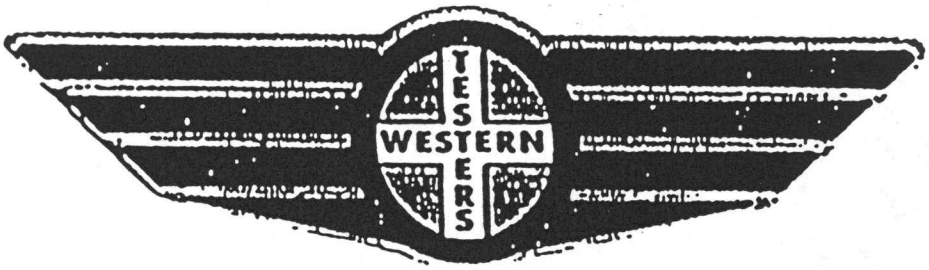
COMPANY VIKING RESOURCES LEASE & WELL NO. SCHWARTZKOPF #1 SEC. 10 TWP 19S RGE 24W TEST 1 DATE 8/5/89

FORMATION TEST REPORT



Home Office: Wichita, Kansas 67201

P.O. Box 1599 Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE	: 8-05-89			TICKET	: 15114
CUSTOMER	: VIKING RESOURCES			LEASE	: SCHWARTZKOPF
WELL	: #1 TEST: 1			GEOLOGIST	: R. PATTON
ELEVATION	: 2290 K.B.			FORMATION	: MISSISSIPPI
SECTION	: 10			TOWNSHIP	: 19S
RANGE	: 24W	COUNTY	: NESS	STATE	: KS
GAUGE SN#	: 10270	RANGE	: 4150	CLOCK	: 12

INTERVAL FROM	: 4291	TO	: 4342	TOTAL DEPTH	: 4342
DEPTH OF SELECTIVE ZONE	:				
PACKER DEPTH	: 4286	SIZE	: 6.63		
PACKER DEPTH	: 4291	SIZE	: 6.63		
PACKER DEPTH	:	SIZE	:		
PACKER DEPTH	:	SIZE	:		

DRILLING CON.	: MALLARD #1		
MUD TYPE	: CHEMICAL	VISCOSITY	: 45
WEIGHT	: 9.2	WATER LOSS (CC)	: 12.4
CHLORIDES (PPM)	:		
JARS-MAKE	:	SERIAL NUMBER	:
DID WELL FLOW ?	:	REVERSED OUT ?	:

DRILL COLLAR LENGTH	: 300	FT	I.D. inch	: 2.20	
WEIGHT PIPE LENGTH	: 0	FT	I.D. inch	: 0.00	
DRILL PIPE LENGTH	: 3971	FT	I.D. inch	: 3.80	
TEST TOOL LENGTH	: 20	FT	TOOL SIZE	: 5.50	
ANCHOR LENGTH	: 51	FT	ANCHOR SIZE	: 5.50	
SURFACE CHOKE SIZE	: .75	IN	BOTTOM CHOKE SIZE	: .75	
MAIN HOLE SIZE	: 7.875	IN	TOOL JOINT SIZE	: 4.5XH	

BLOW COMMENT #1 : WEAK BLOW BUILDING TO A STRONG BLOW IN 9
BLOW COMMENT #2 : MIN. ON INITIAL FLOW PERIOD.
BLOW COMMENT #3 : WEAK BLOW BUILDING TO A STRONG BLOW IN 15
BLOW COMMENT #4 : MIN. ON FINAL FLOW PERIOD.

RECOVERED : 315 FT OF: CLEAN OIL GRAVITY 38
RECOVERED : 330 FT OF: MUDDY GASSY OIL 50%OIL 15%GAS 35%MUD

Total Barrels Fluid = 6.25
Total Fluid Prod Rate = 149.99 BFPD
Indicated Oil Rate = 111.62 BOPD
Indicated Wtr Rate = 2.70 BWPD
Corrected Oil Rate = 124.16 BOPD
Corrected Wtr Rate = 3.00 BWPD

REMARK 1 :
REMARK 2 :
REMARK 3 : RECOVERED 195 FT. OF GAS ABOVE FLUID.
REMARK 4 :

SET PACKER(S) : 2:15PM TIME STARTED OFF BOTTOM : 4:45PM
WELL TEMPERATURE : 124

INITIAL HYDROSTATIC PRESSURE			(A)	2122		
INITIAL FLOW PERIOD	MIN:	30	(B)	73	PSI TO (C) :	196
INITIAL CLOSED IN PERIOD	MIN:	45	(D)	1153		
FINAL FLOW PERIOD	MIN:	30	(E)	233	PSI TO (F) :	266
FINAL CLOSED IN PERIOD	MIN:	45	(G)	1105		
FINAL HYDROSTATIC PRESSURE			(H)	2078		

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY	: VIKING RESOURCES
RIG	: NESS-KS
FIELD	: SCHWARTZKOPF
WELL	: #1
DATE	: 8-05-89
GAUGE NO	: 10270

OPERATIONAL COMMENTS

RECOVERED 195 FT. OF GAS ABOVE FLUID.

