



DRILL STEM TEST REPORT

Prepared For: **Anadarko Petroleum C**

P.O. Box 351
Liberal, KS 67905

ATTN: Jeff Zoller

1-28S-34W Haskell KS

HJV Winter A-2

Start Date: 2001.02.24 @ 18:30:00

End Date: 2001.02.24 @ 07:30:00

Job Ticket #: 13511 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Anadarko Petroleum C

P.O. Box 351
Liberal, KS 67905

ATTN: Jeff Zoller

HJV Winter A-2

1-28S-34W Haskell KS

Job Ticket: 13511

DST#: 1

Test Start: 2001.02.24 @ 18:30:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:55:00

Time Test Ended: 07:30:00

Test Type: Conventional Bottom Hole

Tester: Blake Wallace

Unit No: 17

Interval: **4748.00 ft (KB) To 4780.00 ft (KB) (TVD)**

Total Depth: 4780.00 ft (KB)

Hole Diameter: 7.78 inches Hole Condition: Fair

Reference Elevations: 3051.00 ft (KB)

3040.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: **3026** Inside

Press@RunDepth: 322.31 psig @ 4753.00 ft (KB)

Start Date: 2001.02.23

End Date:

2001.02.23

Start Time: 06:49:01

End Time:

19:47:00

Capacity: 7000.00 psig

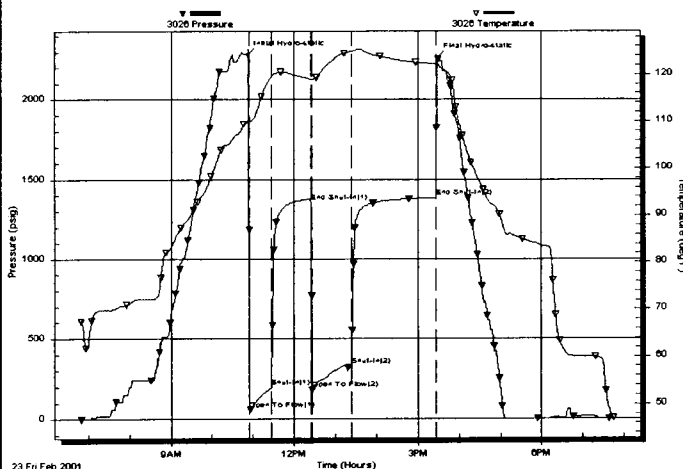
Last Calib.: 2001.02.22

Time On Btm: 2001.02.23 @ 10:51:30

Time Off Btm: 2001.02.23 @ 15:27:30

TEST COMMENT: RW=.660 @ 55 deg. 12000 Chlorides
Sampler Data: 12.1 cu ft gas
1100 # psi 1st opening-strong blow B.O.B in 45 sec
ISI- blow back built to 7"

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
243	2280.01	109.89	Initial Hydro-static
246	54.60	109.98	Open To Flow (1)
279	195.53	119.51	Shut-In (1)
337	1354.49	118.94	End Shut-In (1)
337	179.21	118.91	Open To Flow (2)
396	322.31	124.80	Shut-In (2)
517	1384.81	122.26	End Shut-In (2)
519	2258.86	122.32	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	Drig mud 100%	0.20
182.00	30% water 70% mud	0.90
516.00	10% gas 90% salt water	5.03

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.50	2.00	110.63
Last Gas Rate	0.50	3.00	117.38
Max. Gas Rate	0.50	10.00	164.59



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TOOL DIAGRAM

Anadarko Petroleum C

HJV Winter A-2

P.O. Box 351
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1-28S-34W Haskell KS

