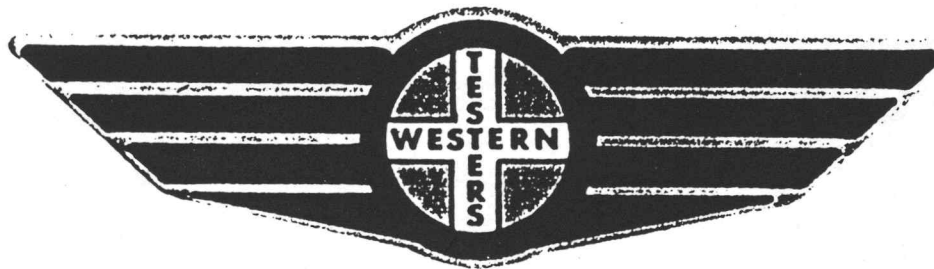


FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

COMPANY RAYMOND OIL COMPANY, INC. LEASE & WELL NO. ENGELHARDT #2
& MURFIN DRILLING CO., INC. SEC. 25 TWP. 9S RGE. 32W TEST NO. 1 DATE 6/11/88

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 6-11-88 TICKET : 12571
CUSTOMER : RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY LEASE : ENGLEHARDT
WELL : #2 TEST: 1 GEOLOGIST : SANDBERG
ELEVATION : 2053052 KB FORMATION : L-KANSAS CITY L
SECTION : 25 TOWNSHIP : 9S
RANGE : 32W COUNTY : THOMAS STATE : KANSAS
GAUGE SN# : 6233 RANGE : 4000 CLOCK : 12

INTERVAL FROM : 4320 TO : 4343 TOTAL DEPTH : 4343
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 4315 SIZE : 6.75
PACKER DEPTH : 4320 SIZE : 6.75
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : MURFIN RIG 21
MUD TYPE : CHEMICAL VISCOSITY : 42
WEIGHT : 9.2 WATER LOSS (CC) : 9.6
CHLORIDES (PPM) : 2200
JARS-MAKE : NO SERIAL NUMBER :
DID WELL FLOW ? : NO REVERSED OUT ? : NO

DRILL COLLAR LENGTH : 564 FT I.D. inch : 2.20
WEIGHT PIPE LENGTH : 286 FT I.D. inch : 3.20
DRILL PIPE LENGTH : 3447 FT I.D. inch : 3.80
TEST TOOL LENGTH : 23 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 23 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 : INITIAL FLOW-STRONG BLOW-BOTTOM OF BUCKET IN 7 MINUTES
BLOW COMMENT #2 : FINAL FLOW-STRONG BLOW-BOTTOM OF BUCKET IN 5 MINUTES
BLOW COMMENT #3 :
BLOW COMMENT #4 :

RECOVERED : 870 FT OF: CLEAN GASSY OIL
80% OIL-20% GAS
RECOVERED : 90 FT OF: OIL CUT MUD
5% OIL-95% MUD
CHLORIDES: 3000 PPM
GRAVITY ON OIL 37 CORRECTED TO 60 DEG F

Total Barrels Fluid = 5.62
Total Fluid Prod Rate = 101.11 BFPD
Indicated Oil Rate = 73.78 BOPD
Indicated Wtr Rate = 0.91 BWPD
Corrected Oil Rate = 77.55 BOPD
Corrected Wtr Rate = 0.95 BWPD

REMARK 1 :
REMARK 2 : RECOVERED 2015 FEET OF GAS ABOVE FLUID.
REMARK 3 :
REMARK 4 :

SET PACKER(S) : 12:10 PM
WELL TEMPERATURE : 128
INITIAL HYDROSTATIC PRESSURE (A) 2157
INITIAL FLOW PERIOD MIN: 35 (B) 113 PSI TO (C) : 312
INITIAL CLOSED IN PERIOD MIN: 60 (D) 376
FINAL FLOW PERIOD MIN: 45 (E) 349 PSI TO (F) : 364
FINAL CLOSED IN PERIOD MIN: 75 (G) 380
FINAL HYDROSTATIC PRESSURE (H) 2153
TIME STARTED OFF BOTTOM : 3:40 PM

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY
RIG : THOMAS-KANSAS
FIELD : ENGLEHARDT
WELL : #2
DATE : 6-11-88
GAUGE NO : 6233

OPERATIONAL COMMENTS

RECOVERED 2015 FEET OF GAS ABOVE FLUID.

