TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KACHELMAN #1 Test No. 1 Date 7/9/92

Company BENSON-McCOWN COMPANY Zone MISSISSIPPI

Address 1616 S KENTUCKY BLDG, C-305 AMARILLO TX 79102-2249 Elevation 1965

Co. Rep./Geo. GORDON PRATHER Cont. EMPHASIS RIG #5 Est. Ft. of Pay

Location: Sec. 13 Twp. 25S Rge. 14W Co. STAFFORD State KS

Interval Tested 4068-4082

Anchor Length 14

Top Packer Depth 4063

Bottom Packer Depth 4068

Total Depth 4082

Drill Pipe Size 4.5" XH

Wt. Pipe I.D. - 2.7 Ft. Run 636

Drill Collar — 2.25 Ft. Run

Mud Wt. 9.4 lb/Gal.

Viscosity 49 Filtrate 10

Tool Open @ 8:42 AM Initial Blow BOTTOM OF BUCKET IN 20 SECONDS

Final Blow BOTTOM OF BUCKET IN 10 SECONDS
GAS TO SURFACE 45 MIN INTO FINAL FLOW-TOO SMALL TO MEASURE

Recovery - Total Feet 5 Flush Tool? NO

Rec. Feet of GAS TO SURFACE

Rec. 5 Feet of GASSY MUD-10%GAS/90%MUD

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 118 °F Gravity °API @ °F Corrected Gravity °API

RW @ °F Chlorides ppm Recovery Chlorides 3000 ppm System

(A) Initial Hydrostatic Mud 2315.6 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 40.9 PSI @ (depth) 4072 w / Clock No. 27567

(C) First Final Flow Pressure 40.9 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 1344.5 PSI @ (depth) 4078 w / Clock No. 26199

(E) Second Initial Flow Pressure 39.8 PSI AK1 Recorder No. Range

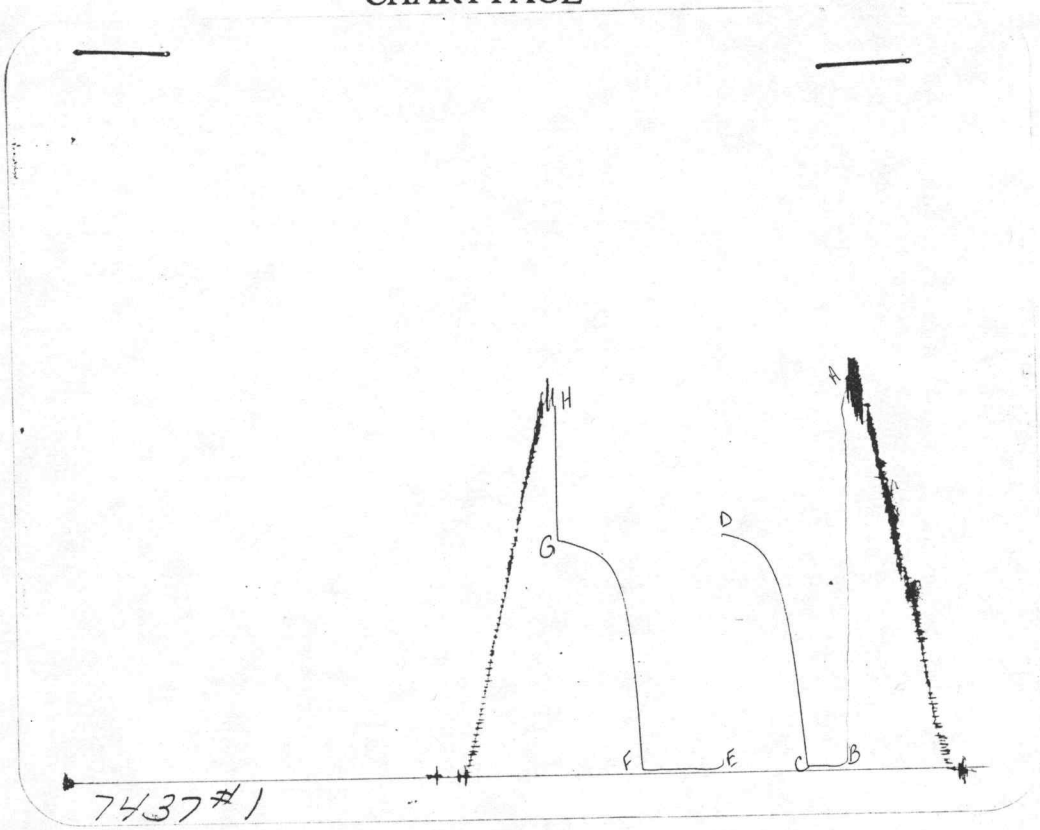
(F) Second Final Flow Pressure 39.8 PSI @ (depth) w / Clock No.