COMPANY : VIKING RESOURCES
WELL : #1
GAUGE # : 10270
DATE : 5/ 8/89

FIELD : SCHWARTZKOPF
JOB # : 15114
DEPTH : 4342
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
	INITIAL FLOW PERIOD				
2	2:15: 0	0.000	73.000	124.00	0.000
3	2:19:59	0.083	99.000	124.00	26.000
4	2:25: 0	0.167	163.000	124.00	64.000
5	2:30: 0	0.250	170.000	124.00	7.000
6	2:34:59	0.333	178.000	124.00	8.000
7	2:40: 0	0.417	187.000	124.00	9.000
8	2:45: 0	0.500	196.000	124.00	9.000
	INITIAL SHUT IN PERIOD				
9	2:48: 0	0.550	785.000	124.00	589.000
10	2:51: 0	0.600	876.000	124.00	91.000
11	2:54: 0	0.650	925.000	124.00	49.000
12	2:57: 0	0.700	966.000	124.00	41.000
13	3: 0: 0	0.750	998.000	124.00	32.000
14	3: 3: 0	0.800	1028.000	124.00	30.000
15	3: 6: 0	0.850	1049.000	124.00	21.000
16	3: 9: 0	0.900	1066.000	124.00	17.000
17	3:12: 0	0.950	1083.000	124.00	17.000
18	3:15: 0	1.000	1097.000	124.00	14.000
19	3:18: 0	1.050	1111.000	124.00	14.000
20	3:21: 0	1.100	1126.000	124.00	15.000
21	3:24: 0	1.150	1138.000	124.00	12.000
22	3:27: 0	1.200	1146.000	124.00	8.000
23	3:30: 0	1.250	1153.000	124.00	7.000
	FINAL FLOW PERIOD				
24	3:31: 0	1.267	233.000	124.00	-920.000
25	3:34:59	1.333	233.000	124.00	0.000
26	3:40: 0	1.417	233.000	124.00	0.000
27	3:45: 0	1.500	240.000	124.00	7.000
28	3:49:59	1.583	252.000	124.00	12.000
29	3:55: 0	1.667	259.000	124.00	7.000
30	4: 0: 0	1.750	266.000	124.00	7.000
	FINAL SHUT IN PERIOD				
31	4: 3: 0	1.800	751.000	124.00	485.000
32	4: 6: 0	1.850	848.000	124.00	97.000
33	4: 9: 0	1.900	896.000	124.00	48.000
34	4:12: 0	1.950	937.000	124.00	41.000
35	4:15: 0	2.000	962.000	124.00	25.000
36	4:18: 0	2.050	988.000	124.00	26.000
37	4:21: 0	2.100	1008.000	124.00	20.000
38	4:24: 0	2.150	1027.000	124.00	19.000
39	4:27: 0	2.200	1040.000	124.00	13.000
40	4:30: 0	2.250	1052.000	124.00	12.000
41	4:33: 0	2.300	1066.000	124.00	14.000
42	4:36: 0	2.350	1076.000	124.00	10.000
43	4:39: 0	2.400	1090.000	124.00	14.000
44	4:42: 0	2.450	1098.000	124.00	8.000
45	4:45: 0	2.500	1105.000	124.00	7.000

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY	:	VIKING RESOURCES
RIG	:	NESS-KS
FIELD	:	SCHWARTZKOPF
WELL	:	#1
DATE	:	8-05-89
GAUGE NO	:	10270
TEST	:	SHUT IN 1

