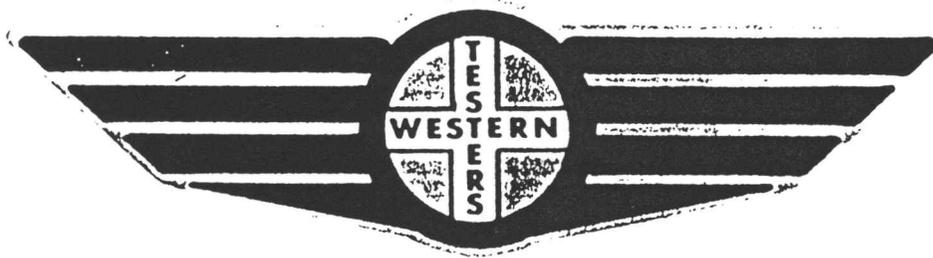


FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

COMPANY HESS OIL COMPANY LEASE & WELL NO. CARUSO #1 SEC. 22 TWP. 15S RGE. 25W TEST NO. 1 DATE 7/26/87

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 7-26-87 TICKET : 11803
CUSTOMER : HESS OIL COMPANY LEASE : CARUSO
WELL : #1 TEST: 1 GEOLOGIST : D. HESS
ELEVATION : 2405 KB FORMATION : MISSISSIPPI
SECTION : 22 TOWNSHIP : 15S
RANGE : 25W COUNTY : TREGO STATE : KANSAS
GAUGE SN# : 13267 RANGE : 4050 CLOCK : 12

INTERVAL FROM : 4340 TO : 4385 TOTAL DEPTH : 4385
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : SIZE :
PACKER DEPTH : 4335 SIZE : 6.63
PACKER DEPTH : 4340 SIZE : 6.63
PACKER DEPTH : SIZE :

DRILLING CON. : WHITE & ELLIS RIG #8
MUD TYPE : CHEMICAL VISCOSITY : 46
WEIGHT : 9.3 WATER LOSS (CC) : 14.
CHLORIDES (PPM) : 7800
JARS-MAKE : - SERIAL NUMBER :
DID WELL FLOW ? : NO REVERSED OUT ? : -

DRILL COLLAR LENGTH : 414 FT I.D. inch : 2.25
WEIGHT PIPE LENGTH : 0 FT I.D. inch : 0.00
DRILL PIPE LENGTH : 3904 FT I.D. inch : 3.80
TEST TOOL LENGTH : 22 FT TOOL SIZE : 4.75
ANCHOR LENGTH : 45 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : STRONG BLOW THROUGHOUT BOTH FLOW PERIODS.
BLOW COMMENT #2 :
BLOW COMMENT #3 :
BLOW COMMENT #4 :

WESTERN TESTING CO. INC.
WICHITA - KANSAS

Pressure Transient Report

COMPANY : HESS OIL COMPANY
RIG : TREGO-KANSAS
FIELD : CARUSO
WELL : #1
DATE : 7-26-87
GAUGE NO : 13267

OPERATIONAL COMMENTS

RECOVERED 180 FEET OF GAS ABOVE FLUID.

COMPANY : HESS OIL COMPANY
WELL : #1
GAUGE # : 13267
DATE : 26/ 7/87

FIELD : CARUSO
JOB # : 11803
DEPTH : 4385
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
1	3:30: 0	0.000	224.000	124.00	0.000
2	3:34:59	0.083	235.000	124.00	11.000
3	3:40: 0	0.167	284.000	124.00	49.000
4	3:45: 0	0.250	292.000	124.00	8.000
5	3:48: 0	0.300	966.000	124.00	674.000
6	3:51: 0	0.350	1074.000	124.00	108.000
7	3:54: 0	0.400	1123.000	124.00	49.000
8	3:57: 0	0.450	1149.000	124.00	26.000
9	4: 0: 0	0.500	1168.000	124.00	19.000
10	4: 3: 0	0.550	1183.000	124.00	15.000
11	4: 6: 0	0.600	1195.000	124.00	12.000
12	4: 9: 0	0.650	1205.000	124.00	10.000
13	4:12: 0	0.700	1212.000	124.00	7.000
14	4:15: 0	0.750	1219.000	124.00	7.000
15	4:18: 0	0.800	1225.000	124.00	6.000
16	4:19: 0	0.817	402.000	124.00	-823.000
17	4:22:59	0.883	402.000	124.00	0.000
18	4:28: 0	0.967	416.000	124.00	14.000
19	4:33: 0	1.050	425.000	124.00	9.000
20	4:37:59	1.133	454.000	124.00	29.000
21	4:43: 0	1.217	485.000	124.00	31.000
22	4:48: 0	1.300	516.000	124.00	31.000
23	4:52:59	1.383	547.000	124.00	31.000
24	4:58: 0	1.467	571.000	124.00	24.000
25	5: 3: 0	1.550	587.000	124.00	16.000
26	5: 5:59	1.600	956.000	124.00	369.000
27	5: 9: 0	1.650	999.000	124.00	43.000
28	5:12: 0	1.700	1027.000	124.00	28.000
29	5:15: 0	1.750	1049.000	124.00	22.000
30	5:18: 0	1.800	1063.000	124.00	14.000
31	5:21: 0	1.850	1076.000	124.00	13.000
32	5:24: 0	1.900	1087.000	124.00	11.000
33	5:27: 0	1.950	1096.000	124.00	9.000
34	5:30: 0	2.000	1105.000	124.00	9.000
35	5:33: 0	2.050	1109.000	124.00	4.000
36	5:36: 0	2.100	1116.000	124.00	7.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA - KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY. HESS OIL COMPANY
DATE 7-26-87
FIELD. CARUSO
WELL #1
AREA TREGO-KANSAS
JOB NUMBER 11803
GAUGE NUMBER . . . 13267
GAUGE DEPTH. . . . 4385
ZONE TESTED. . . . 4340-4385

