15-055-20908

12-23s-31w

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name & No. MACKEY #6 Test No. 1 Date 4/10/90

Company BEREN CORPORATION Zone Tested MORROW

Address 970 4th FINANCIAL CENTER WICHITA KS 67202 Elevation 2880 KB

Co. Rep./Geo. P"SAM" HOUSTON Cont. BEREDCO #3 Est. Ft. of Pay 24

Location: Sec. 12 Twp. 23S Rge. 31W Co. FINNEY State KANSAS

Interval Tested 4742-4780 Drill Pipe Size 4.5" XH

Anchor Length 38 Top Choke — 1" _____ Bottom Choke — ¼" _____

Top Packer Depth 4737 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 4742 Wt. Pipe I.D. — 2.7 Ft. Run 826

Total Depth 4780 Drill Collar — 2.25 Ft. Run 0

Mud Wt. 9.0 lb/gal. Viscosity 46 Filtrate 8.0

Tool Open @ 12:45 AM Initial Blow STRONG-OFF BOTTOM OF BUCKET IN 12 MINUTES

Final Blow STRONG-OFF BOTTOM OF BUCKET IN 2 MINUTES

Recovery — Total Feet 284 Flush Tool? _____

Rec. 5 Feet of SLIGHTLY OIL CUT GASSY MUD-4%OIL/10%GAS/86%MUD

Rec. 93 Feet of OIL CUT GASSY MUD-25%OIL/10%GAS/65%MUD

Rec. 186 Feet of MUD CUT GASSY OIL-10%MUD/10%GAS/80%OIL

Rec. 0 Feet of _____

Rec. 2790 Feet of GAS IN PIPE

BHT 122 °F Gravity _____ °API @ 0 °F Corrected Gravity 32 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud	2277.3 PSI	AK1 Recorder No.	13754	Range	4000
(B) First Initial Flow Pressure	53.1 PSI	@ (depth)	4746	w/Clock No.	31152
(C) First Final Flow Pressure	76.7 PSI	AK1 Recorder No.	13849	Range	4375
(D) Initial Shut-In Pressure	464.6 PSI	@ (depth)	4776	w/Clock No.	17652
(E) Second Initial Flow Pressure	103.4 PSI	AK1 Recorder No.	0	Range	0
(F) Second Final Flow Pressure	148.6 PSI	@ (depth)	0	w/Clock No.	0
(G) Final Shut-In Pressure	459.6 PSI	Initial Opening	15		
(H) Final Hydrostatic Mud	2175.1 PSI	Initial Shut-In	45		
		Final Flow	45		
		Final Shut-In	60		

