TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name: RAY "B" #7 | Test No.: 1 | Date: 7/30/92

Company: OXY USA INC | Zone: REAGAN SAND

Address: P.O. BOX 26100 OKLAHOMA CITY OK 73126-0100 | Elevation: 2210

Co. Rep./Geo.: STEVE DAVIS | Cont.: ABERCROMBIE RIG #4 | Est. Ft. of Pay: 3

Location: Sec.: 32 | Twp.: 5S | Rge.: 20W | Co.: PHILLIPS | State: KS

Interval Tested: 3603-3609

Anchor Length: 6

Top Packer Depth: 3598

Bottom Packer Depth: 3603

Total Depth: 3609

Drill Pipe Size: 4.5 XH

Wt. Pipe I.D. - 2.7 Ft. Run: 279

Drill Collar – 2.25 Ft. Run:

Mud Wt.: 9.5 lb/Gal.

Viscosity: 48 | Filtrate: 7.2

Tool Open @: 9:20 PM | Initial Blow: WEAK 12" BLOW IN 15 MINUTES

Final Blow: WEAK 12" BLOW IN 15 MINUTES TO A FAIR BLOW

Recovery - Total Feet: 310

Flush Tool?: NO

Rec. 558 Feet of GAS IN PIPE

Rec. 248 Feet of CLEAN GASSY OIL-20%GAS/80%OIL

Rec. 62 Feet of GAS & MUD CUT OIL-20%GAS/50%OIL/30%MUD

Rec. Feet of

Rec. Feet of

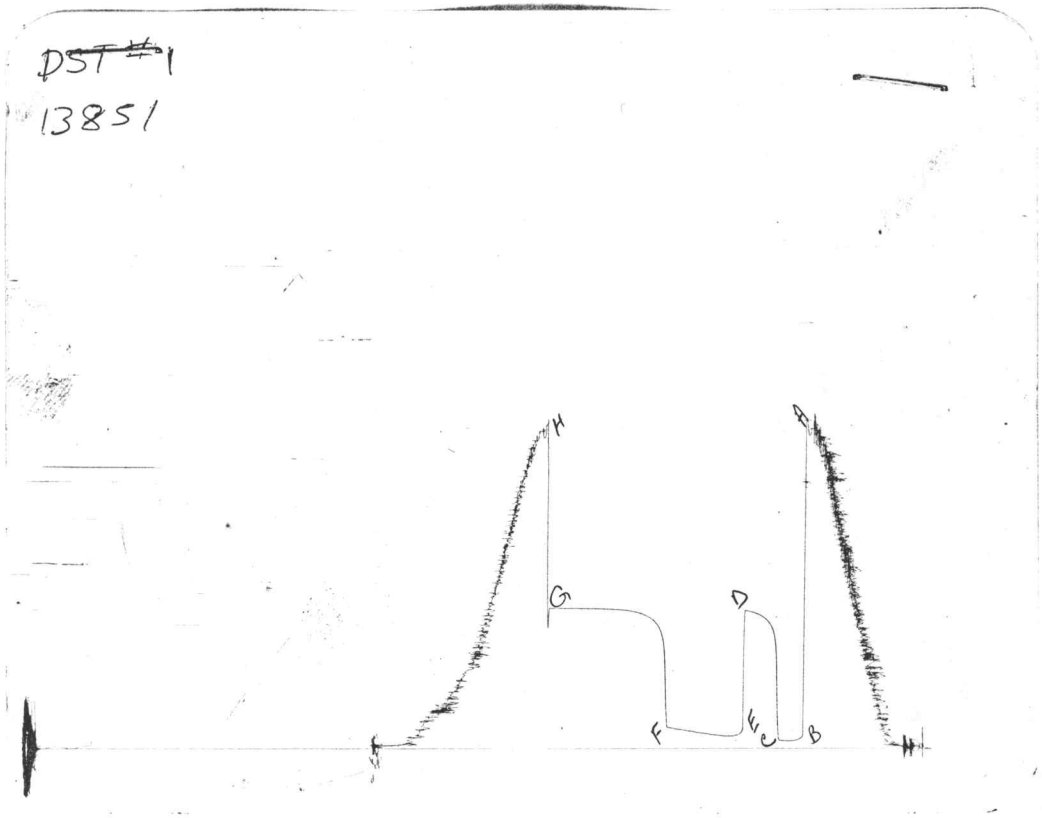
BHT: 110 °F | Gravity: 32 °API | @: 65 °F | Corrected Gravity: 32 °API

