

DRILL STEM TEST REPORT

Prepared For: **Chesapeake Operating Inc**

P O Box 18496
Oklahoma City Ok 73154-0496

ATTN: Jim Gowens

27-32s-19w Comanche

Pierce #2-27

Start Date: 2001.05.16 @ 01:47:17

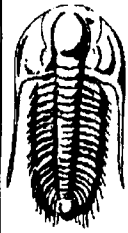
End Date: 2001.05.16 @ 11:48:46

Job Ticket #: 14663 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

Chesapeake Operating Inc
P O Box 18496
Oklahoma City OK 73154-0496
ATTN: Jim Gowens

Pierce #2-27
27-32s-19w Comanche
Job Ticket: 14663 **DST#: 1**
Test Start: 2001.05.16 @ 01:47:17

GENERAL INFORMATION:

Formation: **Altamont**
Deviated: **No Whipstock:** ft (KB)
Time Tool Opened: 05:04:46
Time Test Ended: 11:48:46
Interval: **4924.00 ft (KB) To 4955.00 ft (KB) (TVD)**
Total Depth: **4955.00 ft (KB) (TVD)**
Hole Diameter: **7.85 inches** Hole Condition: Fair
Test Type: **Conventional Bottom Hole**
Tester: **Ray Schwager**
Unit No: **16**
Reference Elevations: **1976.00 ft (KB)**
1965.00 ft (CF)
KB to GR/CF: **11.00 ft**

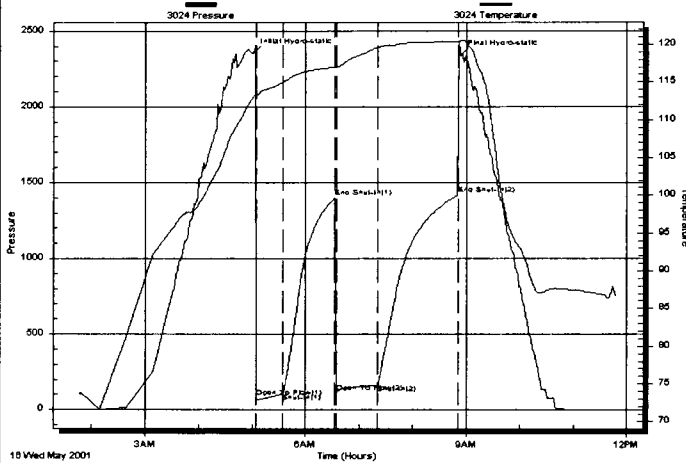
Serial #: 3024

Inside

Press@RunDepth: **162.16 psig @ 4925.01 ft (KB)** Capacity: **7000.00 psig**
Start Date: **2001.05.16** End Date: **2001.05.16** Last Calib.: **2001.05.16**
Start Time: **01:47:17** End Time: **11:48:46** Time On Btm: **2001.05.16 @ 05:01:46**
Time Off Btm: **2001.05.16 @ 08:54:16**

TEST COMMENT: IFP-str bl throughout FFP-str bl gas in 30 min to weak to gauge times 30-60-45-90

Pressure vs. Time



PRESSURE SUMMARY

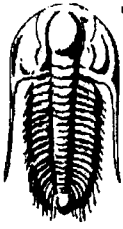
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2355.73	113.14	Initial Hydro-static
3	76.17	113.34	Open To Flow (1)
33	104.33	115.06	Shut-In(1)
91	1401.31	117.00	End Shut-In(1)
93	109.13	117.03	Open To Flow (2)
139	162.16	119.60	Shut-In(2)
229	1417.45	120.41	End Shut-In(2)
233	2339.19	120.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCWM 25%g 2%o 33%w 40%m	0.30
180.00	GMO 70%gas 25%oil 5%mud	1.16
90.00	GOCM 50%g 10%o 40%m	1.26
0.00	RW .07 @95F	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Chesapeake Operating Inc