Job Ticket: 13511

DST#: 1

ATTN: Jeff Zoller

Test Start: 2001.02.24 @ 18:30:00

Tool Information

Drill Pipe:	Length: 4268.00 ft	Diameter: 3.80 inches	Volume: 59.87 bbl	Tool Weight: 1800.00 lb
Drill Collar:	Length: 464.00 ft	Diameter: 2.25 inches	Volume: 2.28 bbl	Weight set on Packer: 30000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 75000.00 lb
Drill Pipe Above KB:	14.00 ft			Tool Chased 0.00 ft
Depth to Top Packer:	4744.00 ft			String Weight: Initial 68000.00 lb
Depth to Bottom Packer:	ft			Final 72000.00 lb
Interval between Packers:	ft			
Tool Length:	62.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			4719.00	
S.I. Tool	5.00			4724.00	
Sampler	3.00			4727.00	
HMV	5.00			4732.00	
Jars	5.00			4737.00	
Safety Joint	2.00			4739.00	
Packer	5.00			4744.00	26.00 Bottom Of Top Packer
Packer	4.00			4748.00	
Stubb	1.00			4749.00	
Perforations	4.00			4753.00	
Recorder	0.00	3026	Inside	4753.00	
P.O. Sub	5.00			4758.00	
Perforations	20.00			4778.00	
Recorder	0.00	13277	Outside	4778.00	
Bullnose	2.00			4780.00	36.00 Bottom Packers & Anchor

Total Tool Length: 62.00



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FLUID SUMMARY

Anadarko Petroleum C

HJV Winter A-2

P.O. Box 351
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1-28S-34W Haskell KS

Job Ticket: 13511

DST#: 1

ATTN: Jeff Zoller

Test Start: 2001.02.24 @ 18:30:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API: -999999 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity: 12000 ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbl

Water Loss: 9.16

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	Drig mud 100%	0.197
182.00	30% water 70% mud	0.895
516.00	10% gas 90% salt water	5.034

Total Length: 738.00 ft Total Volume: 6.130 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #: 3026

Laboratory Name: Caraw ay

Laboratory Location: Liberal KS

Recovery Comments: RW=.660 @ 55 deg. 12000 Chlorides

Sampler Data: 12.1 cu ft gas



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DRILL STEM TEST REPORT

GAS RATES

Anadarko Petroleum C

HJV Winter A-2

P.O. Box 351
Liberal, KS 67905

1-28S-34W Haskell KS

Job Ticket: 13511

DST#: 1

ATTN: Jeff Zoller

Test Start: 2001.02.24 @ 18:30:00

Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (kPaa)	Gas Rate (Mcf/d)
2	5	0.50	2.00	110.63
2	5	0.50	2.00	110.63
2	10	0.50	3.00	117.38
2	15	0.50	3.50	120.75
2	20	0.50	4.00	124.12
2	25	0.50	6.00	137.61
2	30	0.50	7.00	144.36
2	35	0.50	8.00	151.10
2	40	0.50	10.00	164.59
2	45	0.50	8.00	151.10
2	50	0.50	5.00	130.87
2	55	0.50	3.00	117.38