RW: @ °F | Chlorides: ppm Recovery | Chlorides: 1450 ppm System

(A) Initial Hydrostatic Mud	1856.1 PSI	AK1 Recorder No.	13850
		Range	4425
(B) First Initial Flow Pressure	33.3 PSI	@ (depth)	3591
		w / Clock No.	26191
(C) First Final Flow Pressure	37.7 PSI	AK1 Recorder No.	13851
		Range	4325
(D) Initial Shut-in Pressure	781.6 PSI	@ (depth)	3606
		w / Clock No.	17652
(E) Second Initial Flow Pressure	52.2 PSI	AK1 Recorder No.	
		Range	
(F) Second Final Flow Pressure	113.3 PSI	@ (depth)	
		w / Clock No.	
(G) Final Shut-in Pressure	791.5 PSI	Initial Opening	15
		Final Flow	60
(H) Final Hydrostatic Mud	1788.9 PSI	Initial Shut-in	30
		Final Shut-in	90

Our Representative: STEVE BOWMAN

CHART PAGE



This is an actual photograph of recorder chart

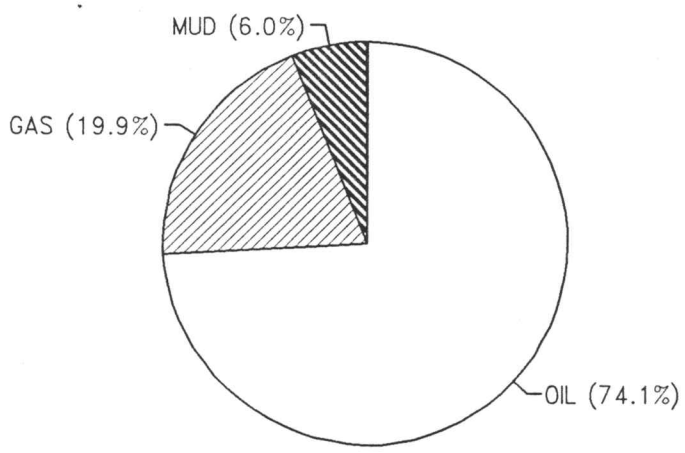
	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1822	1856.1
(B) FIRST INITIAL FLOW PRESSURE	21	33.3
(C) FIRST FINAL FLOW PRESSURE	32	37.7
(D) INITIAL CLOSED-IN PRESSURE	768	781.6
(E) SECOND INITIAL FLOW PRESSURE	64	52.2
(F) SECOND FINAL FLOW PRESSURE	106	113.3
(G) FINAL CLOSED-IN PRESSURE	778	791.5
(H) FINAL HYDROSTATIC MUD	1768	1788.9

CALCULATED RECOVERY ANALYSIS

DST # 1 TICKET # 5054

SAMPLE #	TOTAL FEET	%	GAS FEET	%	OIL FEET	%	WATER FEET	%	MUD FEET
DRILL 1	31	20	6.2	80	24.8	0	0	0	0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	217	20	43.4	80	173.6	0	0	0	0
PIPE 2	62	20	12.4	50	31	0	0	30	18.6
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	310		62		229.4		0		18.6

			HRS OPEN	BBL/DAY
BBL OIL=	1.784856	*	1.25	34.269235
BBL WATER=	0	*		0
BBL MUD=	0.14508			
BBL GAS =	0.478764			



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

OXY USA INC RAY "B" #7 DST 1

32 5S 20W PHILLIPS KS

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ELEVATION:	2210	KB	EST. PAY	3	FT
DATUM:	-3607		ZONE TESTED:	REAGAN SAND	
TEST INTERVAL:	3603-3609		TIME INTERVALS:	15-30-60-90	
RECORDER DEPTH:	3606		VISCOSITY:	8.968	CP
BOTTOM HOLE TEMP:	110		HOLE SIZE:	7.875	IN

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CUBIC FEET OF GAS IN PIPE:	44.55			
TOTAL FEET OF RECOVERY:	310.00	CORRECTED PIPE FILLUP:	302.133	
TOTAL BARRELS OF RECOVERY:	2.39	CORR. BARRELS OF RECOVERY:	2.280	BBL
BARRELS IN DRILL PIPE:	0.44	API GRAVITY:	32	
BARRELS IN WEIGHT PIPE:	1.95	FLUID GRADIENT:	0.375	
BARRELS IN DRILL COLLARS:	0.00			
GAS OIL RATIO:	18.6106	CU.FT/BBL		
BUBBLE POINT PRESSURE:	162.403			
UNCORRECTED INITIAL PRODUCTION:			45.96	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			43.78	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			61.372	