COMPANY : VIKING RESOURCES
WELL : #1
GAUGE # : 10270
DATE : 5/ 8/89

FIELD : SCHWARTZKOPF
JOB # : 15114
DEPTH : 4342
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
1	2:15: 0	0.000	73.000	124.00	0.000
2	2:15: 0	0.000	73.000	124.00	0.000
3	2:19:59	0.083	99.000	124.00	26.000
4	2:25: 0	0.167	163.000	124.00	64.000
5	2:30: 0	0.250	170.000	124.00	7.000
6	2:34:59	0.333	178.000	124.00	8.000
7	2:40: 0	0.417	187.000	124.00	9.000
8	2:45: 0	0.500	196.000	124.00	9.000
9	2:48: 0	0.550	785.000	124.00	589.000
10	2:51: 0	0.600	876.000	124.00	91.000
11	2:54: 0	0.650	925.000	124.00	49.000
12	2:57: 0	0.700	966.000	124.00	41.000
13	3: 0: 0	0.750	998.000	124.00	32.000
14	3: 3: 0	0.800	1028.000	124.00	30.000
15	3: 6: 0	0.850	1049.000	124.00	21.000
16	3: 9: 0	0.900	1066.000	124.00	17.000
17	3:12: 0	0.950	1083.000	124.00	17.000
18	3:15: 0	1.000	1097.000	124.00	14.000
19	3:18: 0	1.050	1111.000	124.00	14.000
20	3:21: 0	1.100	1126.000	124.00	15.000
21	3:24: 0	1.150	1138.000	124.00	12.000
22	3:27: 0	1.200	1146.000	124.00	8.000
23	3:30: 0	1.250	1153.000	124.00	7.000
24	3:31: 0	1.267	233.000	124.00	-920.000
25	3:34:59	1.333	233.000	124.00	0.000
26	3:40: 0	1.417	233.000	124.00	0.000
27	3:45: 0	1.500	240.000	124.00	7.000
28	3:49:59	1.583	252.000	124.00	12.000
29	3:55: 0	1.667	259.000	124.00	7.000
30	4: 0: 0	1.750	266.000	124.00	7.000
31	4: 3: 0	1.800	751.000	124.00	485.000
32	4: 6: 0	1.850	848.000	124.00	97.000
33	4: 9: 0	1.900	896.000	124.00	48.000
34	4:12: 0	1.950	937.000	124.00	41.000
35	4:15: 0	2.000	962.000	124.00	25.000
36	4:18: 0	2.050	988.000	124.00	26.000
37	4:21: 0	2.100	1008.000	124.00	20.000
38	4:24: 0	2.150	1027.000	124.00	19.000
39	4:27: 0	2.200	1040.000	124.00	13.000
40	4:30: 0	2.250	1052.000	124.00	12.000
41	4:33: 0	2.300	1066.000	124.00	14.000
42	4:36: 0	2.350	1076.000	124.00	10.000
43	4:39: 0	2.400	1090.000	124.00	14.000
44	4:42: 0	2.450	1098.000	124.00	8.000
45	4:45: 0	2.500	1105.000	124.00	7.000

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY	:	VIKING RESOURCES
RIG	:	NESS-KS
FIELD	:	SCHWARTZKOPF
WELL	:	#1
DATE	:	8-05-89
GAUGE NO	:	10270

OPERATIONAL COMMENTS

RECOVERED 195 FT. OF GAS ABOVE FLUID.

COMPANY : VIKING RESOURCES
WELL : #1
GAUGE # : 10270
DATE : 5/ 8/89
Comment : SHUT IN 2
Horner T: .75 Hours

FIELD : SCHWARTZKOPF
JOB # : 15114
DEPTH : 4342
TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
30	4: 0: 0	0.000	266.000	124.00	0.0000	0.000
31	4: 3: 0	0.050	751.000	124.00	16.0000	485.000
32	4: 6: 0	0.100	848.000	124.00	8.5000	582.000
33	4: 9: 0	0.150	896.000	124.00	6.0000	630.000
34	4:12: 0	0.200	937.000	124.00	4.7500	671.000
35	4:15: 0	0.250	962.000	124.00	4.0000	696.000
36	4:18: 0	0.300	988.000	124.00	3.5000	722.000
37	4:21: 0	0.350	1008.000	124.00	3.1429	742.000
38	4:24: 0	0.400	1027.000	124.00	2.8750	761.000
39	4:27: 0	0.450	1040.000	124.00	2.6667	774.000
40	4:30: 0	0.500	1052.000	124.00	2.5000	786.000
41	4:33: 0	0.550	1066.000	124.00	2.3636	800.000
42	4:36: 0	0.600	1076.000	124.00	2.2500	810.000
43	4:39: 0	0.650	1090.000	124.00	2.1538	824.000
44	4:42: 0	0.700	1098.000	124.00	2.0714	832.000
45	4:45: 0	0.750	1105.000	124.00	2.0000	839.000