Pierce #2-27

P O Box 18496
Oklahoma City Ok 73154-0496

27-32s-19w Comanche

Job Ticket: 14663

DST#: 1

ATTN: Jim Gowens

Test Start: 2001.05.16 @ 01:47:17

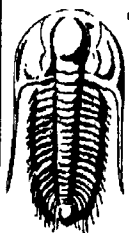
Tool Information

Drill Pipe:	Length: 4718.00 ft	Diameter: 3.80 inches	Volume: 66.18 bbl	Tool Weight: 2800.00 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: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 67.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4924.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.02 ft			
Tool Length:	59.02 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			4897.00	
S.I. Tool	5.00			4902.00	
HYD S.I. Tool	5.00			4907.00	
Jars	5.00			4912.00	
Safety Joint	2.00			4914.00	
Packer	5.00			4919.00	28.00 Bottom Of Top Packer
Packer	5.00			4924.00	
Stubb	1.00			4925.00	
Recorder	0.01	3024	Inside	4925.01	
Perforations	27.00			4952.01	
Recorder	0.01	11085	Outside	4952.02	
Bullnose	3.00			4955.02	31.02 Bottom Packers & Anchor

Total Tool Length: 59.02



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Chesapeake Operating Inc

Pierce #2-27

P O Box 18496
Oklahoma City Ok 73154-0496

27-32s-19w Comanche

Job Ticket: 14663 **DST#: 1**

ATTN: Jim Gowens

Test Start: 2001.05.16 @ 01:47:17

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: 83000 ppm

Viscosity: 48.00 sec/qt

Cushion Volume: bbl

Water Loss: 10.91 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 4000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GOCWM 25%g 2%o 33%w 40%m	0.295
180.00	GMO 70%gas 25%oil 5%mud	1.158
90.00	GOCM 50%g 10%o 40%m	1.262
0.00	RW .07 @95F	0.000

Total Length: 330.00 ft Total Volume: 2.715 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 3#LCM