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INITIAL SLOPE	232.24	PSI/CYCLE	FINAL SLOPE	16.56	PSI/CYCLE
INITIAL P*	826	PSI	FINAL P*	796	PSI

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TRANSMISSIBILITY	429.90	(MD.-FT./CP.)
PERMEABILITY	1285.04	(MD.)
INDICATED FLOW CAPACITY	3855.12	)MD.FT)
PRODUCTIVITY INDEX	0.49	(BARRELS/DAY/PSI)
DAMAGE RATIO	7.54	
RADIUS OF INVESTIGATION	310.45	(FT,)
POTENTIOMETRIC SURFACE	-1760.40	(FT.)
DRAWDOWN FACTOR	3.668	(%)
THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE	330.24	
THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE	462.97	

INITIAL FLOW

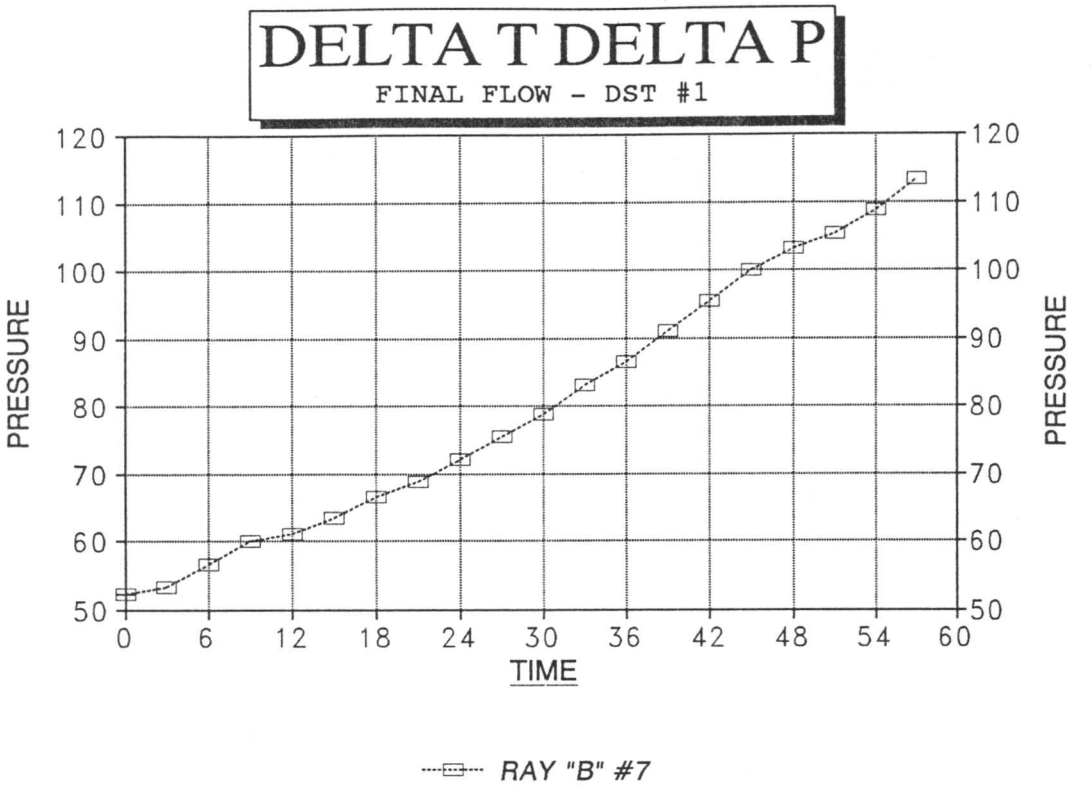
RECORDER # 13851 DST # 1

TIME(MIN)	PRESSURE	<>PRESSURE
0	33.3	33.3
3	33.3	0
6	34.4	1.1
9	35.5	1.1
12	36.6	1.1
15	37.7	1.1

FINAL FLOW

RECORDER # 13851 DST # 1

TIME(MIN)	PRESSURE	<> PRESSURE
0	52.2	52.2
3	53.3	1.1
6	56.6	3.3
9	60	3.4
12	61.1	1.1
15	63.3	2.2
18	66.6	3.3
21	68.8	2.2
24	72.2	3.4
27	75.5	3.3
30	78.8	3.3
33	83.3	4.5
36	86.6	3.3
39	91.1	4.5
42	95.5	4.4
45	100	4.5
48	103.3	3.3
51	105.5	2.2
54	108.8	3.3
57	113.3	4.5