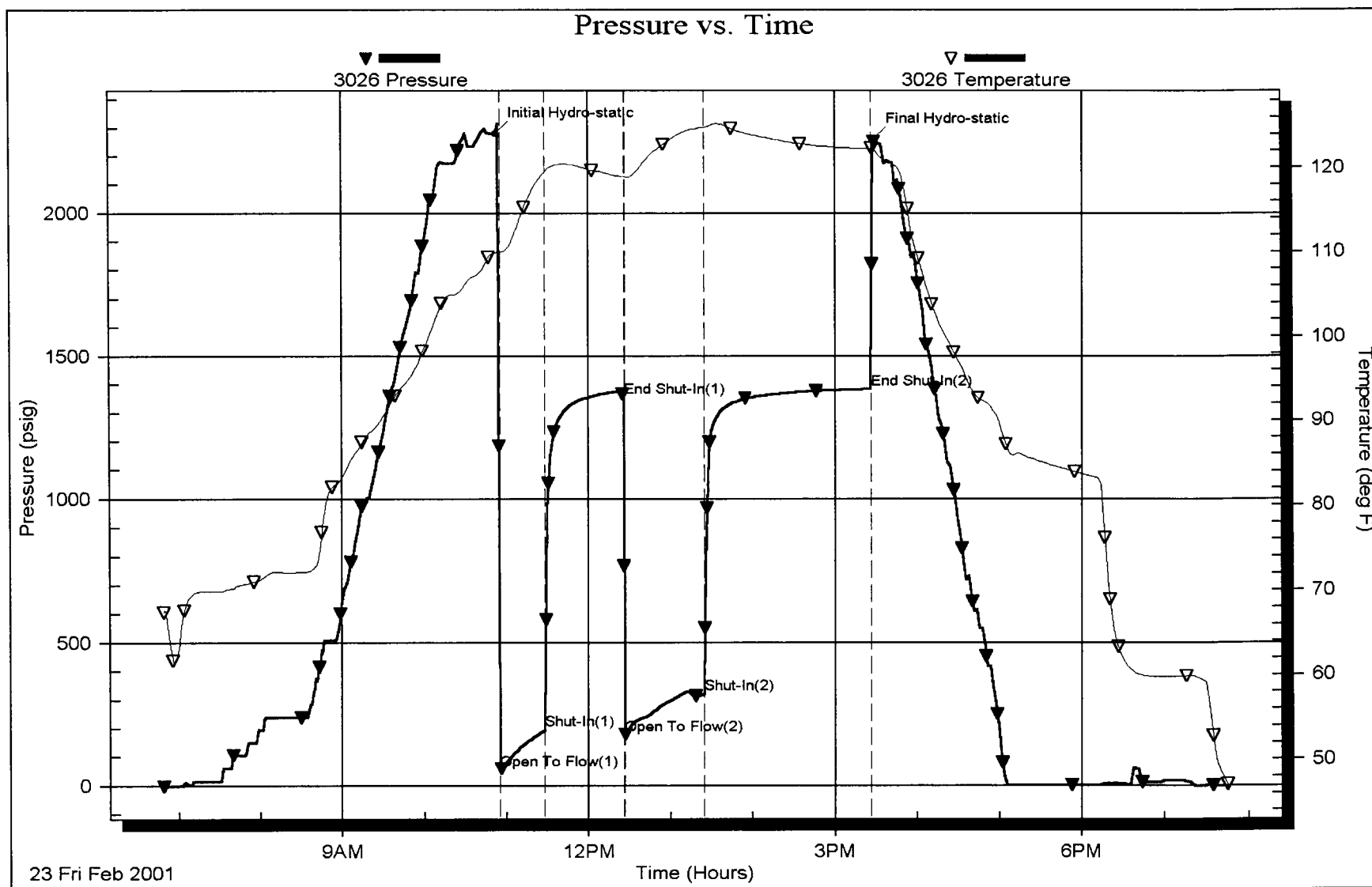
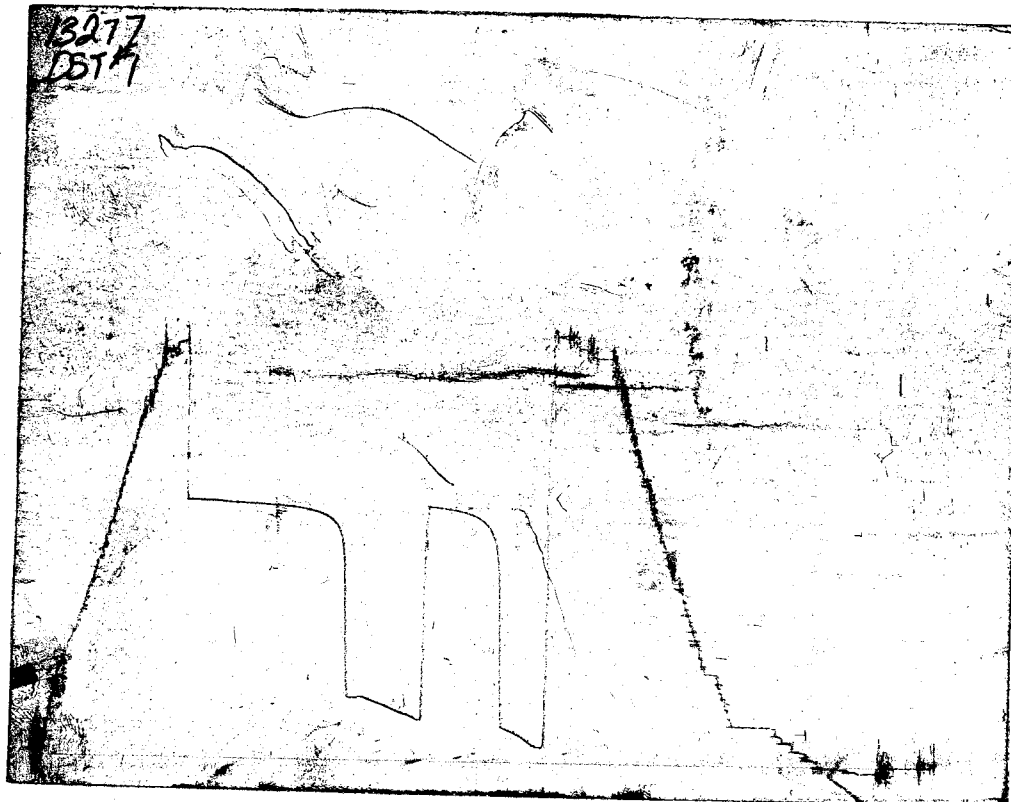