PHASE : OIL FUNCTION : PRESSURE

=====I=N=P=U=T====D=A=T=A====S=U=M=M=A=R=Y=====

THICKNESS.	H	9.0000E+00	Feet
POROSITY	POR	1.8000E-01	Frac
<i>1.2 ?</i> <i>400 ?</i> VISCOSITY.	U	2.4000E+00	Cp
FORMATION VOLUME FACTOR.	B	1.0052E+00	Rb/stb
TOTAL COMPRESSIBILITY.	Ct	2.1750E-05	Psi ⁻¹
<i>.78 ?</i> <i>800 ?</i> WELLBORE RADIUS.	Rw	5.2000E-01	Feet
DRAINAGE RADIUS.	Re	1.5000E+03	Feet
RESERVOIR TEMPERATURE.	T	1.2400E+02	Deg F
GRAVITY OF FLUID	G	3.8000E+01	
PVT EVALUATION PRESSURE.	P	0.0000E+00	Psig
PRESSURE AT SHUT-IN.	Pwf	5.8700E+02	Psig
FINAL RECORDED PRESSURE.	Ps	1.1160E+03	Psig
PRODUCTION RATE.	Q	4.3464E+02	Bbl/day
TOTAL FLOW TIME.	T	7.5000E-01	Hours

=====R=E=G=R=E=S=S=I=O=N====R=E=S=U=L=T=S=====

LEAST SQUARE RESULTS OVER THE INTERVAL :
FROM 3 TO 2

SLOPE OF THE LINE. 2.2615E+02 psi/cycle
FALSE PRESSURE, PSTAR. 1.2001E+03 psi
PRESSURE AT 1 HOUR 1.1452E+03 psi

=====A=N=A=L=Y=S=I=S====R=E=S=U=L=T=S=====

TRANSMISSIBILITY. . . . .	.Kh/u	3.1413E+02	md-ft/cp
FLOW CAPACITY. . . . .	.Kh	7.5392E+02	md-ft
PERMEABILITY TO PHASE.	K	8.3769E+01	md
DAMAGE RATIO . . . . .	.Dr	6.5128E-01	
RADIUS OF INVESTIGATION. . . . .	.Rinv	8.3984E+01	ft
SKIN FACTOR. . . . .	.S	-1.6716E+00	
AVERAGE PRESSURE . . . . .	.Pbar	1.1998E+03	psig
DIMENSIONLESS TIME . . . . .	.Tda	2.4973E-04	
MATTHEWS-BRONS-HAZEBROEK . . . . .	.PDmbh	3.1382E-03	