(G) Final Shut-in Pressure 1322.4 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2144.7 PSI Initial Shut-in 60 Final Shut-in 60

Our Representative DAN BANGLE

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2309	2315.6
(B) FIRST INITIAL FLOW PRESSURE	39	40.9
(C) FIRST FINAL FLOW PRESSURE	39	40.9
(D) INITIAL CLOSED-IN PRESSURE	1336	1344.5
(E) SECOND INITIAL FLOW PRESSURE	39	39.8
(F) SECOND FINAL FLOW PRESSURE	39	39.8
(G) FINAL CLOSED-IN PRESSURE	1316	1322.4
(H) FINAL HYDROSTATIC MUD	2137	2144.7

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No. 5320

T59461

Well Name & No. Kachelman #1 Test No. 1 Date 7-9-92

Company Benson-McCown & Co. Zone Tested Miss

Address 1616 S. Kentucky Bldg. C-305, Amarillo, Tex. 79102-2249 Elevation

Co. Rep./Geo. Gordon Prather Cont. Emphasis #5 Est. Ft. of Pay

Location: Sec. 13 Twp. 25 Rge. 14 Co. Stafford State Ks.

No. of Copies 5 Distribution Sheet ____ Yes X No Turnkey X Yes ____ No ____ Evaluation

Interval Tested 4068 - 4082 Drill Pipe Size 4.5 XH

Anchor Length 14 Top Choke — 1" ____ Bottom Choke — ¾" ____

Top Packer Depth 4063 Hole Size — 7⅞" ____ Rubber Size — 6¾" ____

Bottom Packer Depth 4068 Wt. Pipe I.D. — 2.7 Ft. Run 636

Total Depth 4082 Drill Collar — 2.25 Ft. Run

Mud Wt. 9.4 lb / gal. Viscosity 49 Filtrate 10

Tool Open @ 8:42 a.m. Initial Blow B.O.B. in 20 sec.

Final Blow B.O.B. in 10 sec.

G.T.S. 45 min into FF (TSTM)

Recovery — Total Feet 5 Feet of Gas in Pipe G.T.S. Flush Tool?

Rec. 5 Feet Of GSY M 10 %gas %oil %water 90 %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 118 °F Gravity ____ °API @ ____ °F Corrected Gravity ____ °API

RW ____ @ ____ °F Chlorides ____ ppm Recovery Chlorides 3,000 ppm System

(A) Initial Hydrostatic Mud 2309 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 39 PSI @ (depth) 4072 w/Clock No. 27567

(C) First Final Flow Pressure 39 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-In Pressure 1336 PSI @ (depth) 4078 w/Clock No. 26199

(E) Second Initial Flow Pressure 39 PSI AK1 Recorder No. ____ Range ____

(F) Second Final Flow Pressure 39 PSI @ (depth) ____ w/Clock No. ____

(G) Final Shut-In Pressure 1316 PSI Initial Opening 30 Test 550 00

(H) Final Hydrostatic Mud 2137 PSI Initial Shut-In 60 Jars ____

Final Flow 60 Safety Joint ____

Final Shut-In 60 Straddle ____

Circ. Sub ____

Sampler ____

Extra Packer ____

Other ____

TOTAL PRICE $ ____

Approved By ____

Our Representative Dan Bangle

Printcraft Printers - Hays, KS

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KACHELMAN #1 Test No. 2 Date 7/10/92

Company BENSON-McCOWN COMPANY Zone MISSISSIPPI

Address 1616 S KENTUCKY BLDG, C-305 AMARILLO TX 79102-2249 Elevation 1965

Co. Rep./Geo. GORDON PRATHER Cont. EMPHASIS RIG #5 Est. Ft. of Pay 6

Location: Sec. 13 Twp. 25S Rge. 14W Co. STAFFORD State KS

Interval Tested 4275-4294

Anchor Length 19

Top Packer Depth 4270

Bottom Packer Depth 4275

Total Depth 7294

Drill Pipe Size 4.5" XH

Wt. Pipe I.D. - 2.7 Ft. Run 636

Drill Collar – 2.25 Ft. Run

Mud Wt. 9.4 lb/Gal.