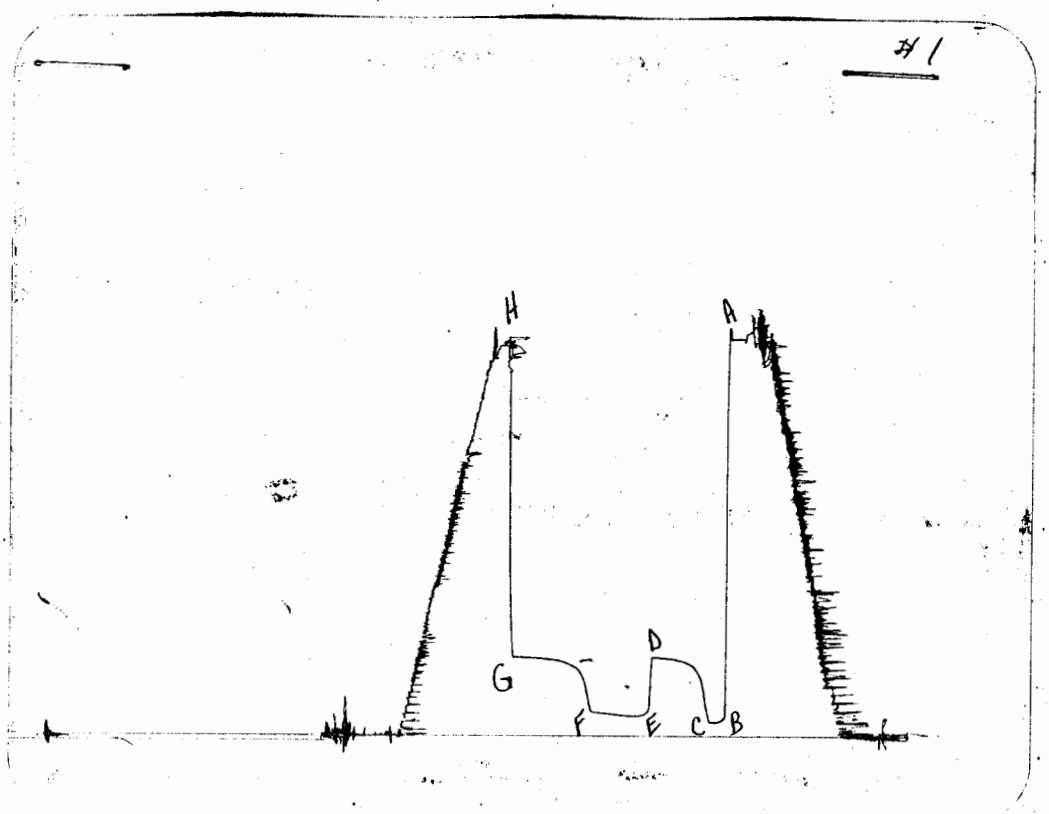
MR DAN BANGLE

Our Representative _____ TOTAL PRICE $ 500.00

Printcraft Printers - Hays, KS

12-23s-31w

DST# 1 RECORDER# 13849



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	2269	2277.3	PSI
(B) First Initial Flow Pressure	49	53.1	PSI
(C) First Final Flow Pressure	68	76.7	PSI
(D) Initial Closed-In Pressure	442	464.6	PSI
(E) Second Initial Flow Pressure	88	103.4	PSI
(F) Second Final Flow Pressure	127	148.6	PSI
(G) Final Closed-In Pressure	442	459.6	PSI
(H) Final Hydrostatic Mud	2188	2175.1	PSI

COMPUTER EVALUATION BY TRILOBITE TESTING
BEREN CORPORATION
REPORT FOR DST#1 FOR THE MACKEY #6
12-23S-31W FINNEY KS

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TEST PARAMETERS

ELEVATION:	2880 KB	EST. PAY:	24 FT
DATUM:	-1867	ZONE TESTED:	MORROW
TEST INTERVAL:	4742-4780		
		TIME INTERVALS:	15-45-45-60
RECORDER DEPTH:	4746	VISCOSITY:	2.826808 CP
BOTTOM HOLE TEMP:	122	HOLE SIZE:	7.875 IN

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CALCULATIONS

CUBIC FEET OF GAS IN PIPE: 200.6283

TOTAL FEET OF RECOVERY: 284
BARRELS IN WEIGHT PIPE: 1.988
GAS OIL RATIO: 100.9197 CU.FT./BBL
BUBBLE POINT PRESSURE: ; 10.54965
TOTAL BARRELS OF RECOVERY: 1.988
UNCORR. INIT. PROD.: 47.712 BBL/DAY
API GRAVITY: 32
FLUID GRADIENT: .375
CORRECTED PIPE FILLUP: 396.2667
CORR. BARRELS OF RECOVERY: 2.7734 BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE: 66.5616 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE
88.16641

****

INITIAL SHUT-IN VALUES:
THEORETICAL STATIC PRESSURE 487.558
SLOPE 183.7868

FINAL SHUT-IN VALUES
THEORETICAL STATIC PRESSURE 486.7993
SLOPE 90.37036

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TRANSMISSIBILITY	119.7618	(MD.-FT./CP.)
PERMEABILITY	14.10598	(MD.)
INDICATED FLOW CAPACITY	338.5436	(MD.FT)
PRODUCTIVITY INDEX	.1353308	(BARRELS/DAY/PSI)
DAMAGE RATIO	.6848536	
RADIUS OF INVESTIGATION	29.09225	(FT.)
POTENTIOMETRIC SURFACE	-737.1125	(FT.)
DRAWDOWN FACTOR	.1556158	(%)

