

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name HARRIS A-1 Test No. 1 Date 10/27/93
Company CHARTER PRODUCTION COMPANY Zone KS CITY
Address 224 EAST DOUGLAS #400 WICHITA KS 67202 Elevation 2896
Co. Rep./Geo. CHARLES R. SCHMALTZ Cont. ZENITH DRLG RIG #6 Est. Ft. of Pay 11
Location: Sec. 33 Twp. 33S Rge. 31W Co. SEWARD State KS

Interval Tested 4902-4975 Drill Pipe Size 4.5" XH
Anchor Length 73 Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth 4897 Drill Collar - 2.25 Ft. Run 553/4" H-90
Bottom Packer Depth 4902 Mud Wt. 8.9 lb/Gal.
Total Depth 4975 Viscosity 48 Filtrate 7.6

Tool Open @ 4:12 AM Initial Blow SURFACE BLOW TO 7.25" IN 30 MINUTES

Final Blow SURFACE BLOW TO 6 3/4" IN 60 MINUTES

Recovery - Total Feet 410 Flush Tool? NO

Rec. 290 Feet of SLTLY GSY OIL STAINED MUD
Rec. 120 Feet of SLTLY GSY OIL STAINED MUDDY WTR-85%WTR/15%MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 116 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.13 @ 70 °F Chlorides 55000 ppm Recovery Chlorides 2200 ppm System

(A) Initial Hydrostatic Mud 2411.2 PSI AK1 Recorder No. 11057 Range 4500

(B) First Initial Flow Pressure 73.4 PSI @ (depth) 4905 w / Clock No. 27566

(C) First Final Flow Pressure 125.6 PSI AK1 Recorder No. 13308 Range 4700

(D) Initial Shut-in Pressure 1444.5 PSI @ (depth) 4970 w / Clock No. 17652

(E) Second Initial Flow Pressure 137.8 PSI AK1 Recorder No. _____ Range _____

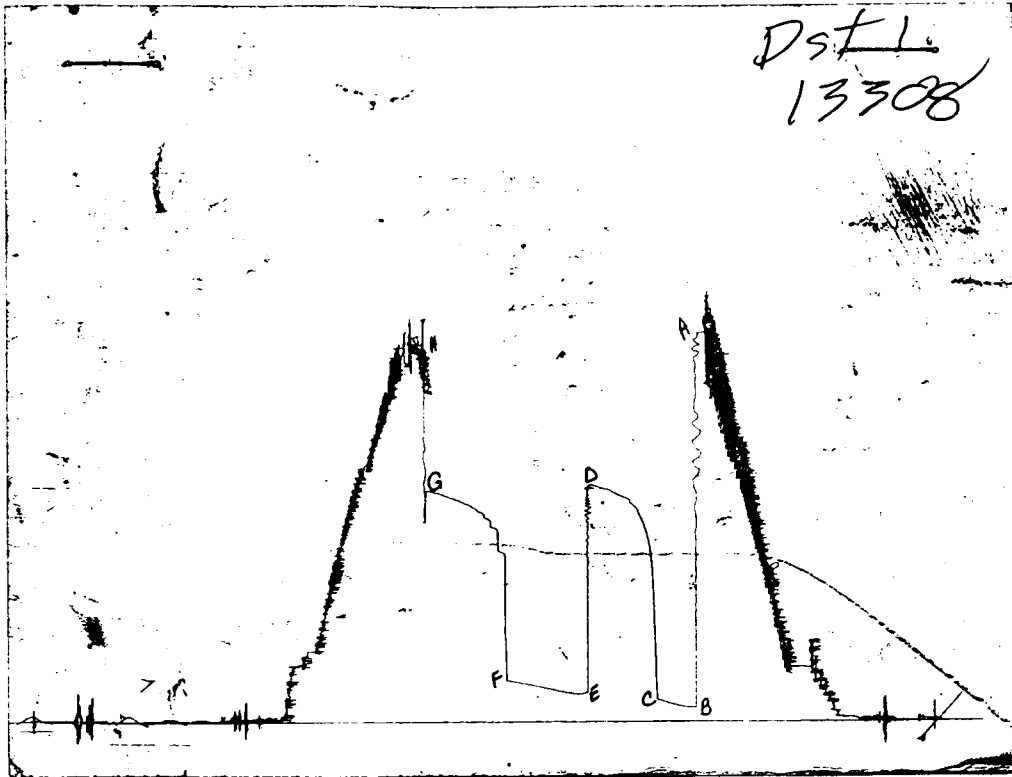
(F) Second Final Flow Pressure 241.2 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1418.9 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2366.7 PSI Initial Shut-in 60 Final Shut-in 60