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE: 61.372

RAY "B" #7 DST #1
INITIAL SHUTIN

15 TOTAL FLOW TIME

Slope 232.24 psi/cycle
P * 826 psi

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	3	635.4	0.778	635.4	6
	6	697.6	0.544	62.2	4
	9	726.0	0.426	28.4	3
	12	745.6	0.352	19.6	2
	15	757.6	0.301	12.0	2
	18	765.3	0.263	7.7	2
X	21	771.8	0.234	6.5	2
	24	777.3	0.211	5.5	2
X	27	781.6	0.192	4.3	2

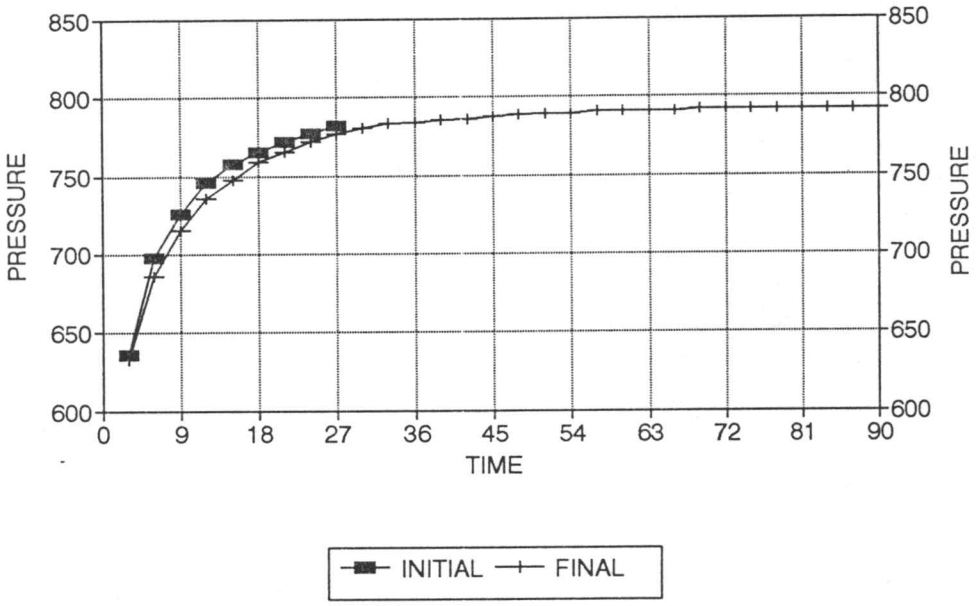
RAY "B" #7 DST #1
FINAL SHUTIN

75 TIME

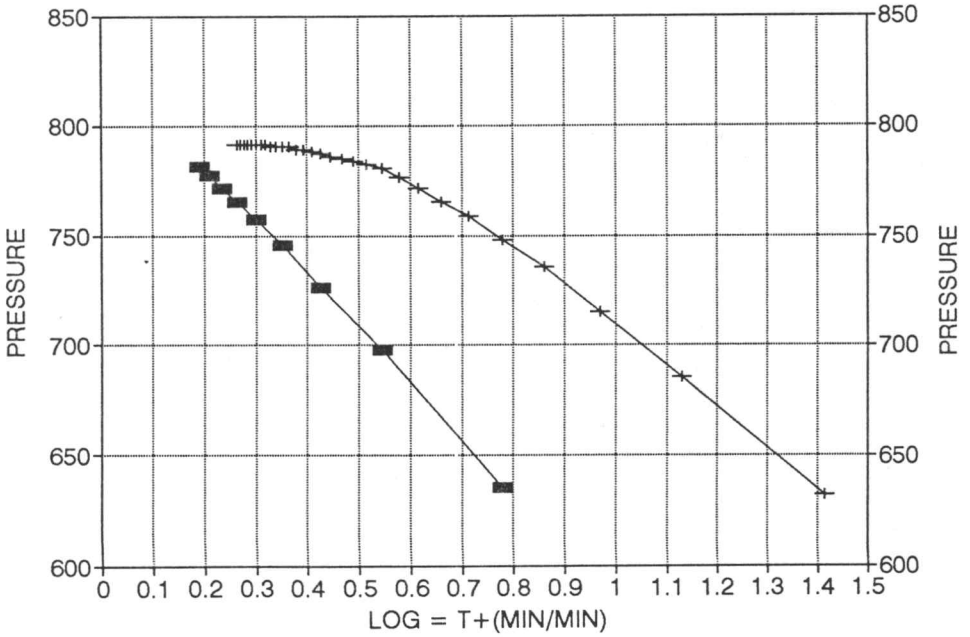
Slope 16.56 psi/cycle
P * 796 psi

		Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	3	632.1	1.415	632.1	26
	6	685.6	1.130	53.5	14
	9	715.1	0.970	29.5	9
	12	735.8	0.860	20.7	7
	15	747.8	0.778	12.0	6
	18	758.7	0.713	10.9	5
	21	765.3	0.660	6.6	5
	24	771.8	0.615	6.5	4
	27	776.2	0.577	4.4	4
	30	780.5	0.544	4.3	4
	33	782.7	0.515	2.2	3
	36	783.8	0.489	1.1	3
	39	784.9	0.466	1.1	3
	42	786.0	0.445	1.1	3
	45	787.1	0.426	1.1	3
	48	788.2	0.409	1.1	3
	51	789.3	0.393	1.1	2
	54	789.3	0.378	0.0	2
	57	790.4	0.365	1.1	2
	60	790.4	0.352	0.0	2
	63	790.4	0.341	0.0	2
X	66	790.4	0.330	0.0	2
	69	791.5	0.320	1.1	2
	72	791.5	0.310	0.0	2
	75	791.5	0.301	0.0	2
	78	791.5	0.293	0.0	2
	81	791.5	0.285	0.0	2
	84	791.5	0.277	0.0	2
	87	791.5	0.270	0.0	2
X	90	791.5	0.263	0.0	2

RAY "B" #7 / DST #1
DELTA T DELTA P



HORNER PLOT



WELL NAME Roy B #7 DST # 1 RECORDER # 13851

INIT. HYD. MUD. 1.709 1856.1

FINAL HYD. MUD ____ ____

INITIAL FLOW MINUTES 15 INTERVAL 3		INITIAL SHUTIN MINUTES 30 INTERVAL 3			FINAL FLOW MINUTES 60 INTERVAL 3		FINAL SHUTIN MINUTES 90 INTERVAL 3	