COMPANY : RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY
WELL : #2
GAUGE # : 6233
DATE : 11/ 6/88

FIELD : ENGLEHARDT
JOB # : 12571
DEPTH : 4343
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
1	12:10: 0	0.000	113.000	128.00	0.000
2	12:14:59	0.083	152.000	128.00	39.000
3	12:20: 0	0.167	217.000	128.00	65.000
4	12:25: 0	0.250	255.000	128.00	38.000
5	12:29:59	0.333	283.000	128.00	28.000
6	12:35: 0	0.417	297.000	128.00	14.000
7	12:40: 0	0.500	306.000	128.00	9.000
8	12:44:59	0.583	312.000	128.00	6.000
9	12:47:59	0.633	365.000	128.00	53.000
10	12:50:59	0.683	367.000	128.00	2.000
11	12:53:59	0.733	369.000	128.00	2.000
12	12:56:59	0.783	371.000	128.00	2.000
13	12:59:59	0.833	373.000	128.00	2.000
14	13: 2:59	0.883	375.000	128.00	2.000
15	13: 5:59	0.933	375.000	128.00	0.000
16	13: 8:59	0.983	375.000	128.00	0.000
17	13:11:59	1.033	375.000	128.00	0.000
18	13:14:59	1.083	375.000	128.00	0.000
19	13:17:59	1.133	376.000	128.00	1.000
20	13:20:59	1.183	376.000	128.00	0.000
21	13:23:59	1.233	376.000	128.00	0.000
22	13:26:59	1.283	376.000	128.00	0.000
23	13:29:59	1.333	376.000	128.00	0.000
24	13:32:59	1.383	376.000	128.00	0.000
25	13:35:59	1.433	376.000	128.00	0.000
26	13:38:59	1.483	376.000	128.00	0.000
27	13:41:59	1.533	376.000	128.00	0.000
28	13:44:59	1.583	376.000	128.00	0.000
29	13:46: 0	1.600	349.000	128.00	-27.000
30	13:49:59	1.667	349.000	128.00	0.000
31	13:55: 0	1.750	349.000	128.00	0.000
32	13:59:59	1.833	351.000	128.00	2.000
33	14: 4:59	1.917	353.000	128.00	2.000
34	14:10: 0	2.000	356.000	128.00	3.000
35	14:14:59	2.083	359.000	128.00	3.000
36	14:19:59	2.167	362.000	128.00	3.000
37	14:25: 0	2.250	363.000	128.00	1.000
38	14:29:59	2.333	364.000	128.00	1.000
39	14:32:59	2.383	375.000	128.00	11.000
40	14:35:59	2.433	376.000	128.00	1.000
41	14:38:59	2.483	377.000	128.00	1.000
42	14:41:59	2.533	378.000	128.00	1.000
43	14:44:59	2.583	379.000	128.00	1.000
44	14:47:59	2.633	379.000	128.00	0.000
45	14:50:59	2.683	379.000	128.00	0.000
46	14:53:59	2.733	379.000	128.00	0.000
47	14:56:59	2.783	379.000	128.00	0.000
48	14:59:59	2.833	379.000	128.00	0.000
49	15: 2:59	2.883	379.000	128.00	0.000
50	15: 5:59	2.933	379.000	128.00	0.000
51	15: 8:59	2.983	379.000	128.00	0.000
52	15:11:59	3.033	380.000	128.00	1.000

COMPANY : RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY

FIELD : ENGLEHARDT

WELL : #2

JOB # : 12571

GAUGE # : 6233

DEPTH : 4343

DATE : 11/ 6/88

TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
53	15:14:59	3.083	380.000	128.00	0.000
54	15:17:59	3.133	380.000	128.00	0.000
55	15:20:59	3.183	380.000	128.00	0.000
56	15:23:59	3.233	380.000	128.00	0.000
57	15:26:59	3.283	380.000	128.00	0.000
58	15:29:59	3.333	380.000	128.00	0.000
59	15:32:59	3.383	380.000	128.00	0.000
60	15:35:59	3.433	380.000	128.00	0.000
61	15:38:59	3.483	380.000	128.00	0.000
62	15:41:59	3.533	380.000	128.00	0.000
63	15:44:59	3.583	380.000	128.00	0.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY

RIG : THOMAS-KANSAS

FIELD : ENGLEHARDT

WELL : #2

DATE : 6-11-88

GAUGE NO : 6233

TEST : DST-1 SHUTIN-1

COMPANY : RAYMOND OIL CO. INC. &
 MURFIN DRILLING COMPANY
 WELL : #2
 GAUGE # : 6233
 DATE : 11/ 6/88
 Comment : DST-1 SHUTIN-1
 Horner T: .5833333 Hours

FIELD : ENGLEHARDT
 JOB # : 12571
 DEPTH : 4343
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
8	12:44:59	0.000	312.000	128.00	0.0000	0.000
9	12:47:59	0.050	365.000	128.00	12.6667	53.000
10	12:50:59	0.100	367.000	128.00	6.8333	55.000
11	12:53:59	0.150	369.000	128.00	4.8889	57.000
12	12:56:59	0.200	371.000	128.00	3.9167	59.000
13	12:59:59	0.250	373.000	128.00	3.3333	61.000
14	13: 2:59	0.300	375.000	128.00	2.9444	63.000
15	13: 5:59	0.350	375.000	128.00	2.6667	63.000
16	13: 8:59	0.400	375.000	128.00	2.4583	63.000
17	13:11:59	0.450	375.000	128.00	2.2963	63.000
18	13:14:59	0.500	375.000	128.00	2.1667	63.000
19	13:17:59	0.550	376.000	128.00	2.0606	64.000
20	13:20:59	0.600	376.000	128.00	1.9722	64.000
21	13:23:59	0.650	376.000	128.00	1.8974	64.000
22	13:26:59	0.700	376.000	128.00	1.8333	64.000
23	13:29:59	0.750	376.000	128.00	1.7778	64.000
24	13:32:59	0.800	376.000	128.00	1.7292	64.000
25	13:35:59	0.850	376.000	128.00	1.6863	64.000
26	13:38:59	0.900	376.000	128.00	1.6481	64.000
27	13:41:59	0.950	376.000	128.00	1.6140	64.000
28	13:44:59	1.000	376.000	128.00	1.5833	64.000

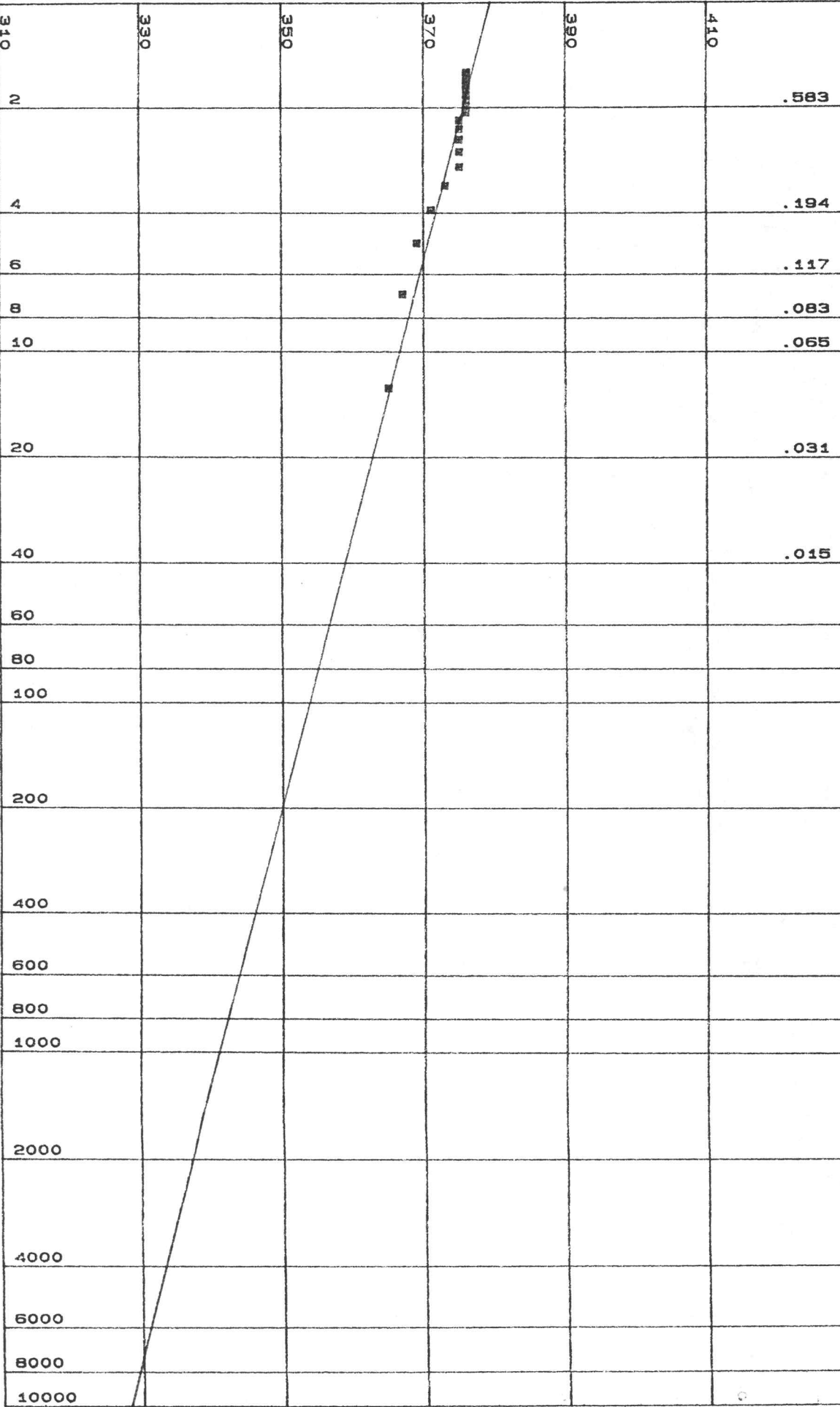
WESTERN TESTING CO. INC.