Our Representative MARK HERSKOWITZ

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
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(A) INITIAL HYDROSTATIC MUD	2401	2411.2
(B) FIRST INITIAL FLOW PRESSURE	72	73.4
(C) FIRST FINAL FLOW PRESSURE	121	125.6
(D) INITIAL CLOSED-IN PRESSURE	1441	1444.5
(E) SECOND INITIAL FLOW PRESSURE	133	137.8
(F) SECOND FINAL FLOW PRESSURE	240	241.2
(G) FINAL CLOSED-IN PRESSURE	1417	1418.9
(H) FINAL HYDROSTATIC MUD	2365	2366.7

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 6777

Well Name & No. <u>HARRIS 'A' I II</u>	Test No. <u>1</u>	Date <u>10-27-93</u>
Company <u>CHARTER PROD COMP</u>	Zone Tested <u>'K6'</u>	
Address <u>224 E Douglas St 400 Wichita</u>	Elevation <u>2896 #P</u>	
Co. Rep./Geo. <u>Chuck Schmalz</u>	Cont. <u>ZENITH ARG L</u>	Est. Ft. of Pay <u>11</u>
Location: Sec. <u>33</u> Twp. <u>33S</u> Rge. <u>31W</u>	Co. <u>SEWARD</u>	State <u>KS</u>
No. of Copies <u>10</u>	Distribution Sheet <u>Yes</u>	Turnkey <u>Yes</u> Evaluation <u>No</u>

Interval Tested 4902 - 4975 Drill Pipe Size 4 1/2 X H
 Anchor Length 73 Top Choke — 1" Bottom Choke — 3/4"
 Top Packer Depth 4897 Hole Size — 7 7/8" Rubber Size — 6 3/4"
 Bottom Packer Depth 4902 Wt. Pipe I.D. — 2.7 Ft. Run
 Total Depth 4975 Drill Collar — 2.25 Ft. Run 553 4" H90
 Mud Wt. 8.9 LCM 5# lb/gal. Viscosity 48 Filtrate 70
 Tool Open @ 4:12 AM Initial Blow SUR to 7 1/4" IN 30 MIN

Final Blow SUR to 6 3/4" IN 60 MIN

Recovery — Total Feet	Feet of Gas In Pipe	Flush Tool?
Rec. <u>290</u> Feet Of <u>SGOS Mud TR</u> %gas <u>TR</u> %oil <u>TR</u> %water <u>100</u> %mud		
Rec. <u>120</u> Feet Of <u>SGOS Mud WATER</u> %gas <u>TR</u> %oil <u>TR</u> %water <u>85</u> %mud		
Rec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud		
Rec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud		
Rec. _____ Feet Of _____ %gas _____ %oil _____ %water _____ %mud		

BHT 114 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
 RW 0.13 @ 70 °F Chlorides 55000 ppm Recovery Chlorides 2200 ppm System

(A) Initial Hydrostatic Mud 2401 PSI AK1 Recorder No. 11057 Range 4500
 (B) First Initial Flow Pressure 72 PSI @ (depth) 4905 w/Clock No. 27566
 (C) First Final Flow Pressure 121 PSI AK1 Recorder No. 13308 Range 4700
 (D) Initial Shut-In Pressure 1441 PSI @ (depth) 4970 w/Clock No. 17452
 (E) Second Initial Flow Pressure 133 PSI AK1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 240 PSI @ (depth) _____ w/Clock No. _____
 (G) Final Shut-In Pressure 1417 PSI Initial Opening 30 Test ✓ 600.00
 (H) Final Hydrostatic Mud 2365 PSI Initial Shut-In 60 Jars ✓ 200.00

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.