Viscosity 46 Filtrate 15.2

Tool Open @ 4:39 PM Initial Blow BOTTOM OF BUCKET IN 3 MINUTES

Final Blow BOTTOM OF BUCKET IN 4 MINUTES

Recovery - Total Feet 2340 Flush Tool? NO

Rec. 575 Feet of GAS IN PIPE

Rec. 107 Feet of CLEAN GASSY OIL-20%GAS/80%OIL

Rec. 310 Feet of FROTHY OIL-40%GAS/60%OIL

Rec. 248 Feet of WATER CUT OIL-70%OIL/30%WATER

Rec. 1675 Feet of OIL CUT WATER-10%OIL/90%WATER

BHT 121 °F Gravity °API @ °F Corrected Gravity 34 °API

RW 0.36 @ 81 °F Chlorides 26000 ppm Recovery Chlorides 10000 ppm System

(A) Initial Hydrostatic Mud 2343.9 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 105.3 PSI @ (depth) 4279 w / Clock No. 26199

(C) First Final Flow Pressure 450.7 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 1465.9 PSI @ (depth) 4290 w / Clock No. 31152

(E) Second Initial Flow Pressure 486.2 PSI AK1 Recorder No. Range

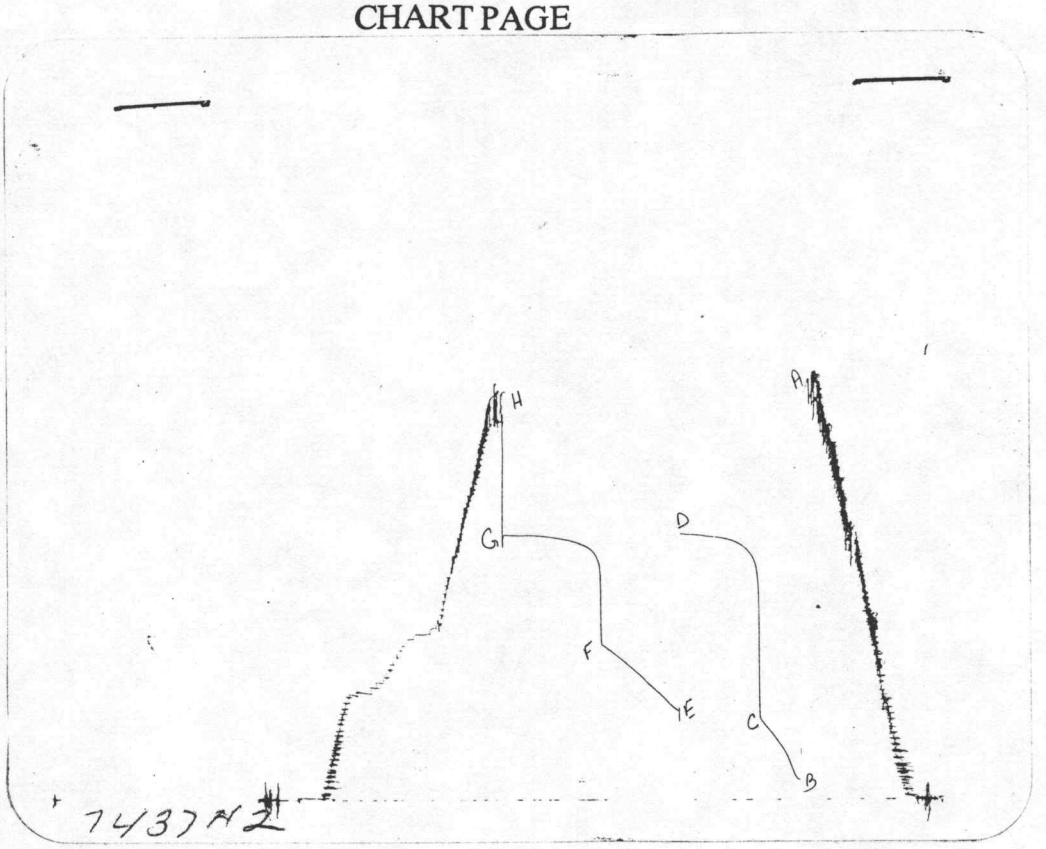
(F) Second Final Flow Pressure 840.9 PSI @ (depth) w / Clock No.