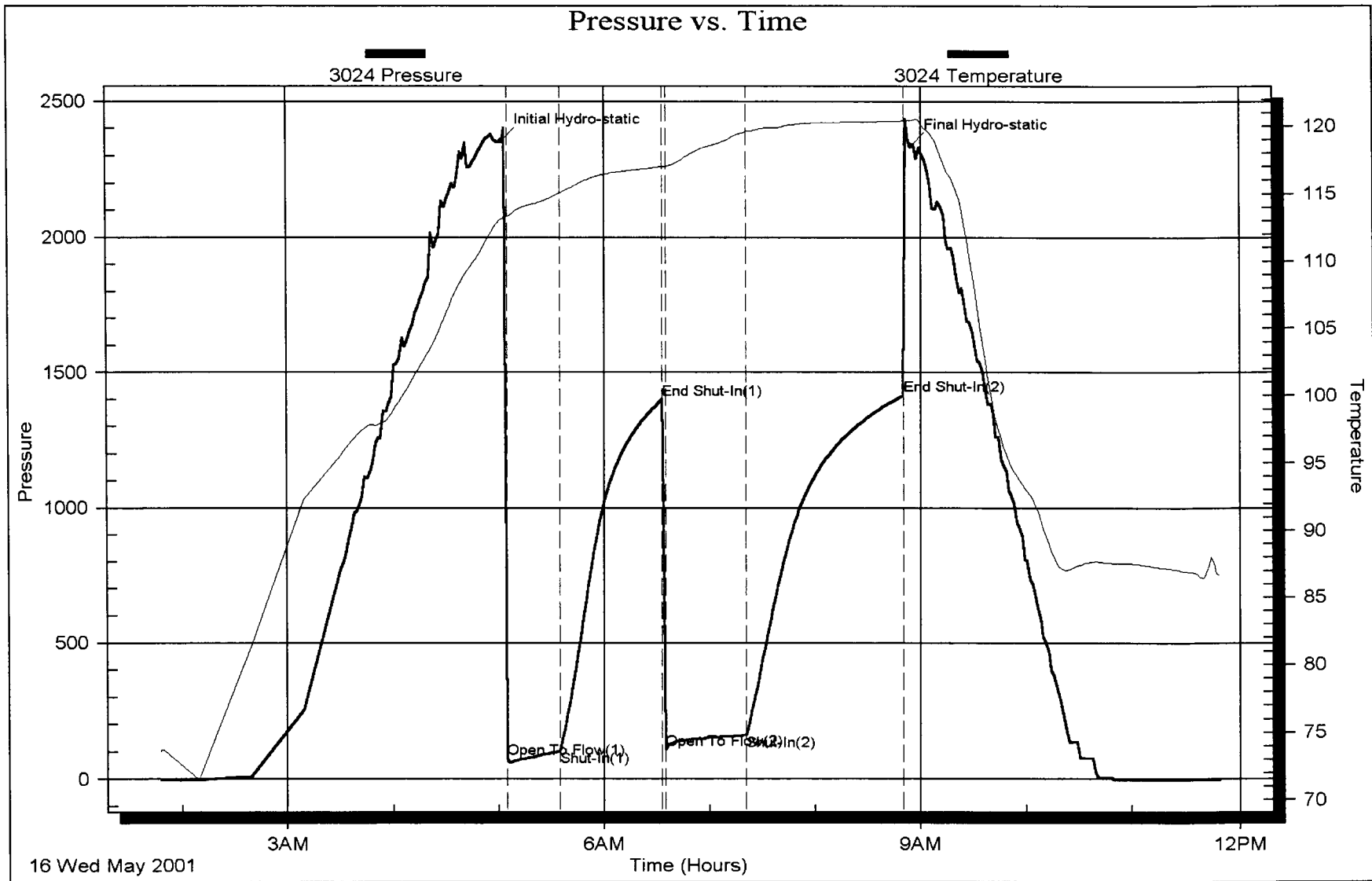
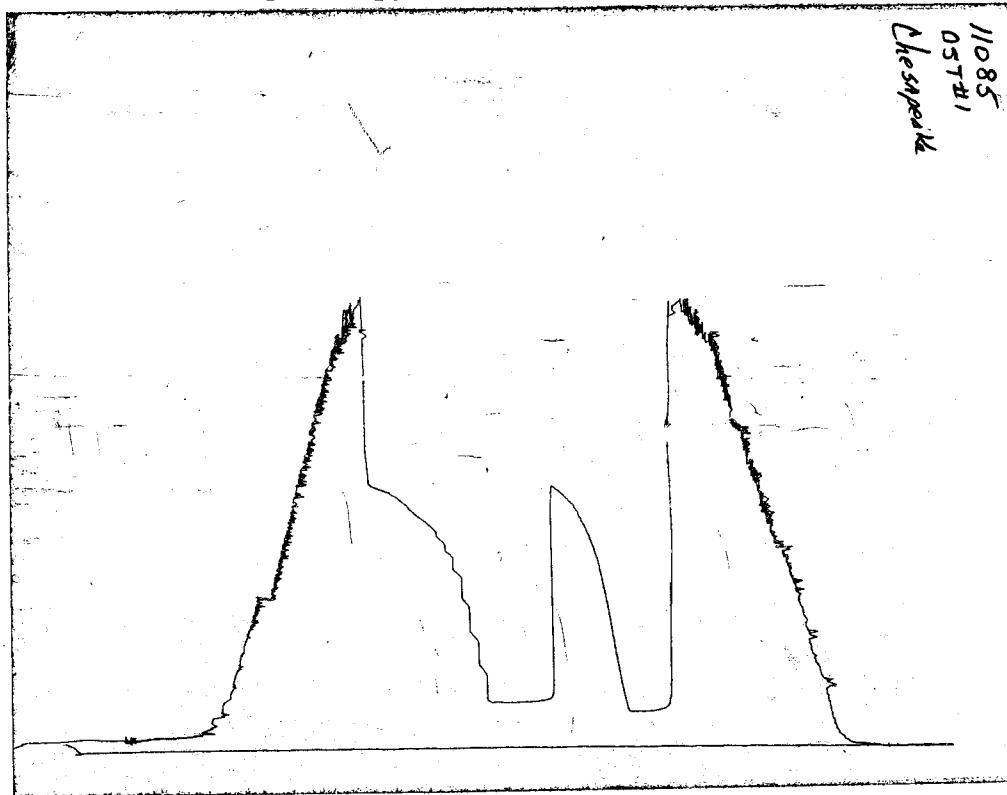
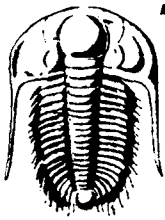


CHART PAGE

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





TRILOBITE TESTING INC.