CHART PAGE



This is a photocopy of the actual AK-1 recorder chart

TRILOBITE TESTING L.L.C.

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 135U Date 2-24-01
Company Name Anadarko
Lease HSV Winter A-2 Test No. 1
County Haskell Sec. 1 Twp. 28S Rng. 34W

SAMPLER RECOVERY

Gas 12.1 Cubic Ft. ML
Oil _____ ML
Mud _____ ML
Water _____ ML
Other _____ ML
Pressure _____ PSI
Total _____ ML

PIT MUD ANALYSIS

Chlorides _____ ppm.
Resistivity _____ ohms @ _____ F
Viscosity _____
Mud Weight _____
Filtrate _____
Other _____

SAMPLER ANALYSIS

Resistivity .660 ohms @ 53 F
Chlorides 12000 ppm.
Gravity _____ corrected @ 60 F

PIPE RECOVERY

TOP
Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.
MIDDLE
Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.
BOTTOM
Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.



GAS VOLUME REPORT

HSV Winter A-2

OPERATOR

WELL NAME AND NO.

DST NO.

Remarks:

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Nº 13511

Test Ticket

Well Name & No. <u>HSV Winter A-2</u>	Test No. <u>1</u>	Date <u>02-23-01</u>
Company <u>ANADARKO Petroleum Co.</u>	Zone Tested <u>MARMADON</u>	
Address <u>P.O. Box 351 Liberal KS 67905</u>	Elevation <u>3051</u>	KB <u>3040</u> GL
Co. Rep / Geo. <u>Self Zoller</u>	Cont. <u>Big A Rig #2</u>	Est. Ft. of Pay <u>8</u> Por. <u>15</u> %
Location: Sec. <u>1</u> Twp. <u>28S</u> Rge. <u>34W</u>	Co. <u>Haskell</u>	State <u>KS</u>
No. of Copies _____	Distribution Sheet (Y, N) _____	Turnkey (Y, N) _____
	Evaluation (Y, N) _____	

Interval Tested 4748' - 4780' Initial Str Wt./Lbs. 68000 Unseated Str Wt./Lbs. 22000
 Anchor Length 32' Wt. Set Lbs. 30000 Wt. Pulled Loose/Lbs. 75000
 Top Packer Depth 4743' Tool Weight 1800
 Bottom Packer Depth 4748' Hole Size — 7 7/8" ☒ Rubber Size — 6 3/4" ☒
 Total Depth 4780' Wt. Pipe Run N/A Drill Collar Run 464' 55 lbs
 Mud Wt. 9.15 LCM 6 Vis. 46 WL 9.2 Drill Pipe Size 4.5X-0 Ft. Run 4163' 435 lbs
 Blow Description 1st opening - Strong blow B.O.B 45 sec. Had torque.
ISI - Blow back built to 7"
2nd opening - Strong blow B.O.B AS soon AS open GAS TO SURFACE AS soon AS open
ISI - No Blow back