Final Flow 60 Safety Joint ✓ 50.00
 Final Shut-In 60

Approved By Chuck Schmalz

Our Representative Mark Hervey

Straddle _____
 Circ. Sub ✓ NC
 Sampler _____
 Extra Packer _____
 Other _____
 TOTAL PRICE \$ 850.00

Charter

D5+1
11057



TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name HARRIS A-1 Test No. 2 Date 10/30/93
Company CHARTER PRODUCTION COMPANY Zone MORROW
Address 224 EAST DOUGLAS #400 WICHITA KS 67202 Elevation 2690
Co. Rep./Geo. CHARLES R. SCHMALTZ Cont. ZENITH DRLG RIG #6 Est. Ft. of Pay 8
Location: Sec. 33 Twp. 33S Rge. 31W Co. SEWARD State KS

Interval Tested 5695-5763 Drill Pipe Size 4.5" XH
Anchor Length 68 Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth 5690 Drill Collar - 2.25 Ft. Run 622
Bottom Packer Depth 5695 Mud Wt. 8.9 lb/Gal.
Total Depth 5763 Viscosity 51 Filtrate 6

Tool Open @ 8:30 PM Initial Blow STRONG BLOW-BOTTOM OF BUCKET IN 30 SECONDS
GAS TO SURFACE IN 28 MINUTES-GAUGED @13.0 MCF
Final Blow BOTTOM OF BUCKET AS TOOL OPENED
GAUGED @ 14.3 MCF/DAY

Recovery - Total Feet 560 Flush Tool? NO

Rec. 560 Feet of GASSY SLTLY OIL CUT MUD-40% GAS/ 3% OIL/ 57% MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 124 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2400 ppm System

(A) Initial Hydrostatic Mud 2804.7 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 122.2 PSI @ (depth) 5699 w / Clock No. 25813

(C) First Final Flow Pressure 144.4 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 1455.3 PSI @ (depth) 5760 w / Clock No. 25814