Pressure , Psig

COMPANY: OENSHARDT & MUEBIN DRILLING COMPANY
 TEST DATE: 6-11-88
 GAUGE NUM: 6233
 EVENT ID: DST-1
 USER CMNT: SHUTIN-1
 Horner T : .5833333 hrs
 Pwf : 312
 Pstar : 379.352
 P1hr : 376.7978
 Slope : -12.79878

WELL LOCATION: #2 THOMAS-KANSAS

PROCESSED: 10-12-1989
ENGINEER: LARRY KING



Job No. 12574
 WESTERN TESTING CO. INC.
 Horner Ratio, (T+dt) / dt
 RES-TRAN

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY

RIG : THOMAS-KANSAS

FIELD : ENGLEHARDT

WELL : #2

DATE : 6-11-88

GAUGE NO : 6233

TEST : DST-1 SHUTIN-2

COMPANY : RAYMOND OIL CO. INC. &
 MURFIN DRILLING COMPANY
 WELL : #2
 GAUGE # : 6233
 DATE : 11/ 6/88
 Comment : DST-1 SHUTIN-2
 Horner T: 1.333333 Hours

FIELD : ENGLEHARDT
 JOB # : 12571
 DEPTH : 4343
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
38	14:29:59	0.000	364.000	128.00	0.0000	0.000
39	14:32:59	0.050	375.000	128.00	27.6667	11.000
40	14:35:59	0.100	376.000	128.00	14.3333	12.000
41	14:38:59	0.150	377.000	128.00	9.8889	13.000
42	14:41:59	0.200	378.000	128.00	7.6667	14.000
43	14:44:59	0.250	379.000	128.00	6.3333	15.000
44	14:47:59	0.300	379.000	128.00	5.4444	15.000
45	14:50:59	0.350	379.000	128.00	4.8095	15.000
46	14:53:59	0.400	379.000	128.00	4.3333	15.000
47	14:56:59	0.450	379.000	128.00	3.9630	15.000
48	14:59:59	0.500	379.000	128.00	3.6667	15.000
49	15: 2:59	0.550	379.000	128.00	3.4242	15.000
50	15: 5:59	0.600	379.000	128.00	3.2222	15.000
51	15: 8:59	0.650	379.000	128.00	3.0513	15.000
52	15:11:59	0.700	380.000	128.00	2.9048	16.000
53	15:14:59	0.750	380.000	128.00	2.7778	16.000
54	15:17:59	0.800	380.000	128.00	2.6667	16.000
55	15:20:59	0.850	380.000	128.00	2.5686	16.000
56	15:23:59	0.900	380.000	128.00	2.4815	16.000
57	15:26:59	0.950	380.000	128.00	2.4035	16.000
58	15:29:59	1.000	380.000	128.00	2.3333	16.000
59	15:32:59	1.050	380.000	128.00	2.2698	16.000
60	15:35:59	1.100	380.000	128.00	2.2121	16.000
61	15:38:59	1.150	380.000	128.00	2.1594	16.000
62	15:41:59	1.200	380.000	128.00	2.1111	16.000
63	15:44:59	1.250	380.000	128.00	2.0667	16.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY RAYMOND OIL CO. INC. &
MURFIN DRILLING COMPANY
DATE 6-11-88
FIELD ENGLEHARDT
WELL #2
AREA THOMAS-KANSAS
JOB NUMBER 12571
GAUGE NUMBER 6233
GAUGE DEPTH 4343
ZONE TESTED 4320-4343