P.O. Box 362 • Hays, Kansas 67601

No 14663

Test Ticket

Well Name & No. Pierce #2-27 Test No. 1 Date 5-16-01
 Company Chesapeake Operating, Inc Zone Tested ALTAMONT
 Address P.O. Box 18496 OKLA CITY, OK. 73154-0496 Elevation 1976 KB 1965 GL
 Co. Rep / Geo. Wes Hansen Cont. MURFIN r1920 Est. Ft. of Pay - Por. - %
 Location: Sec. 27 Twp. 32^s Rge. 19^w Co. Comanche State Ko
 No. of Copies Reg Distribution Sheet (Y, N) - Turnkey (Y, N) - Evaluation (Y, N) -

Interval Tested 4924-4955 Initial Str Wt./Lbs. 7000 Unseated Str Wt./Lbs. 74000
 Anchor Length 31 Wt. Set Lbs. 25000 Wt. Pulled Loose/Lbs. 80000
 Top Packer Depth 4919 Tool Weight 2800
 Bottom Packer Depth 4924 Hole Size — 7 7/8" yes Rubber Size — 6 3/4" yes
 Total Depth 4955 Wt. Pipe Run - Drill Collar Run 210
 Mud Wt. 9 LCM 3# Vis. 48 WL 11 Drill Pipe Size 4 1/2 XH Ft. Run 4718
 Blow Description IFP - STRONG BLOW THROUGHOUT
FFP - STRONG BLOW GAS IN 30 MIN TO WEAK TO GAUGE

Recovery — Total Feet 330 GIP _____ Ft. in DC 210 Ft. in DP 120
 Rec. 90 Feet Of GOCM 50 %gas 10 %oil %water 40 %mud
 Rec. 180 Feet Of GMO 70 %gas 25 %oil %water 5 %mud
 Rec. 60 Feet Of GOCWM 25 %gas 2 %oil 33 %water 40 %mud
 Rec. _____ Feet Of _____ %gas %oil %water %mud
 Rec. _____ Feet Of _____ %gas %oil %water %mud
 BHT 120 °F Gravity - °API D@ _____ °F Corrected Gravity _____ °API
 RW .07 @ 95 °F Chlorides 83000 ppm Recovery Chlorides 4000 ppm System

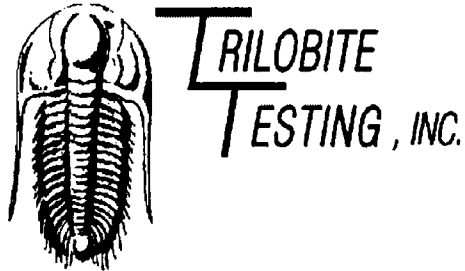
	AK-1	Alpine	PSI	Recorder No.	T-On Location
(A) Initial Hydrostatic Mud		<u>2355</u>		<u>3024</u>	<u>0000</u>
(B) First Initial Flow Pressure		<u>76</u>		(depth) <u>4925</u>	T-Started <u>0143</u>
(C) First Final Flow Pressure		<u>104</u>		Recorder No. <u>11085</u>	T-Open <u>0500</u>
(D) Initial Shut-In Pressure		<u>1401</u>		(depth) <u>4952</u>	T-Pulled <u>0845</u>
(E) Second Initial Flow Pressure		<u>109</u>		Recorder No. <u>-</u>	T-Out <u>1145</u>
(F) Second Final Flow Pressure		<u>162</u>		(depth) <u>-</u>	T-Off Location <u>1230</u>
(G) Final Shut-in Pressure		<u>1417</u>		Initial Opening <u>30</u>	Test <input checked="" type="checkbox"/> <u>800</u>
(Q) Final Hydrostatic Mud		<u>2339</u>		Initial Shut-in <u>60</u>	Jars <input checked="" type="checkbox"/> <u>200</u>
				Final Flow <u>45</u>	Safety Joint <input checked="" type="checkbox"/> <u>50</u>
				Final Shut-in <u>90</u>	Straddle _____

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Approved By Wesley Hansen

Our Representative RAY SCHWAGER THANK YOU

11:45
 Mileage 65
 Other 2 hrs 60
 TOTAL PRICE \$ 1325



DRILL STEM TEST REPORT

Prepared For: **Chesapeake Operating Inc**

P O Box 18496
Oklahoma City Ok 73154-0496

ATTN: Jim Gowens

27-32s-19w Comanche

Pierce #2-27

Start Date: 2001.05.17 @ 13:24:47

End Date: 2001.05.17 @ 22:54:46

Job Ticket #: 14664 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Chesapeake Operating Inc

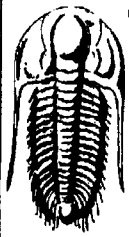
Pierce #2-27

27-32s-19w Comanche

DST # 2

Mississippi

2001.05.17



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Chesapeake Operating Inc
P O Box 18496
Oklahoma City Ok 73154-0496
ATTN: Jim Gowens