(E) Second Initial Flow Pressure 175.4 PSI AK1 Recorder No. _____ Range _____

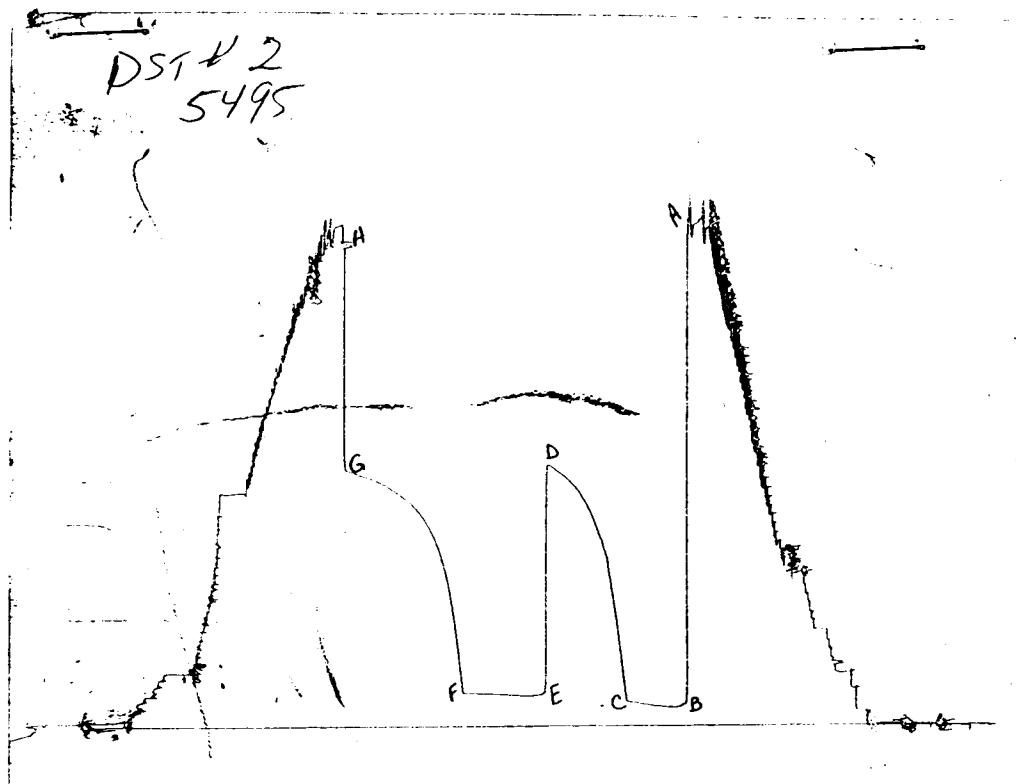
(F) Second Final Flow Pressure 189.7 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1423.6 PSI Initial Opening 45 Final Flow 60

(H) Final Hydrostatic Mud 2755.6 PSI Initial Shut-in 60 Final Shut-in 90

Our Representative TOM HORACEK

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2799	2804.7
(B) FIRST INITIAL FLOW PRESSURE	122	122.2
(C) FIRST FINAL FLOW PRESSURE	163	144.4
(D) INITIAL CLOSED-IN PRESSURE	1461	1455.3
(E) SECOND INITIAL FLOW PRESSURE	176	175.4
(F) SECOND FINAL FLOW PRESSURE	190	189.7
(G) FINAL CLOSED-IN PRESSURE	1436	1423.6
(H) FINAL HYDROSTATIC MUD	2748	2755.6

GAS VOLUME REPORT

CHARTER PRODUCTION COMPANY

HARRIS A-1

DST # 2

MIN	INCHES OF WTR	ORIFICE	MCF/D	MIN	PSIG	ORIFICE	MCF/D
30	30	0.25	9.2	10	5	0.25	20.7
35	40	0.25	10.6	20	4.5	0.25	19.5
40	50	0.25	11.9	30	4	0.25	18.5
45	60	0.25	13	40	3.5	0.25	17.1
				50	3	0.25	15.7
				60	2.5	0.25	14.3

Remarks: GAS TO SURFACE IN 28 MINUTES/GAS WILL BURN

INITIAL FLOW

RECORDER 5495

DST # 2

TIME(MIN) PRESSURE < > PRESSURE

0	122.2	122.2
3	111.1	-11.1
6	106.7	-4.4
9	104.4	-2.3
12	108.9	4.5
15	111.1	2.2
18	112.0	0.9
21	114.5	2.5
24	116.7	2.2
27	121.1	4.4
30	124.5	3.4
33	128.9	4.4
36	133.4	4.5
39	137.8	4.4
42	141.1	3.3
45	144.4	3.3