(G) Final Shut-in Pressure 1463.9 PSI Initial Opening 30 Final Flow 90

(H) Final Hydrostatic Mud 2199.9 PSI Initial Shut-in 60 Final Shut-in 90

Our Representative DAN BANGLE

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2329	2343.9
(B) FIRST INITIAL FLOW PRESSURE	98	105.3
(C) FIRST FINAL FLOW PRESSURE	442	450.7
(D) INITIAL CLOSED-IN PRESSURE	1446	1465.9
(E) SECOND INITIAL FLOW PRESSURE	482	486.2
(F) SECOND FINAL FLOW PRESSURE	837	840.9
(G) FINAL CLOSED-IN PRESSURE	1436	1463.9
(H) FINAL HYDROSTATIC MUD	2188	2199.9

COMPUTER EVALUATION BY TRILOBITE TESTING, L.L.C.

BENSON-McCOWN COMP KACHELMAN #1 DST 2

13 25S 14W STAFFORD KS

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ELEVATION:	1965	KB	EST. PAY	6	FT
DATUM:	-4280		ZONE TESTED:	MISSISSIPPI	
TEST INTERVAL:	4275-4294		TIME INTERVALS:	30-60-60-90	
RECORDER DEPTH:	4279		VISCOSITY:	10.183	CP
BOTTOM HOLE TEMP:	121		HOLE SIZE:	7.875	IN

****

CUBIC FEET OF GAS IN PIPE:	45.91			
TOTAL FEET OF RECOVERY:	2340.00	CORRECTED PIPE FILLUP:	2272.703	
TOTAL BARRELS OF RECOVERY:	28.68	CORR. BARRELS OF RECOVERY:	27.716	BBL
BARRELS IN DRILL PIPE:	24.23	API GRAVITY:	34	
BARRELS IN WEIGHT PIPE:	4.45	FLUID GRADIENT:	0.370	
BARRELS IN DRILL COLLARS:	0.00			
GAS OIL RATIO:	1.6005	CU.FT/BBL		
BUBBLE POINT PRESSURE:	19.595			
UNCORRECTED INITIAL PRODUCTION:			458.93	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			443.45	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			247.681	

****

INITIAL SLOPE	206.87	PSI/CYCLE	FINAL SLOPE	31.07	PSI/CYCLE
INITIAL P*	1501	PSI	FINAL P*	1473	PSI

****

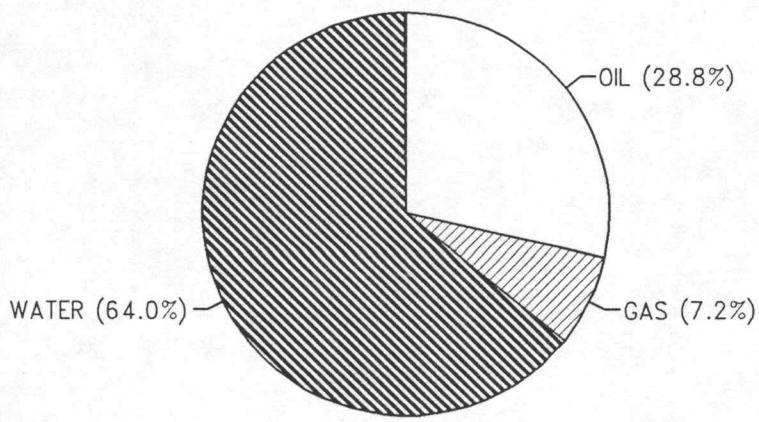
TRANSMISSIBILITY	2320.70	(MD.-FT./CP.)
PERMEABILITY	3938.66	(MD.)
INDICATED FLOW CAPACITY	23631.94	)MD.FT)
PRODUCTIVITY INDEX	2.62	(BARRELS/DAY/PSI)
DAMAGE RATIO	3.72	
RADIUS OF INVESTIGATION	595.38	(FT,)
POTENTIOMETRIC SURFACE	-862.53	(FT.)
DRAWDOWN FACTOR	1.841	(%)