Pierce #2-27
27-32s-19w Comanche
Job Ticket: 14664 **DST#: 2**
Test Start: 2001.05.17 @ 13:24:47

GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:07:46
Time Test Ended: 22:54:46
Interval: **5063.00 ft (KB) To 5170.00 ft (KB) (TVD)**
Total Depth: 4955.00 ft (KB) (TVD)
Hole Diameter: 7.85 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole
Tester: Ray Schwager
Unit No: 16
Reference Elevations: 1976.00 ft (KB)
1965.00 ft (CF)
KB to GR/CF: 11.00 ft

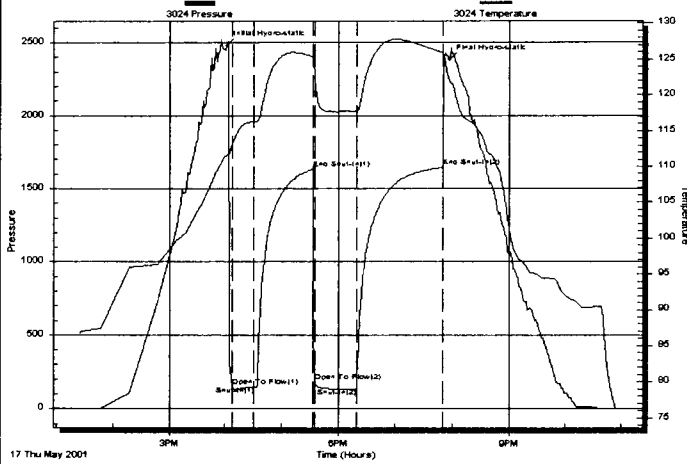
Serial #: 3024

Inside

Press@RunDepth: 133.06 psig @ 5064.01 ft (KB) Capacity: 7000.00 psig
Start Date: 2001.05.17 End Date: 2001.05.17 Last Calib.: 2001.05.17
Start Time: 13:24:47 End Time: 22:54:46 Time On Btm: 2001.05.17 @ 16:01:46
Time Off Btm: 2001.05.17 @ 19:57:16

TEST COMMENT: IFP-str bl GTS in 5min FFP-GTS
times 30-60-45-90

Pressure vs. Time



PRESSURE SUMMARY

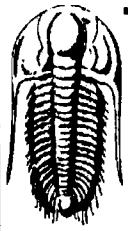
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2481.02	111.63	Initial Hydro-static
6	145.84	113.32	Open To Flow (1)
30	145.50	116.31	Shut-In(1)
91	1630.70	125.40	End Shut-In(1)
94	178.13	122.31	Open To Flow (2)
138	133.06	117.81	Shut-In(2)
228	1643.52	125.98	End Shut-In(2)
236	2383.17	121.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
305.00	GCM 30%gas 70%mud	2.37

Gas Rates

	Choke(inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.50	14.00	191.58
Last Gas Rate	0.50	22.00	245.54
Max. Gas Rate	0.50	38.00	353.47



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Chesapeake Operating Inc
P O Box 18496
Oklahoma City Ok 73154-0496
ATTN: Jim Gowens

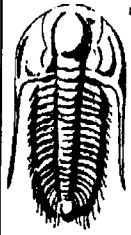
Pierce #2-27
27-32s-19w Comanche
Job Ticket: 14664 DST#: 2
Test Start: 2001.05.17 @ 13:24:47

Tool Information

Drill Pipe:	Length: 4846.00 ft	Diameter: 3.80 inches	Volume: 67.98 bbl	Tool Weight: 2800.00 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: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 69.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	5063.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	107.02 ft			
Tool Length:	135.02 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			5036.00	
S.I. Tool	5.00			5041.00	
HYD S.I. Tool	5.00			5046.00	
Jars	5.00			5051.00	
Safety Joint	2.00			5053.00	
Packer	5.00			5058.00	28.00 Bottom Of Top Packer
Packer	5.00			5063.00	
Stubb	1.00			5064.00	
Recorder	0.01	3024	Inside	5064.01	
Perforations	10.00			5074.01	
Recorder	0.01	11085	Outside	5074.02	
C.O. Sub	1.00			5075.02	
Blank Spacing	62.00			5137.02	
C.O. Sub	1.00			5138.02	
Perforations	29.00			5167.02	
Bullnose	3.00			5170.02	107.02 Bottom Packers & Anchor
Total Tool Length:	135.02				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Chesapeake Operating Inc
P O Box 18496
Oklahoma City Ok 73154-0496
ATTN: Jim Gowens