FINAL FLOW

RECORDER 5495

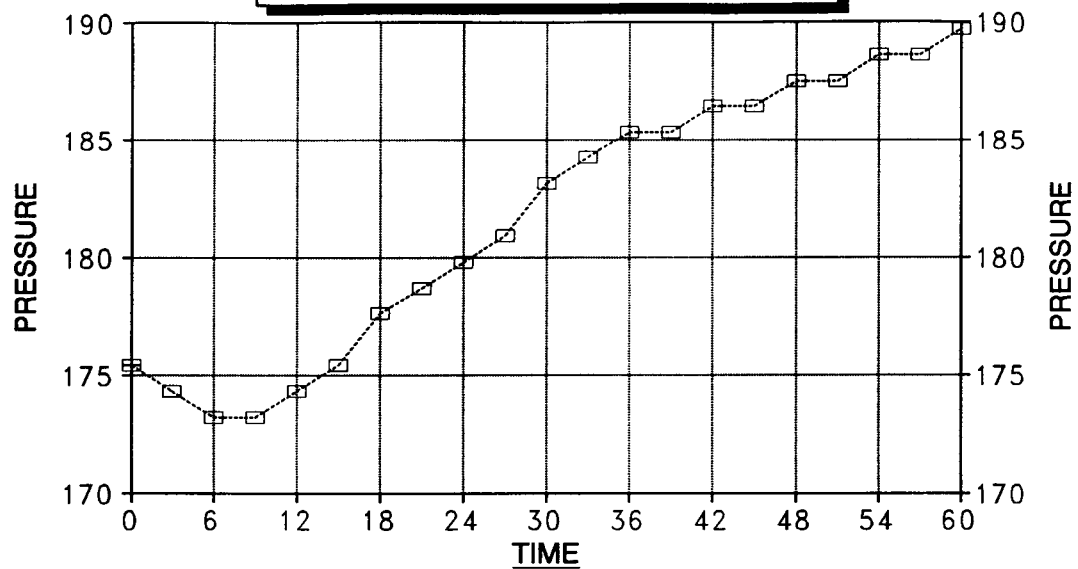
DST # 2

TIME(MIN) PRESSURE < > PRESSURE

0	175.4	175.4
3	174.3	-1.1
6	173.2	-1.1
9	173.2	0.0
12	174.3	1.1
15	175.4	1.1
18	177.6	2.2
21	178.7	1.1
24	179.8	1.1
27	180.9	1.1
30	183.1	2.2
33	184.2	1.1
36	185.3	1.1
39	185.3	0.0
42	186.4	1.1
45	186.4	0.0
48	187.5	1.1
51	187.5	0.0
54	188.6	1.1
57	188.6	0.0
60	189.7	1.1