CALCULATED RECOVERY ANALYSIS

DST # 2 TICKET # 5321

SAMPLE #	TOTAL FEET		GAS FEET	%	OIL FEET	%	WATER FEET	%	MUD FEET
DRILL 1	107	20	21.4	80	85.6	0	0	0	0
PIPE 2	310	40	124	60	186	0	0	0	0
3	248	0	0	70	173.6	30	74.4	0	0
4	1039	0	0	10	103.9	90	935.1	0	0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	636	0	0	10	63.6	90	572.4	0	0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
DRILL 1			0		0		0		0
COLLAR 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	2340		145.4		612.7		1581.9		0

			HRS OPEN	BBL/DAY
BBL OIL=	8.253402	*	1.5	132.05443
BBL WATER=	18.36189	*		293.79024
BBL MUD=	0			
BBL GAS =	2.067588			



INITIAL FLOW

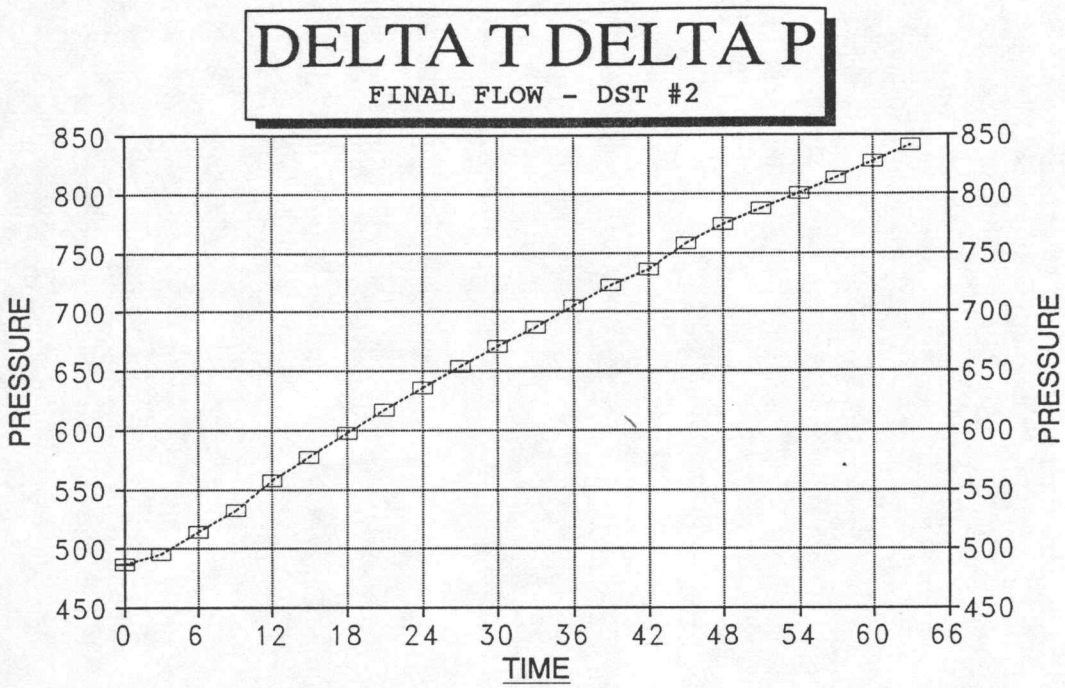
RECORDER # 13754 DST # 2

TIME(MIN)	PRESSURE	<>PRESSURE
0	105.3	105.3
3	170.2	64.9
6	221.4	51.2
9	263.7	42.3
12	296.2	32.5
15	322.8	26.6
18	352.3	29.5
21	377.9	25.6
24	403.5	25.6
27	427.1	23.6
30	450.7	23.6

FINAL FLOW

RECORDER # 13754 DST # 2

TIME(MIN)	PRESSURE	<> PRESSURE
0	486.2	486.2
3	495	8.8
6	513.8	18.8
9	532.6	18.8
12	557.3	24.7
15	577	19.7
18	597.8	20.8
21	616.5	18.7
24	635.3	18.8
27	653.1	17.8
30	669.9	16.8
33	685.7	15.8
36	704.5	18.8
39	722.3	17.8
42	736.1	13.8
45	757.8	21.7
48	774.7	16.9
51	787.5	12.8
54	800.3	12.8
57	813.2	12.9
60	827.1	13.9
63.0	840.9	13.8