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	1.4000E-01	Frac
VISCOSITY.	U	3.0856E+00	Cp
FORMATION VOLUME FACTOR.	B	1.0525E+00	Rb/stb
TOTAL COMPRESSIBILITY.	Ct	1.8944E-05	Psi ⁻¹
WELLBORE RADIUS.	Rw	5.2000E-01	Feet
DRAINAGE RADIUS.	Re	1.0500E+03	Feet
RESERVOIR TEMPERATURE.	T	1.2800E+02	Deg F
GRAVITY OF FLUID	G	3.7000E+01	
PVT EVALUATION PRESSURE.	P	0.0000E+00	Psig
PRESSURE AT SHUT-IN.	Pwf	3.6400E+02	Psig
FINAL RECORDED PRESSURE.	Ps	3.8000E+02	Psig
PRODUCTION RATE.	Q	5.6200E+00	Bbl/day
TOTAL FLOW TIME.	T	1.3330E+00	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 9.8889 TO 2.0667

SLOPE OF THE LINE. 3.8299E+00 psi/cycle
FALSE PRESSURE, PSTAR. 3.8140E+02 psi
PRESSURE AT 1 HOUR 3.7999E+02 psi

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

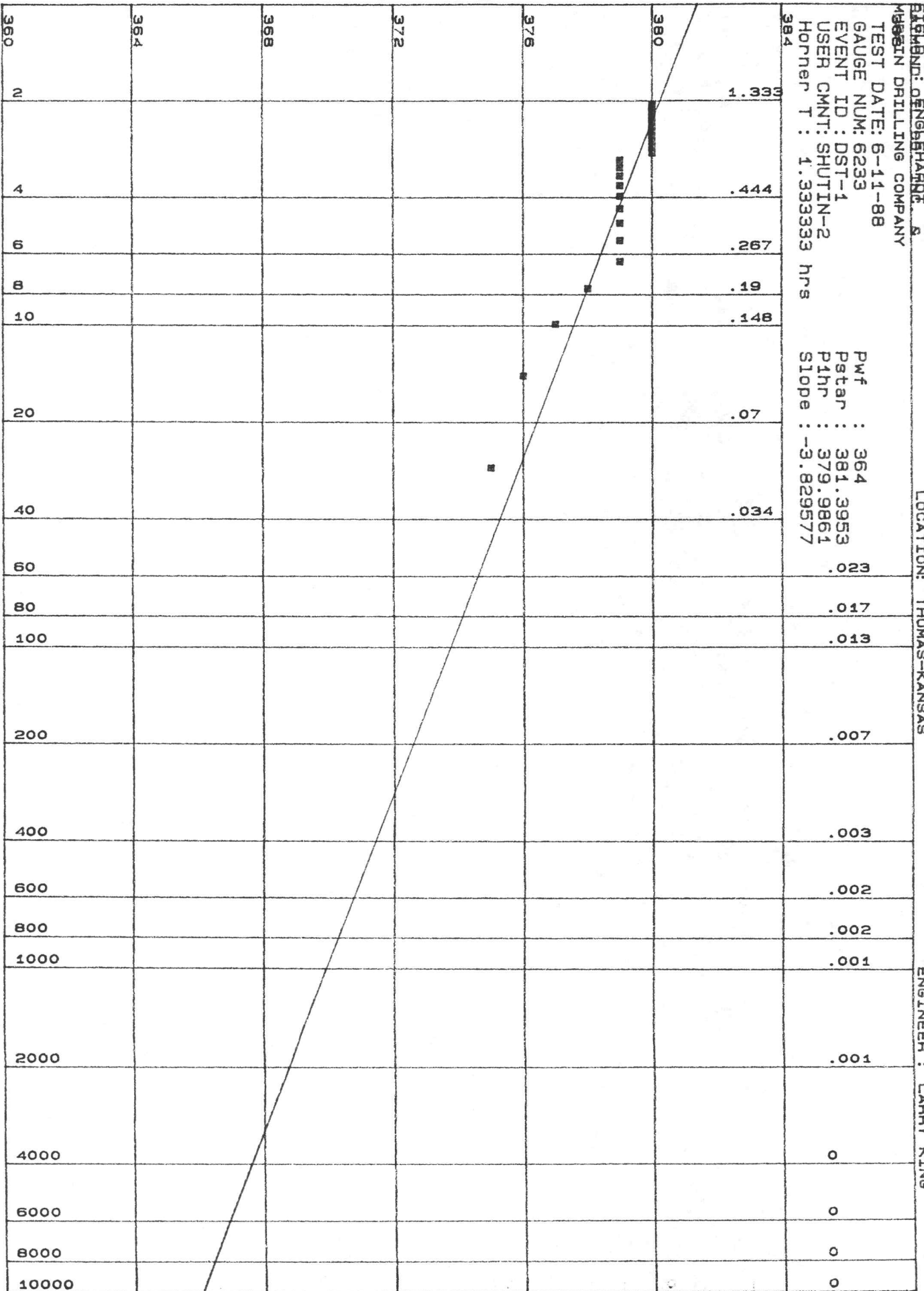
TRANSMISSIBILITY.	Kh/u	2.5112E+02	md-ft/cp
FLOW CAPACITY.	Kh	7.7486E+02	md-ft
PERMEABILITY to PHASE.	K	8.6095E+01	md
DAMAGE RATIO	Dr	1.0128E+00	
RADIUS OF INVESTIGATION.	Rinv	1.2163E+02	ft
SKIN FACTOR.	S	6.5813E-02	
AVERAGE PRESSURE	Pbar	3.8137E+02	psig
DIMENSIONLESS TIME	Tda	1.0689E-03	
MATTHEWS-BRONS-HAZEBROEK	PDmbh	1.3433E-02	