Pierce #2-27
27-32s-19w Comanche
Job Ticket: 14664 **DST#: 2**
Test Start: 2001.05.17 @ 13:24:47

Mud and Cushion Information

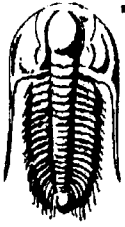
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.33 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6400.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
305.00	GCM 30%gas 70%mud	2.365

Total Length: 305.00 ft Total Volume: 2.365 bbl
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

GAS RATES

Chesapeake Operating Inc

Pierce #2-27

P O Box 18496
Oklahoma City Ok 73154-0496

27-32s-19w Comanche

Job Ticket: 14664

DST#: 2

ATTN: Jim Gow ens

Test Start: 2001.05.17 @ 13:24:47

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)
1	10	0.50	14.00	191.58
1	20	0.50	21.00	238.80
1	30	0.50	22.00	245.54
2	10	0.50	38.00	353.47
2	20	0.50	30.00	299.51
2	30	0.50	24.00	259.04
2	40	0.50	22.00	245.54
2	45	0.50	22.00	245.54

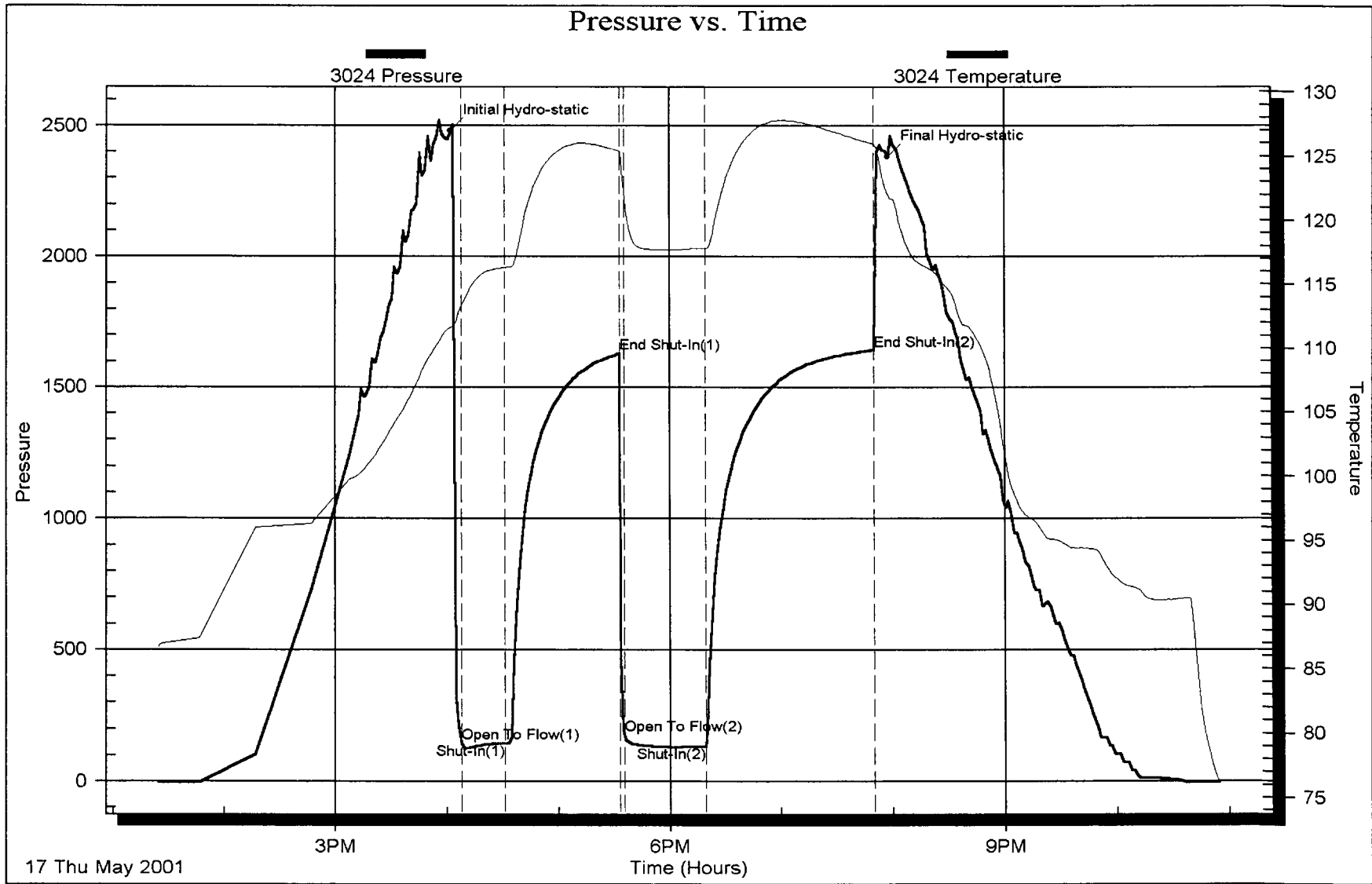
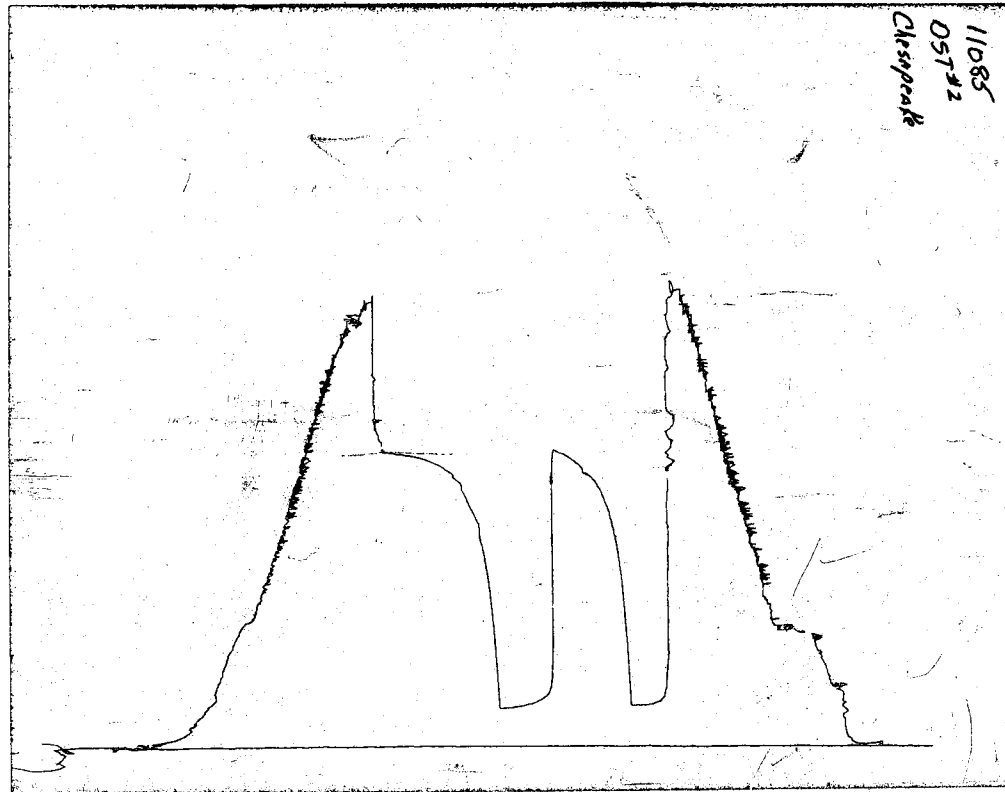
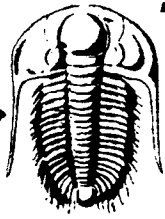


CHART PAGE

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





TRILOBITE TESTING INC.