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE: 247.681

KACHELMAN #1 DST #2
INITIAL SHUTIN

30 TOTAL FLOW TIME

Slope 206.87 psi/cycle
p * 1501 psi

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	3	1328.9	1.041	1328.9	11
	6	1359.9	0.778	31.0	6
	9	1379.9	0.637	20.0	4
	12	1395.9	0.544	16.0	4
	15	1404.9	0.477	9.0	3
	18	1415.9	0.426	11.0	3
	21	1421.9	0.385	6.0	2
	24	1429.9	0.352	8.0	2
	27	1435.9	0.325	6.0	2
	30	1439.9	0.301	4.0	2
	33	1444.9	0.281	5.0	2
	36	1447.9	0.263	3.0	2
	39	1451.9	0.248	4.0	2
	42	1454.9	0.234	3.0	2
	45	1455.9	0.222	1.0	2
	48	1456.9	0.211	1.0	2
	51	1458.9	0.201	2.0	2
	54	1460.9	0.192	2.0	2
X	57	1462.9	0.184	2.0	2
	60	1464.9	0.176	2.0	2
X	63	1465.9	0.169	1.0	1

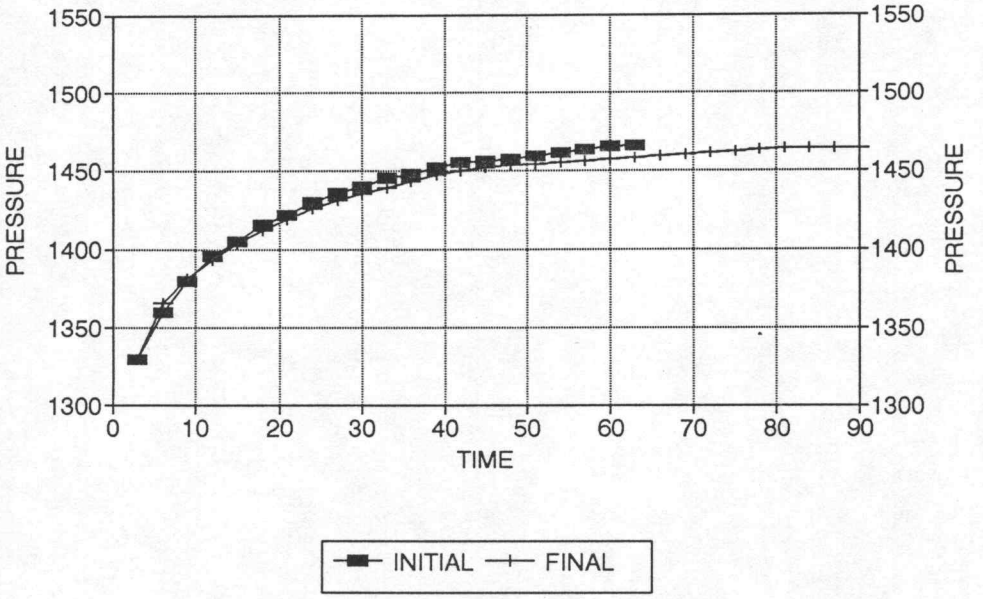
KACHELMAN #1 DST #2
FINAL SHUTIN

90 TOTAL FLOW TIME

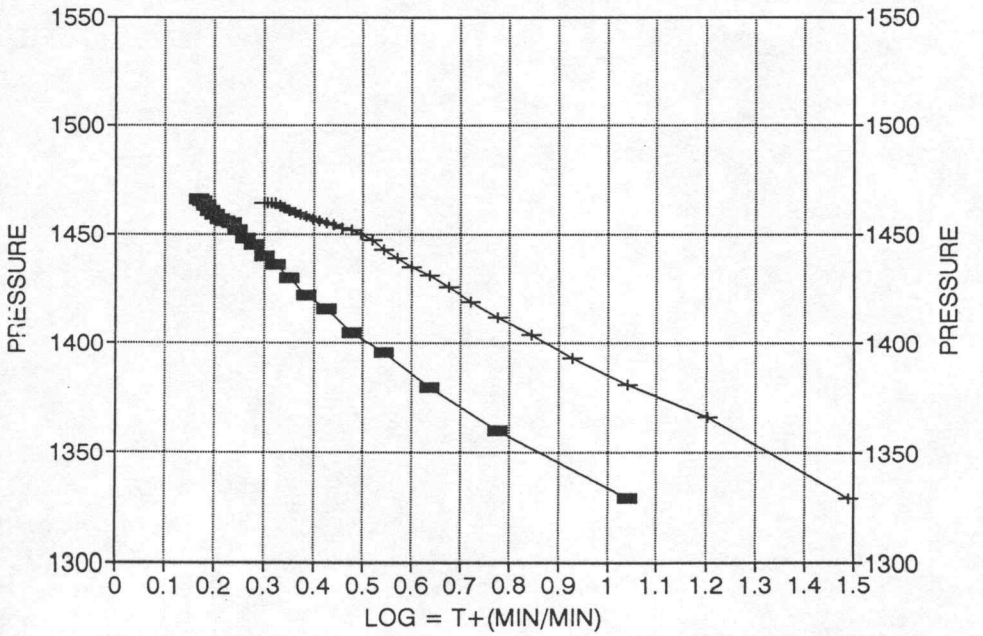
Slope 31.07 psi/cycle
p * 1473 psi

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	3	1328.9	1.491	1328.9	31
	6	1365.9	1.204	37.0	16
	9	1380.9	1.041	15.0	11
	12	1392.9	0.929	12.0	9
	15	1403.9	0.845	11.0	7
	18	1411.9	0.778	8.0	6
	21	1418.9	0.723	7.0	5
	24	1425.9	0.677	7.0	5
	27	1430.9	0.637	5.0	4
	30	1434.9	0.602	4.0	4
	33	1438.9	0.571	4.0	4
	36	1442.9	0.544	4.0	4
	39	1446.9	0.520	4.0	3
	42	1449.9	0.497	3.0	3
	45	1451.9	0.477	2.0	3
	48	1452.9	0.459	1.0	3
	51	1453.9	0.442	1.0	3
	54	1454.9	0.426	1.0	3
	57	1455.9	0.411	1.0	3
	60	1456.9	0.398	1.0	3
	63	1457.9	0.385	1.0	2
	66	1458.9	0.374	1.0	2
	69	1459.9	0.363	1.0	2