DELTA T DELTA P

FINAL FLOW / DST #2



---□--- HARRIS A-1

HARRIS A-1
INITIAL

DST #2 SHUTIN		-----			
45	INITIAL FLOW TIME	SLOPE	1407.4	PSI/CYCLE	
		P*	1810.98	PSI	

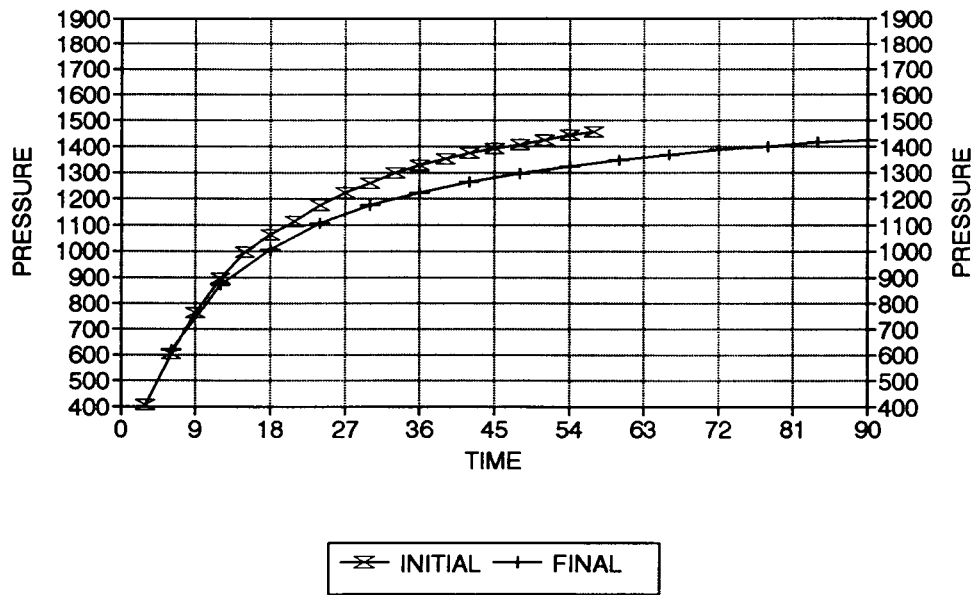
		Log <>			
TIME(MIN)	Pws (psi)	Horn T	PRESSURE	Horn T	
-----	-----	-----	-----	-----	
3	404.4	1.204	404.4	16	
6	602.6	0.929	198.2	9	
9	760.8	0.778	158.2	6	
12	894.2	0.677	133.4	5	
15	994.6	0.602	100.4	4	
18	1061.2	0.544	66.6	4	
21	1113.0	0.497	51.8	3	
24	1173.1	0.459	60.1	3	
27	1220.7	0.426	47.6	3	
30	1258.7	0.398	38.0	3	
33	1296.8	0.374	38.1	2	
36	1326.4	0.352	29.6	2	
39	1349.6	0.333	23.2	2	
42	1372.9	0.316	23.3	2	
45	1391.9	0.301	19.0	2	
48	1405.6	0.287	13.7	2	
51	1423.6	0.275	18.0	2	
X 54	1440.5	0.263	16.9	2	
X 57	1455.3	0.253	14.8	2	

HARRIS A-1
FINAL

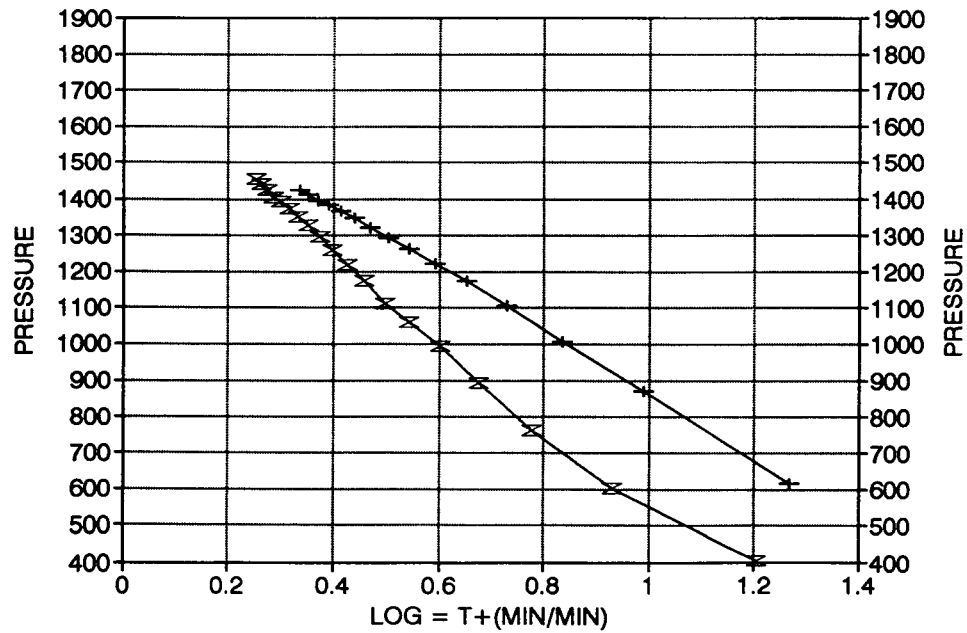
DST #2 SHUTIN		-----			
105	TOTAL FLOW TIME	SLOPE	795.6	PSI/CYCLE	
		P*	1690.8	PSI	