INITIAL FLOW

RECORDER # 13754
DST #1

DT(MIN)	PRESSURE	<> PRESSURE
0	53.1	53.1
3	58.1	5
6	61	2.900002
9	65.9	4.900002
12	70.9	5
15	76.7	5.799996

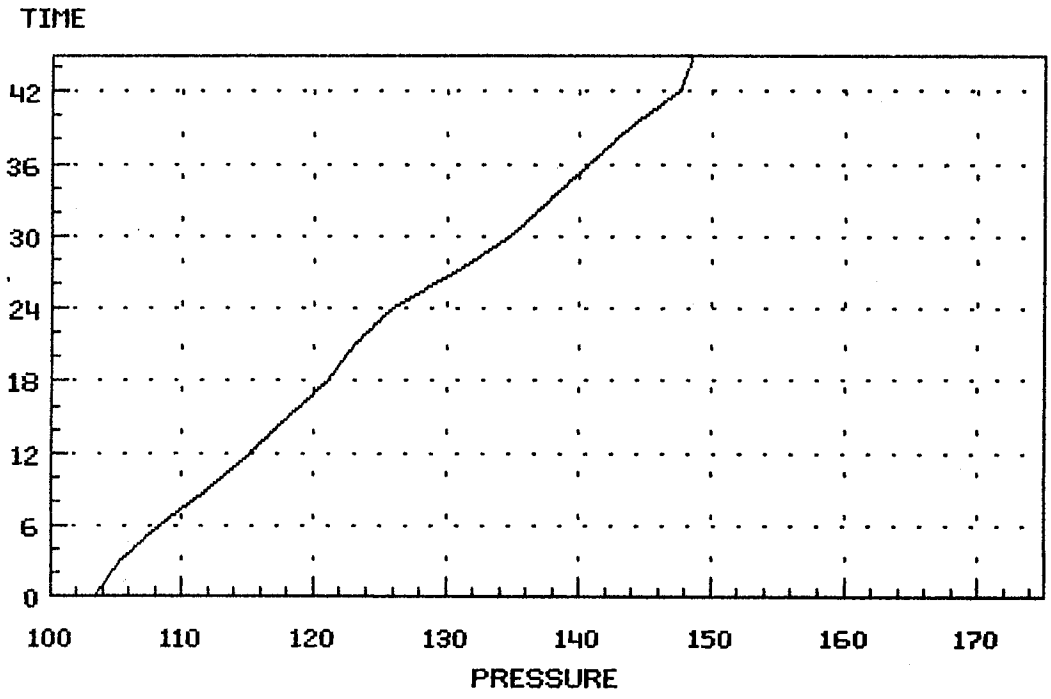
FINAL FLOW

RECORDER # 13754
DST #1

DT(MIN)	PRESSURE	<> PRESSURE
0	103.4	103.4
3	105.3	1.900002
6	108.3	3
9	112.2	3.899994
12	115.2	3
15	118.1	2.900002
18	121.1	3
21	125	3.900002
24	125.9	.9000015
27	130.9	4.999993
30	134.8	3.900009
33	137.8	3
36	140.7	2.899994
39	143.7	3
42	147.6	3.900009
45	148.6	1

DELTA T DELTA P

DST #1 FINAL FLOW
RECORDER #13754



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE 88.16641 BBL/DAY

INITIAL SHUT-IN BUILDUP
DST #1

RECORDER # 13754
INITIAL FLOW TIME (MIN.): 15

MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	76.7	76.7
3	.778011	201.7	125
6	.5439701	351.4	149.7
9	.425892	414.4	63
12	.352119	433.1	18.70001
15	.3009757	442.9	9.799988
18	.263194	447.8	4.899994
21	.234041	452.7	4.900025
24	.2108154	457.7	5
27	.191851	460.6	2.899994
30	.1760595	462.6	2
33	.162698	463.6	1
36	.1512404	464.6	1
39	.1413037	464.6	0
42	.1326017	464.6	0
45	.1249162	464.6	0