Recovery — Total Feet	GIP	Ft. in DC	Ft. in DP
Rec. <u>40'</u>	Feet Of <u>DRG Mud</u>	%gas _____ %oil _____	%water <u>100</u> %mud _____
Rec. <u>182'</u>	Feet Of <u>WATERY mud</u>	%gas _____ %oil _____	%water <u>30</u> %mud <u>70</u>
Rec. <u>516'</u>	Feet Of <u>GASSEY SALT WATER</u>	%gas <u>10</u> %oil _____	%water <u>90</u> %mud _____
Rec. _____	Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____	Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____

BHT _____ °F Gravity _____ °API D@ _____ °F Corrected Gravity _____ °API
 RW 1600 @ 55 °F Chlorides 12000 ppm Recovery Chlorides 1000 ppm System

	AK-1	Alpine	PSI Recorder No.	T-On Location
(A) Initial Hydrostatic Mud	<u>2339</u>		<u>3026</u>	<u>4:00 pm</u>
(B) First Initial Flow Pressure	<u>108</u>			T-Started <u>10:30 pm</u>
(C) First Final Flow Pressure	<u>205</u>		<u>13277</u>	T-Open <u>10:55 pm</u>
(D) Initial Shut-In Pressure	<u>1356</u>			T-Pulled <u>3:25 AM</u>
(E) Second Initial Flow Pressure	<u>226</u>			T-Out <u>7:45 AM</u>
(F) Second Final Flow Pressure	<u>367</u>			T-Off Location _____
(G) Final Shut-in Pressure	<u>1377</u>		PSI Initial Opening <u>30</u>	Test ☒ Conventional <u>1800</u>
(Q) Final Hydrostatic Mud	<u>2308</u>		PSI Initial Shut-in <u>60</u>	Jars ☒ <u>200</u>
			Final Flow <u>160</u>	Safety Joint ☒ <u>50</u>
			Final Shut-in <u>120</u>	Straddle _____

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Approved By _____

Our Representative Blake Wallace

14:45
9
5:45
4 @ 30-120
1.3/4 @ 60 105
125

Circ. Sub ☒
 Sampler ☒ 200
 Extra Packer _____
 Elec. Rec. ☒ 150
 Mileage 1 \$80.00
 Other Syd by \$470.225
 TOTAL PRICE \$ 1705

Caraway Analytical, Inc.
728 N. Roosevelt
P. O. Box 2137
Liberal, Kansas 67905
rcaraway@bigfoot.com

Phone 620-624-5389
Fax 620-626-7108

Fractional Analysis

Components		Mol %	GPM	Date Run	02/26/2001
				Lab Number	20010986
				Company	APC
				Producer	APC Winter
				Lease	HJV Winter A-2
				Station	000000
				Pressure	-----
				Temperature	-----
				Cylinder No.	-----
				Analysis by	Robert Caraway
				Sampled by	Trilobite Testing
				Sample Date	-----
				Received	02/25/2001
				Location	1-28-34 Hs
				H2S	-----
Totals		100.0000	12.6900		

Gasoline Content @ 14.65 psia & 60 F

		Remarks
Propane & Heavier	2.2908	DST 1
Butane & Heavier	1.0756	
Pentane & Heavier	0.4332	

BTU @ 14.65 psia & 60 F (Real)

		Results to
Dry	858.7	Anadarko Petroleum Corp.
Saturated	843.7	Liberal, Kansas
Z-Factor	0.9979	Att: Dale Fiorini/Pat Rich

Specific Gravity	0.8112
Octane Rating	81.9