P.O. Box 362 • Hays, Kansas 67601

No 14664

Test Ticket

Well Name & No. Pierce #2-27 Test No. 2 Date 5-17-01
 Company Chesapeake Operating, Inc Zone Tested Miss
 Address P.O. Box 18496 OKLA CITY, OK 73154-0496 Elevation 1976 KB 1965 GL
 Co. Rep / Geo. Wes Hansen Cont. Murfin rig 20 Est. Ft. of Pay - Por. - %
 Location: Sec. 27 Twp. 32^s Rge. 19^w Co. Comanche State OK
 No. of Copies Reg Distribution Sheet (Y, N) - Turnkey (Y, N) - Evaluation (Y, N) -

Interval Tested 5063-5170 Initial Str Wt./Lbs. 74000 Unseated Str Wt./Lbs. 74000
 Anchor Length 107 Wt. Set Lbs. 25000 Wt. Pulled Loose/Lbs. 100000
 Top Packer Depth 5058 Tool Weight 2800
 Bottom Packer Depth 5063 Hole Size — 7 7/8" yes Rubber Size — 6 3/4" yes
 Total Depth 5170 Wt. Pipe Run - Drill Collar Run 210
 Mud Wt. 9 LCM 4# Vis. 47 WL 10.4 Drill Pipe Size 4 1/2 X 11 Ft. Run 4846
 Blow Description IFP - Strong Blow GTS in 5 min
FFP - Strong Blow GTS

Recovery — Total Feet 305 GIP - Ft. in DC 210 Ft. in DP 95
 Rec. 305 Feet Of GCM 30 %gas %oil %water 70 %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
 BHT 125 °F Gravity - °API D@ - °F Corrected Gravity - °API
 RW - @ - °F Chlorides - ppm Recovery Chlorides 6400 ppm System

	AK-1	Alpine	PSI Recorder No.	T-On Location
(A) Initial Hydrostatic Mud	<u>2481</u>	<u>3024</u>	<u>1230</u>	
(B) First Initial Flow Pressure	<u>145</u>	(depth) <u>5064</u>	T-Started <u>1325</u>	
(C) First Final Flow Pressure	<u>145</u>	PSI Recorder No. <u>11085</u>	T-Open <u>1601</u>	<u>10:20</u>
(D) Initial Shut-In Pressure	<u>1630</u>	(depth) <u>5074</u>	T-Pulled <u>1946</u>	
(E) Second Initial Flow Pressure	<u>178</u>	PSI Recorder No. <u>-</u>	T-Out <u>2250</u>	
(F) Second Final Flow Pressure	<u>133</u>	(depth) <u>-</u>	T-Off Location <u>2350</u>	
(G) Final Shut-in Pressure	<u>1643</u>	PSI Initial Opening <u>30</u>	Test <u>900</u>	
(Q) Final Hydrostatic Mud	<u>2383</u>	PSI Initial Shut-in <u>60</u>	Jars <u>200</u>	
		Final Flow <u>45</u>	Safety Joint <u>50</u>	
		Final Shut-in <u>90</u>	Straddle <u>-</u>	

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Approved By Wesley Hansen

Our Representative Ray Schwager Thank you

Extra Packer -
 Elec. Rec 150
 Mileage 5
 Other -
 TOTAL PRICE \$ 1305

NATURAL GAS ANALYSIS REPORT

Sampled by:

Trilobite Testing, L. L. C.
 Hays, Kansas
 Scott City, Kansas
 Phone: 800-728-5369
 Fax: 785-625-5620

Analyzed by:

Caraway Analytical, Inc
 P. O. Box 2137
 Liberal, Kansas 67905
 Phone: 620-624-5389
 Fax: 620-626-7108

Lab Number: 20012350	Analyzed: 05/21/01
-----------------------------	---------------------------

Sample From: Pierce 2-27 DST 2	Pressure:
Producer: Chesapeake Operating	Temperature:

Date: 27-32-19	Location:
-----------------------	------------------

Time:	County:	Comanche
Sampler:	State:	Kansas
Source:	Formation:	Miss

	Mole %	GPM
Helium	He: 0.080	0.000
Hydrogen	H2: 0.006	0.000
Oxygen	O2: 0.000	0.000
Nitrogen	N2: 1.040	0.000
Carbon Dioxide	CO2: 0.099	0.000
Methane	C1: 94.261	0.000
Ethane	C2: 2.725	0.729
Propane	C3: 0.943	0.260
Iso Butane	iC4: 0.146	0.048
Normal Butane	nC4: 0.287	0.090
Iso Pentane	iC5: 0.092	0.034
Normal Pentane	nC5: 0.092	0.033
Hexanes Plus	C6+: 0.229	0.100

TOTAL: 100.000 1.294

Z Fact: 0.9978

SP.GR.: 0.5987

BTU (SAT): 1043.5 @ 14.73 psia

BTU (DRY): 1062.0 @ 14.73 psia

OCTANE RATING: 126.8

COMMENTS:

0.000