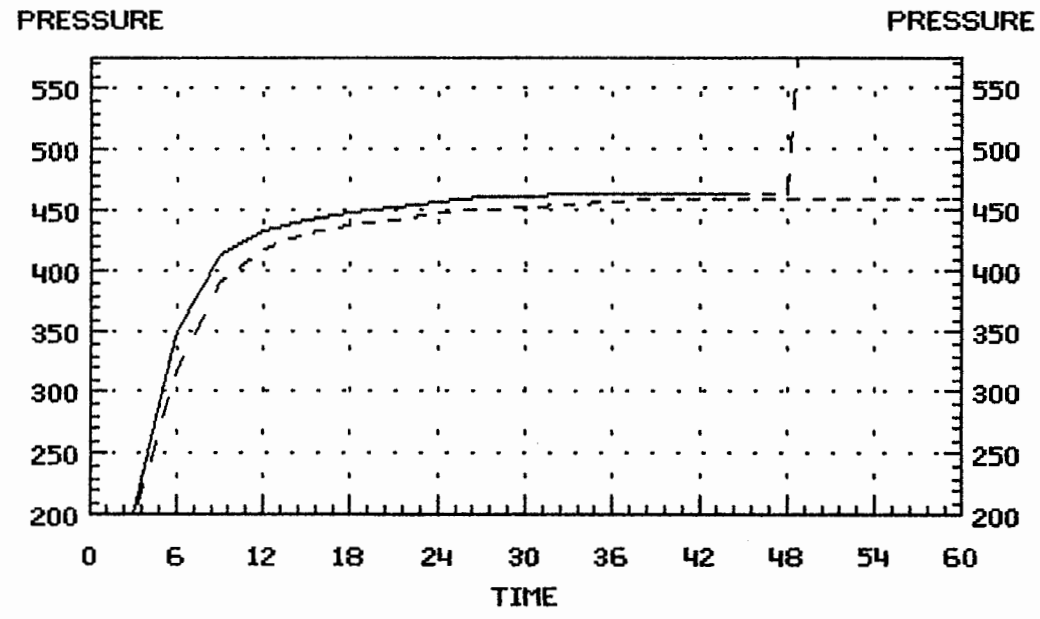
FINAL SHUT-IN BUILDUP
DST #1

RECORDER # 13754
TOTAL FLOW TIME (MIN.): 60

MIN	LOG(T+MIN/MIN)	PRESSURE	<> PRESSURE
0	0	148.6	148.6
3	1.321981	195.8	47.2
6	1.041205	318.9	123.1
9	.8844472	391.7	72.80002
12	.778011	418.3	26.59998
15	.6988441	431.1	12.80002
18	.6367073	437	5.899994
21	.5861601	442.9	5.899994
24	.5439701	447.8	4.899994
27	.5080639	450.8	3
30	.4770353	453.7	2.900025
33	.4498879	455.7	2
36	.425892	457.7	2
39	.4044977	459.6	1.899994
42	.3852815	459.6	0
45	.3679105	459.6	0
48	.352119	459.6	0
51	.3376919	459.6	0
54	.3244526	459.6	0
57	.3122548	459.6	0
60	.3009757	459.6	0

DELTA T DELTA P

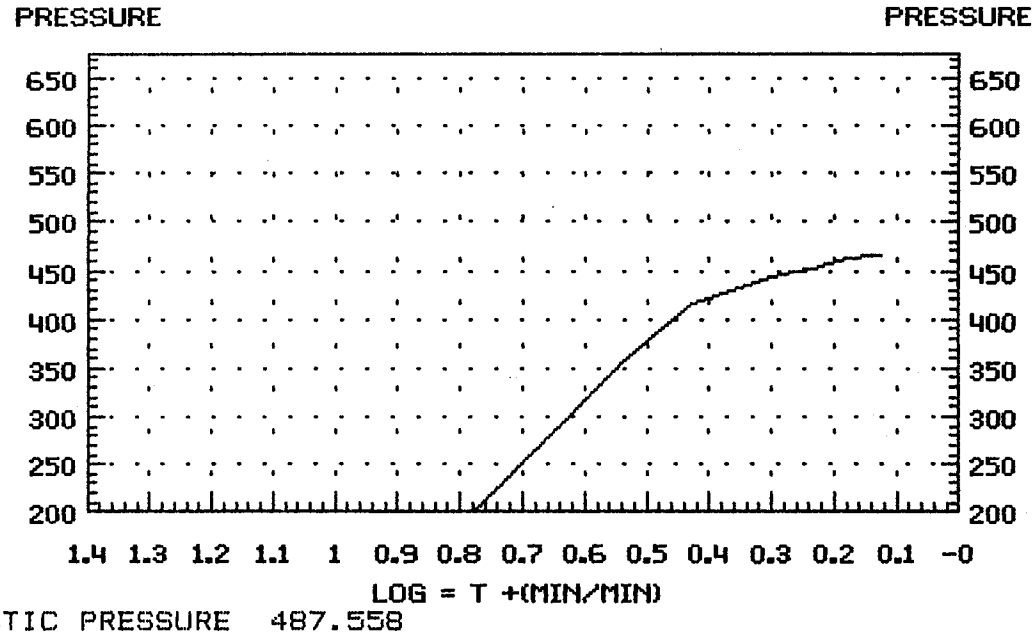
DST #1 INITIAL & FINAL SHUTIN
RECORDER #13754