~~.030~~ .034	333	.034	—	1	.047	52.2	.102	
.030		.574		2	.048		.571	
.031		.631		3	.051		.620	
.032		.657		4	054		.647	
.033		.675		5	055		.666	
~~.034~~ .034	37.7	.686		6	057		.677	
		.693		7	060		.687	
		.699		8	062		.693	
		.704		9	065		.699	
		.708	781.6	10	068		.703	
				11	071		.707	
				12	075		.709	
				13	078		.710	
				14	082		.711	
				15	086		.712	
				16	090		.713	
				17	093		.714	
				18	095		.715	
				19	098		"	
				20	~~.100~~ .102	113.3	.716	
				21			"	
				22			"	
				23			"	
				24			.717	
				25			"	
				26			"	
				27			"	

28 " —
29 " —
30 " —
717 - 791.5

0.03	33.33
0.03	33.33
0.031	34.441
0.032	35.552
0.033	36.663
0.034	37.774

0.047	522
0.048	53.33568
0.051	56.67103
0.054	60.00408
0.055	61.11508
0.057	63.33707
0.06	66.67
0.062	68.89208
0.065	72.22516
0.068	75.5582
0.071	78.89121
0.075	83.33516
0.078	86.66808
0.082	91.11205
0.086	95.55611
0.09	100.0001
0.093	103.3331
0.095	105.5551
0.098	108.888
0.102	113.3323

0.034	~~37.774~~
0.574	635.4319
0.631	697.6472
0.657	726.0379
0.675	745.6765
0.686	757.6713
0.693	765.3016
0.699	771.8404
0.704	777.3028
0.708	781.6751

0.102	113.3323
0.571	632.1607
0.62	685.6273
0.	

0.102	~~113.3323~~
0.571	632.1607
0.62	685.6273
0.647	715.1217
0.666	735.8589
0.677	747.8578
0.687	758.7614
0.693	765.3016
0.699	771.8404
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0.707	780.5821
0.709	782.7681
0.71	783.861
0.711	784.954
0.712	786.0469
0.713	787.1398
0.714	788.2326
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