	72	1460.9	0.352	1.0	2
	75	1461.9	0.342	1.0	2
X	78	1462.9	0.333	1.0	2
	81	1463.9	0.325	1.0	2
	84	1463.9	0.316	0.0	2
	87	1463.9	0.308	0.0	2
X	90	1463.9	0.301	0.0	2

KACHELMAN #1 / DST #2
DELTA T DELTA P



HORNER PLOT



0.107	105.3196
0.173	170.2768
0.225	221.4572
0.268	263.782
0.301	296.2642
0.328	322.8379
0.358	352.364
0.384	377.953
0.41	403.5429
0.434	427.166
0.458	450.7892
0.494	486.2241
0.503	495.0917
0.522	513.8515
0.541	532.6155
0.566	557.3116
0.586	577.0737
0.607	597.8237
0.626	616.5917
0.645	635.363
0.663	653.1495
0.68	669.9506
0.696	685.7658
0.715	704.5384
0.733	722.3226
0.747	736.1564
0.769	757.8981
0.786	774.7009
0.799	787.5514
0.812	800.3944
0.825	813.2374
0.829	817.1894
0.853	840.9026

0.458	~~450.7892~~
1.343	1328.981
1.374	1359.985
1.394	1379.996
1.41	1395.994
1.419	1404.99
1.43	1415.986
1.436	1421.985
1.444	1429.984
1.45	1435.983
1.454	1439.983
1.459	1444.984
1.462	1447.984
1.466	1451.985
1.469	1454.986
1.47	1455.986
1.471	1456.986
1.473	1458.987
1.475	1460.988
1.477	1462.988
1.479	1464.989
1.48	1465.989

0.853	~~840.9026~~
1.343	1328.981
1.38	1365.988
1.395	1380.996
1.407	1392.996
1.418	1403.99
1.426	1411.987
1.433	1418.985
1.44	1425.984
1.445	1430.984
1.449	1434.983
1.453	1438.983
1.457	1442.984
1.461	1446.984
1.464	1449.985
1.466	1451.985
1.467	1452.985
1.468	1453.985
1.469	1454.986
1.47	1455.986
1.471	1456.986
1.472	1457.987
1.473	1458.987
1.474	1459.987
1.475	1460.988
1.476	1461.988
1.477	1462.988
1.478	1463.989
	1463.9
	1463.9
	1463.9