HORNER PLOT

DST #1 INITIAL
RECORDER #13754

INITIAL

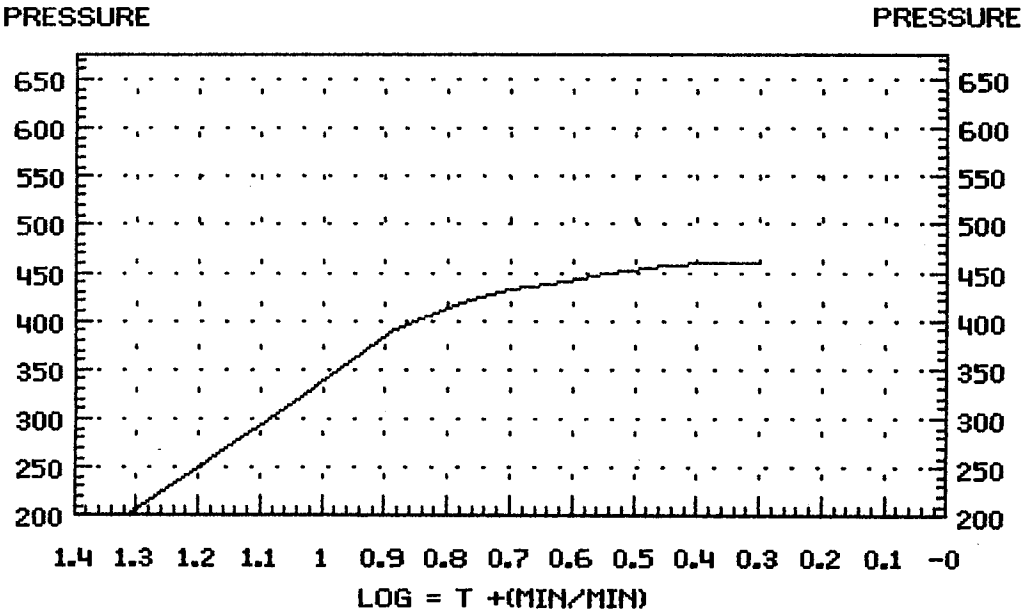


STATIC PRESSURE 487.558
SLOPE 183.7868
POINTS USED 15

HORNER PLOT

DST #1 FINAL
RECORDER #13754

FINAL



STATIC PRESSURE 486.7993
SLOPE 90.37036
POINTS USED 19

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

Nº 2796

Well Name & No. MacKey #6 Test No. 1 Date 4-10-90

Company Beren Corp. Zone Tested Morrow

Address 970 Fourth Financial CTR, Wichita, Ks. 67202 Elevation 2880 K.B.

Co. Rep. / Geo. R. "Sam" Houston Cont. Beredco #3 Est. Ft. of Pay 24

Location: Sec. 12 Twp. 23s Rge. 31w Co. Finney State Ks.

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

Interval Tested 4742 - 4780 Drill Pipe Size 4.5 XH

Anchor Length 38 Top Choke — 1" ____ Bottom Choke — ¾" ____

Top Packer Depth 4737 Hole Size — 7⅞" ____ Rubber Size — 6¾" ____

Bottom Packer Depth 4742 Wt. Pipe I.D. — 2.7 Ft. Run 826

Total Depth 4780 Drill Collar — 2.25 Ft. Run ____

Mud Wt. 9 lb / gal. Viscosity 46 Filtrate 8

Tool Open @ 12:45 A.M. Initial Blow STrong - off bottom of bucket in 12 min.

Final Blow STrong - off bottom of bucket in 2 min.

Recovery — Total Feet 284 Flush Tool? ____

Rec. 5 Feet of SlOly O.C.Gsy M. 4900 1090G 8690M.

Rec. 93 Feet of O.C.Gsy M. 2590 0 1090G 6590M

Rec. 186 Feet of M.C.Gsy O. 1090M 1090G 8090 O

Rec. ____ Feet of ____

Rec. 2790 Feet of G.I.P.

BHT 122 °F Gravity ____ °API @ ____ °F Corrected Gravity 32 °API

RW ____ @ ____ °F Chlorides ____ ppm Recovery Chlorides 3000 ppm System

(A) Initial Hydrostatic Mud	2269 PSI	AK1 Recorder No.	13754	Range	4000
(B) First Initial Flow Pressure	49 PSI	@ (depth)	4746	w/Clock No.	3115-2
(C) First Final Flow Pressure	68 PSI	AK1 Recorder No.	13849	Range	4375
(D) Initial Shut-In Pressure	442 PSI	@ (depth)	4776	w/Clock No.	17652
(E) Second Initial Flow Pressure	88 PSI	AK1 Recorder No.	____	Range	____
(F) Second Final Flow Pressure	127 PSI	@ (depth)	____	w/Clock No.	____
(G) Final Shut-In Pressure	442 PSI	Initial Opening	15	Test	____
(H) Final Hydrostatic Mud	2188 PSI	Initial Shut-In	45	Jars	X
		Final Flow	45	Safety Joint	X
		Final Shut-In	60	Straddle	____
				Circ. Sub	X
				Sampler	____
				Extra Packer	____
				Other	____
				TOTAL PRICE $	____

Approved By ____

Our Representative Dan Bangle

Printcraft Printers - Hays, KS