Pressure, Psig

Job No. 12571
WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN



COMPANY: OENSHARPT
 ASSIGNMENT: MESSIN DRILLING COMPANY
 TEST DATE: 6-11-88
 GAUGE NUM: 6233
 EVENT ID: DST-1
 USER CMNT: SHUTIN-2
 Horner T: 1.333333 hrs

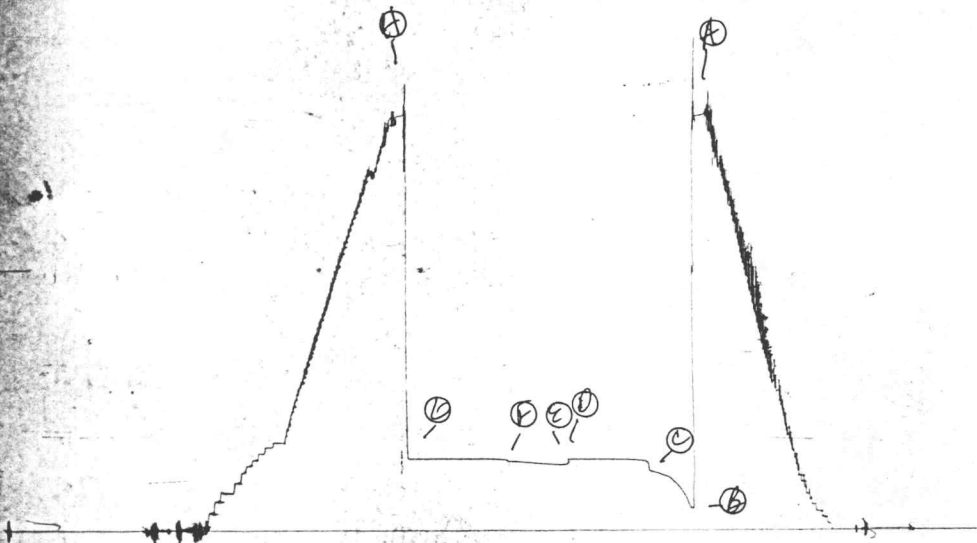
WELL # : #2
 LOCATION: THOMAS-KANSAS
 Pwf : 364
 Pstar : 381.3953
 P1hr : 379.9861
 Slope : -3.829577

PROCESSED: 10-12-1989
 ENGINEER: LARRY KING

6233

Site # 12571

I



13962

K# 12571

0