		Log <>			
	Pws (psi)	Horn T	PRESSURE	Horn T	
	-----	-----	-----	-----	
6	617.5	1.267	617.5	19	
12	868.8	0.989	251.3	10	
18	1007.3	0.835	138.5	7	
24	1105.6	0.730	98.3	5	
30	1173.1	0.653	67.5	5	
36	1222.8	0.593	49.7	4	
42	1263.0	0.544	40.2	4	
48	1292.5	0.503	29.5	3	
54	1321.1	0.469	28.6	3	
60	1347.5	0.439	26.4	3	
66	1366.5	0.413	19.0	3	
72	1384.5	0.391	18.0	2	
X 78	1396.1	0.370	11.6	2	
84	1413.0	0.352	16.9	2	
Y 90	1423.6	0.336	10.6	2	

HARRIS A-1 / DST #2 DELTA T DELTA P



HORNER PLOT





GAS VOLUME REPORT

A. H,

WELL NAME AND NO.

2

DST NO.

Remarks: Gas to surface 28 min.
Gas will burn.

WELL NAME Chatter - Harris A DST # 2 RECORDER # 5495

INIT. HYD. MUD.

FINAL HYD. MUD

INITIAL FLOW
MINUTES 45
INTERVAL

INITIAL SHUTIN
MINUTES 60
INTERVAL

FINAL FLOW
MINUTES 60
INTERVAL

FINAL SHUTIN
MINUTES 90
INTERVAL 6

.109	122.2			1	170	187.7		
.099		.367		2	.157	175.4	.566	
.095		.552		3	.156		.803	
.093		.701		4	.155		.924	
.097		.827		5	"		1.027	
.099		.922		6	.156		1.091	
.100		.985		7	.157		1.138	
.102		1.034		8	.159		1.176	
.104		1.091		9	.160		1.204	
.108		1.136		10	.161		1.231	
.111		1.172		11	.162		1.256	
.115		1.208		12	.164		1.274	
.119		1.236		13	.165		1.291	
.123		1.258		14	.166		1.302	
.126		1.280		15	"		1.318	
.129	144.4	1.298		16	.167		1.328	1423.6
		1.311		17	"			
		1.328		18	.168			
		1.344		19	.168			
		1.358	1455.3	20	.169			
				21	.169			
				22	.170	189.7		
				23				
				24				
				25				
				26				
				27				

IF

1	0.109	122.2919
2	0.099	111.1644
3	0.095	106.7079
4	0.093	104.4786
5	0.097	108.9365
6	0.099	111.1644
7	0.1	112.278
8	0.102	114.5046
9	0.104	116.7305
10	0.108	121.1799
11	0.111	124.5151
12	0.115	128.9594
13	0.119	133.4007
14	0.123	137.839
15	0.126	141.1658
16	0.129	144.491

Chtr - Hareit
Rec⁺⁺ 5495

FF

1	0.17	189.7982
2	0.157	175.455
3	0.156	174.3505
4	0.155	173.2458
5	0.155	173.2458
6	0.156	174.3505
7	0.157	175.455
8	0.159	177.6635
9	0.16	178.7675
10	0.161	179.8713
11	0.162	180.975
12	0.164	183.1818
13	0.165	184.2849
14	0.166	185.3879
15	0.166	185.3879
16	0.167	186.4907
17	0.167	186.4907
18	0.168	187.5934
19	0.168	187.5934
20	0.169	188.6959
21	0.169	188.6959
22	0.17	189.7982

959

1	0.367	404.4117
2	0.552	602.6148
3	0.701	760.862
4	0.827	894.2714
5	0.922	994.6822
6	0.985	1061.232
7	1.034	1113.007
8	1.091	1173.189
9	1.136	1220.753
10	1.172	1258.786
11	1.208	1296.805
12	1.236	1326.418
13	1.258	1349.672
14	1.28	1372.913
15	1.298	1391.919
16	1.311	1405.669
17	1.328	1423.651
18	1.344	1440.569
19	1.358	1455.368

