30
 (E) Second Initial Flow 67 ☐ Hourly Standby T-Out 20:46
 (F) Second Final Flow 76 ☒ Mileage 80 RT = 200.00 Comments Mileage X 2
 (G) Final Shut-In 1166 ☐ Sampler ☐ Ruined Shale Packer
 (H) Final Hydrostatic 2155 ☐ Straddle ☐ Ruined Packer

Initial Open 30 ☐ Extra Packer ☐ Extra Copies
 Initial Shut-In 45 ☐ Extra Recorder Sub Total 0
 Final Flow 30 ☐ Day Standby Total 1750
 Final Shut-In 60 ☐ Accessibility 1750 MP/DST Disc't
 Sub Total 1650.00

Approved By Michael M. Armstrong Our Representative Mike Bokota

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