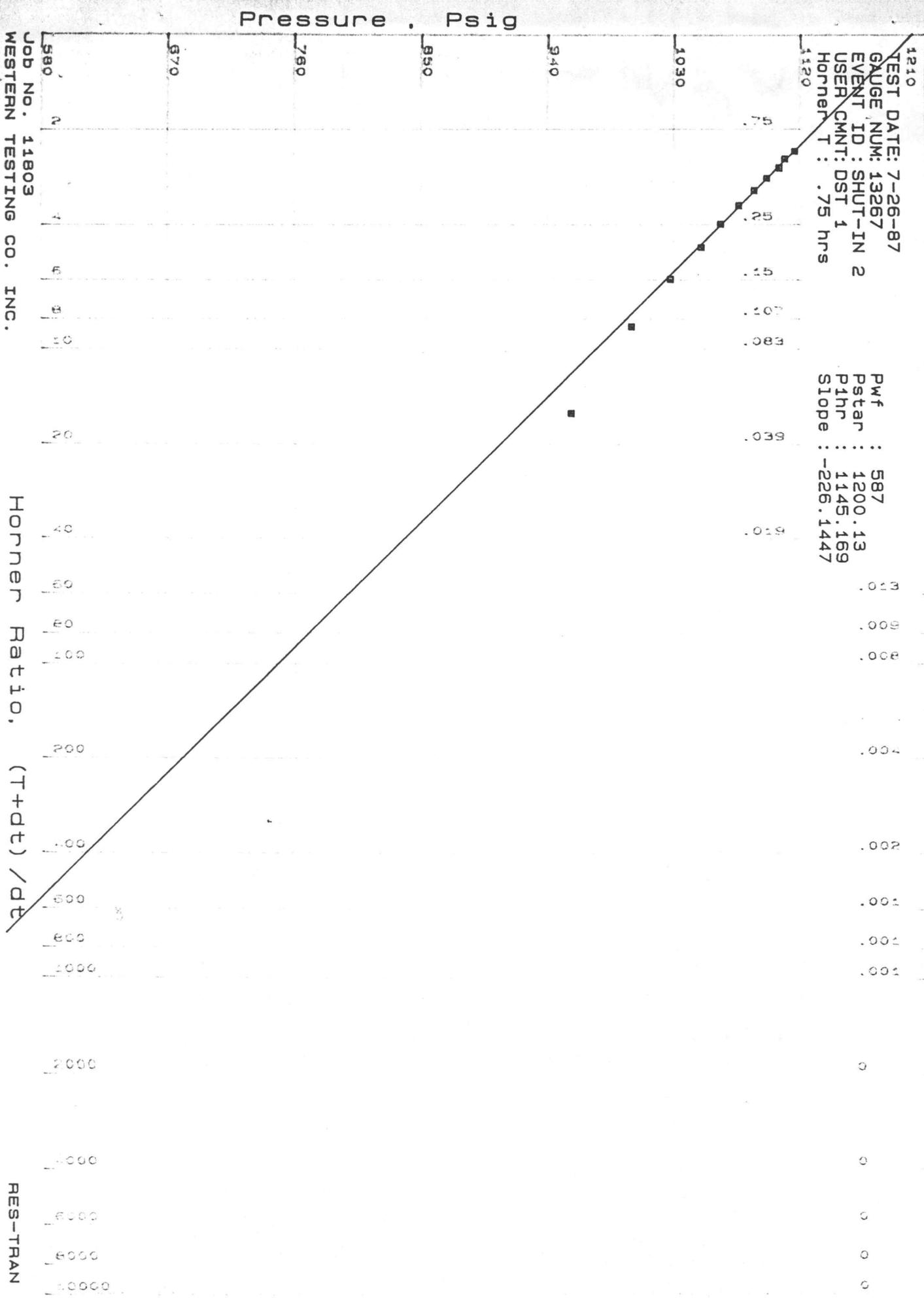
COMPANY: HESS OIL COMPANY
 FIELD: CARUSO

WELL # : #1
 LOCATION: TREGO-KANSAS

PROCESSED: 07-30-1987
 ENGINEER: LARRY KING

TEST DATE: 7-26-87
 GAUGE NUM: 13267
 EVENT ID: SHUT-IN 2
 USER CMNT: DST 1
 Horner T: .75 hrs

Pwf : 587
 Pstar : 1200.13
 P1hr : 1145.169
 Slope : -226.1447



Job No. 11803
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt)/dt
 RES-TRAN

WESTERN TESTING CO. INC.
WICHITA - KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY HESS OIL COMPANY
DATE 7-26-87
FIELD CARUSO
WELL #1
AREA TREGO-KANSAS
JOB NUMBER 11803
GAUGE NUMBER 13267
GAUGE DEPTH 4385
ZONE TESTED 4340-4385

PHASE : OIL FUNCTION : PRESSURE

=====I=N=P=U=T====D=A=T=A====S=U=M=M=A=R=Y=====

THICKNESS	H	9.0000E+00	Feet
POROSITY	POR	1.8000E-01	Frac
VISCOSITY	U	1.2000E+00	Cp
FORMATION VOLUME FACTOR	B	4.0000E-01	Rb/stb
TOTAL COMPRESSIBILITY	Ct	2.1750E-05	Psi ⁻¹
WELLBORE RADIUS	Rw	7.8000E-01	Feet
DRAINAGE RADIUS	Re	8.0000E+02	Feet
RESERVOIR TEMPERATURE	T	1.2400E+02	Deg F
GRAVITY OF FLUID	G	3.8000E+01	
PVT EVALUATION PRESSURE	P	0.0000E+00	Psig
PRESSURE AT SHUT-IN	Pwf	5.8700E+02	Psig
FINAL RECORDED PRESSURE	Ps	1.1160E+03	Psig
PRODUCTION RATE	Q	4.3464E+02	Bbl/day
TOTAL FLOW TIME	T	7.5000E-01	Hours