FSJ

1	0.566	617.5226
2	0.803	868.8499
3	0.934	1007.372
4	1.027	1105.607
5	1.091	1173.189
6	1.138	1222.867
7	1.176	1263.01
8	1.204	1292.573
9	1.231	1321.131
10	1.256	1347.558
11	1.274	1366.575
12	1.291	1384.528
13	1.302	1396.146
14	1.318	1413.074
15	1.328	1423.651

959 - 1810.78

FSJ - 1690.8

C - 20
DI. D3F
A25 - A39

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 6659

Well Name & No. <u>Harris A-41</u>	Test No. <u>42</u>	Date <u>10-30-93</u>
Company <u>Charter Production Company</u>	Zone Tested <u>Morrow</u>	
Address <u>224 E. Douglas, Suite 400, Wichita, KS 67202</u>	Elevation <u>2690 (KB)</u>	
Co. Rep./Geo. <u>Chuck Schmalz</u>	Cont. <u>Zenith Drilling</u>	Est. Ft. of Pay <u>8'</u>
Location: Sec. <u>33</u> Twp. <u>33</u> Rge. <u>31 W</u> Co. <u>Seward</u> State <u>Ks.</u>		
No. of Copies _____	Distribution Sheet _____	Yes _____ No _____ Turnkey _____ Yes _____ No <u>X</u> Evaluation _____

Interval Tested 5695-5763 Drill Pipe Size 4.5 x-Hole
 Anchor Length 68' Top Choke — 1" _____ Bottom Choke — 1/4" _____
 Top Packer Depth 5690 Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
 Bottom Packer Depth 5695 Wt. Pipe I.D. — 2.7 Ft. Run _____
 Total Depth 5763 Drill Collar — 2.25 Ft. Run 622'
 Mud Wt. 8.9 lb/gal. Viscosity 51 Filtrate 6.0
 Tool Open @ 8:30 pm Initial Blow Strong blow - Bottom of bucket 30 sec.
GTS in 28 min. (Gauged @ 13.0 mcf)
 Final Blow Bottom of bucket as tool opened.
(Gauged @ 14.3 mcf)

Recovery — Total Feet 560' Feet of Gas in Pipe _____ Flush Tool? NO

Rec. _____	Feet Of _____	%gas	%oil	%water	%mud
Rec. _____	Feet Of _____	%gas	%oil	%water	%mud
Rec. _____	Feet Of _____	%gas	%oil	%water	%mud
Rec. <u>560'</u>	Feet Of <u>Gassy Slightly OCM</u>	<u>40</u> %gas	<u>3</u> %oil	%water	<u>57</u> %mud
Rec. _____	Feet Of _____	%gas	%oil	%water	%mud

BHT 124 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2400 ppm System

(A) Initial Hydrostatic Mud 2799 PSI AK1 Recorder No. 5495 Range 4200
 (B) First Initial Flow Pressure 122 PSI @ (depth) 5699 w/Clock No. 25813
 (C) First Final Flow Pressure 163 PSI AK1 Recorder No. 11038 Range 5075
 (D) Initial Shut-In Pressure 1461 PSI @ (depth) 5760 w/Clock No. 25814
 (E) Second Initial Flow Pressure 176 PSI AK1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 190 PSI @ (depth) _____ w/Clock No. _____
 (G) Final Shut-In Pressure 1436 PSI Initial Opening 45 Test X 700.00
 (H) Final Hydrostatic Mud 2748 PSI Initial Shut-In 60 Jars X 200.00

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Final Flow 60 Safety Joint X 5000
 Final Shut-In 90 Straddle _____

Approved By Chas. R. Schmalz

Our Representative Tom Horacek

Circ. Sub _____
 Sampler _____

Extra Packer _____

Other partial and 1 copies

TOTAL PRICE \$ 950.00

DST #2
11038

#