WELL NAME Kachelman #1 DST # 2 RECORDER # 13754

INIT. HYD. MUD. _____ _____ FINAL HYD. MUD _____ _____

INITIAL FLOW MINUTES 30 INTERVAL		INITIAL SHUTIN MINUTES 60 INTERVAL			FINAL FLOW MINUTES 60 INTERVAL		FINAL SHUTIN MINUTES 90 INTERVAL	
.107	105.3	1.458		1	.494	486.2	.853	
.172		1.343		2	.503		1.343	
.225		1.374		3	522		1.380	
.268		1.394		4	541		1.395	
.301		1.410		5	566		1.407	
.328		1.419		6	586		1.418	
.358		1.430		7	607		1.426	
.384		1.436		8	626		1.433	
.410		1.444		9	645		1.440	
434		1.450		10	663		1.445	
X .458	450.7	1.454		11	680		1.449	
		1.459		12	696		1.453	
		1.462		13	715		1.457	
		1.466		14	733		1.461	
		1.469		15	747		1.464	
		1.470		16	769		1.466	
		1.471		17	786		1.467	
		1.473		18	799		1.468	
		1.475		19	812		1.469	
		1.477		20	825		1.470	
		1.479		21	839		1.472	
		1.480	1465.9	22	853	840.9	1.473	
				23			1.474	
				24			1.475	
				25			1.476	
				26			1.477	
				27			1.478	1463.9

31) ~~1.480 - 1465.9~~

29) ~~1.479~~ 1

29) ~~1.480~~

30) 1.480

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

№ 5321

Well Name & No. Kachelman #1 Test No. 2 Date 7-10-92

Company Benson-McCown & Co. Zone Tested Arbuckle

Address _____ Elevation 1965 K.B.

Co. Rep./Geo. Gordon Prather Cont. Emphasis #5 Est. Ft. of Pay 6

Location: Sec. 13 Twp. 25 Rge. 14 Co. Stafford State Ks

No. of Copies 5 Distribution Sheet _____ Yes X No Turnkey X Yes _____ No X Evaluation

Interval Tested 4275-4294 Drill Pipe Size 4.5 XH

Anchor Length 19 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 4270 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 4275 Wt. Pipe I.D. — 2.7 Ft. Run 636

Total Depth 4294 Drill Collar — 2.25 Ft. Run _____

Mud Wt. 9.4 lb/gal. Viscosity 46 Filtrate 15.2

Tool Open @ 4:39 P.M. Initial Blow B.O.B. in 3 min.

Final Blow B.O.B. in 4 min.

Recovery — Total Feet 2340 Feet of Gas in Pipe 575 Flush Tool? _____

Rec. 107	Feet Of C.G.sy O	20 %gas	80 %oil	%water	%mud
Rec. 310	Feet Of Frothy O	40 %gas	60 %oil	%water	%mud
Rec. 248	Feet Of W.C.O	%gas	70 %oil	30 %water	%mud
Rec. 1675	Feet Of O C W	%gas	10 %oil	90 %water	%mud
Rec. _____	Feet Of _____	%gas	%oil	%water	%mud

BHT 121 °F Gravity _____ °API @ _____ °F Corrected Gravity 34 °API

RW .136 @ 81 °F Chlorides 24,000 ppm Recovery Chlorides 19,000 ppm System

(A) Initial Hydrostatic Mud	2329 PSI	AK1 Recorder No. 13754	Range 4000
(B) First Initial Flow Pressure	98 PSI	@ (depth) 4279	w/Clock No. 26199
(C) First Final Flow Pressure	442 PSI	AK1 Recorder No. 7437	Range 4200
(D) Initial Shut-In Pressure	1446 PSI	@ (depth) 4290	w/Clock No. 31152
(E) Second Initial Flow Pressure	482 PSI	AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure	837 PSI	@ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure	1436 PSI	Initial Opening 30	Test 550.00
(H) Final Hydrostatic Mud	2188 PSI	Initial Shut-In 60	Jars _____
		Final Flow 60	Safety Joint _____
		Final Shut-In 90	Straddle _____
			Circ. Sub X 35.00
			Sampler _____
			Extra Packer _____
			Other Equal.
			TOTAL PRICE $ 635.00

Approved By _____

Our Representative Dan

Printcraft Printers - Hays, KS