=====R=E=G=R=E=S=S=I=O=N====R=E=S=U=L=T=S=====

LEAST SQUARE RESULTS OVER THE INTERVAL :
FROM 0 TO 0

SLOPE OF THE LINE	2.2615E+02	psi/cycle
FALSE PRESSURE, PSTAR	1.2001E+03	psi
PRESSURE AT 1 HOUR	1.1452E+03	psi

=====A=N=A=L=Y=S=I=S====R=E=S=U=L=T=S=====

TRANSMISSIBILITY	Kh/u	1.2500E+02	md-ft/cp
FLOW CAPACITY	Kh	1.5000E+02	md-ft
PERMEABILITY to PHASE	K	1.6667E+01	md
DAMAGE RATIO	Dr	7.9489E-01	
RADIUS OF INVESTIGATION	Rinv	5.2978E+01	ft
SKIN FACTOR	S	-8.0541E-01	
AVERAGE PRESSURE	Pbar	1.1997E+03	psig
DIMENSIONLESS TIME	Tda	3.4937E-04	
MATTHEWS-BRONS-HAZEBROEK	PDmbh	4.3903E-03	

WESTERN TESTING CO. INC.
WICHITA - KANSAS

Pressure Transient Report

COMPANY : HESS OIL COMPANY
RIG : TREGO-KANSAS
FIELD : CARUSO
WELL : #1
DATE : 7-26-87
GAUGE NO : 13267
TEST : SHUT-IN 2

COMPANY : HESS OIL COMPANY
WELL : #1
GAUGE # : 13267
DATE : 26/ 7/87
Comment : SHUT-IN 2
Horner T: .75 Hours

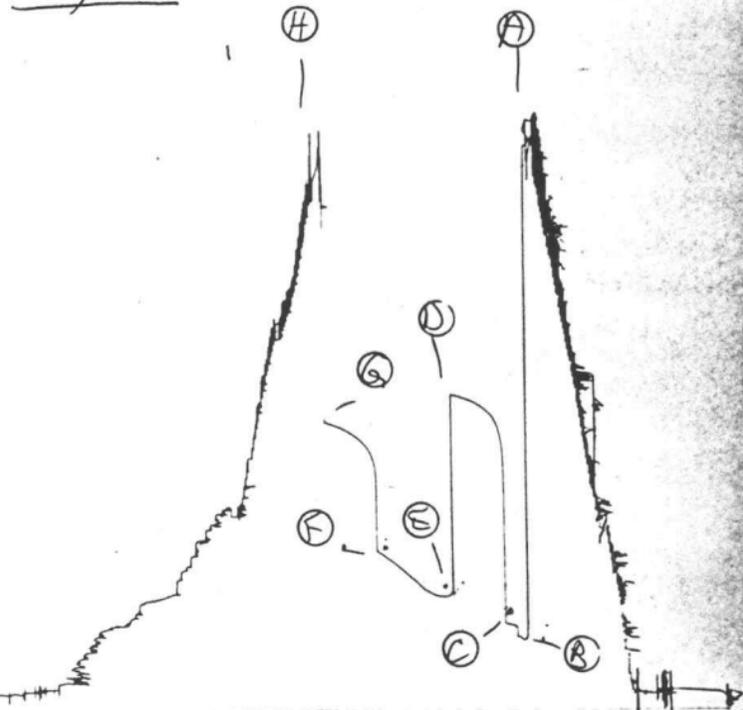
FIELD : CARUSO
JOB # : 11803
DEPTH : 4385
TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
25	5: 3: 0	0.000	587.000	124.00	0.0000	0.000
26	5: 5:59	0.050	956.000	124.00	16.0000	369.000
27	5: 9: 0	0.100	999.000	124.00	8.5000	412.000
28	5:12: 0	0.150	1027.000	124.00	6.0000	440.000
29	5:15: 0	0.200	1049.000	124.00	4.7500	462.000
30	5:18: 0	0.250	1063.000	124.00	4.0000	476.000
31	5:21: 0	0.300	1076.000	124.00	3.5000	489.000
32	5:24: 0	0.350	1087.000	124.00	3.1429	500.000
33	5:27: 0	0.400	1096.000	124.00	2.8750	509.000
34	5:30: 0	0.450	1105.000	124.00	2.6667	518.000
35	5:33: 0	0.500	1109.000	124.00	2.5000	522.000
36	5:36: 0	0.550	1116.000	124.00	2.3636	529.000

WESTERN TESTING CO. INC.

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