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE	: 8-05-89			TICKET	: 15114
CUSTOMER	: VIKING RESOURCES			LEASE	: SCHWARTZKOPF
WELL	: #1 TEST: 1			GEOLOGIST	: R. PATTON
ELEVATION	: 2290 K.B.			FORMATION	: MISSISSIPPI
SECTION	: 10			TOWNSHIP	: 19S
RANGE	: 24W	COUNTY	: NESS	STATE	: KS
GAUGE SN#	: 10270	RANGE	: 4150	CLOCK	: 12

INTERVAL FROM	: 4291	TO	: 4342	TOTAL DEPTH	: 4342
DEPTH OF SELECTIVE ZONE	:				
PACKER DEPTH	: 4286	SIZE	: 6.63		
PACKER DEPTH	: 4291	SIZE	: 6.63		
PACKER DEPTH	:	SIZE	:		
PACKER DEPTH	:	SIZE	:		

DRILLING CON.	: MALLARD #1		
MUD TYPE	: CHEMICAL	VISCOSITY	: 45
WEIGHT	: 9.2	WATER LOSS (CC)	: 12.4
CHLORIDES (PPM)	:		
JARS-MAKE	:	SERIAL NUMBER	:
DID WELL FLOW ?	:	REVERSED OUT ?	:

DRILL COLLAR LENGTH	: 300	FT	I.D. inch	: 2.20	
WEIGHT PIPE LENGTH	: 0	FT	I.D. inch	: 0.00	
DRILL PIPE LENGTH	: 3971	FT	I.D. inch	: 3.80	
TEST TOOL LENGTH	: 20	FT	TOOL SIZE	: 5.50	
ANCHOR LENGTH	: 51	FT	ANCHOR SIZE	: 5.50	
SURFACE CHOKE SIZE	: .75	IN	BOTTOM CHOKE SIZE	: .75	
MAIN HOLE SIZE	: 7.875	IN	TOOL JOINT SIZE	: 4.5XH	

BLOW COMMENT #1 : WEAK BLOW BUILDING TO A STRONG BLOW IN 9
BLOW COMMENT #2 : MIN. ON INITIAL FLOW PERIOD.
BLOW COMMENT #3 : WEAK BLOW BUILDING TO A STRONG BLOW IN 15
BLOW COMMENT #4 : MIN. ON FINAL FLOW PERIOD.

RECOVERED : 315 FT OF: CLEAN OIL GRAVITY 38
RECOVERED : 330 FT OF: MUDDY GASSY OIL 50%OIL 15%GAS 35%MUD

Total Barrels Fluid = 6.25
Total Fluid Prod Rate = 149.99 BFPD
Indicated Oil Rate = 111.62 BOPD
Indicated Wtr Rate = 2.70 BWPD
Corrected Oil Rate = 124.16 BOPD
Corrected Wtr Rate = 3.00 BWPD

REMARK 1 :
REMARK 2 :
REMARK 3 : RECOVERED 195 FT. OF GAS ABOVE FLUID.
REMARK 4 :

SET PACKER(S) : 2:15PM TIME STARTED OFF BOTTOM : 4:45PM
WELL TEMPERATURE : 124
INITIAL HYDROSTATIC PRESSURE (A) 2122
INITIAL FLOW PERIOD MIN: 30 (B) 73 PSI TO (C) : 196
INITIAL CLOSED IN PERIOD MIN: 45 (D) 1153
FINAL FLOW PERIOD MIN: 30 (E) 233 PSI TO (F) : 266
FINAL CLOSED IN PERIOD MIN: 45 (G) 1105
FINAL HYDROSTATIC PRESSURE (H) 2078

WESTERN TESTING CO. INC.
WICHITA-KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY.	VIKING RESOURCES
DATE	8-05-89
FIELD.	SCHWARTZKOPF
WELL	#1
AREA	NESS-KS
JOB NUMBER . . .	15114
GAUGE NUMBER . .	10270
GAUGE DEPTH. . .	4342
ZONE TESTED. . .	4291-4342

PHASE : OIL FUNCTION : PRESSURE

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

THICKNESS.	H	6.0000E+00	Feet
POROSITY	POR	2.0000E-01	Frac
VISCOSITY.	U	8.9397E-01	Cp
FORMATION VOLUME FACTOR. . . .	B	1.2708E+00	Rb/stb
TOTAL COMPRESSIBILITY. . . .	.Ct	2.9466E-05	Psi^-1
WELLBORE RADIUS.	.Rw	5.2000E-01	Feet
DRAINAGE RADIUS.	.Re	1.0500E+03	Feet
RESERVOIR TEMPERATURE.	T	1.2400E+02	Deg F
GRAVITY OF FLUID	G	3.8000E+01	
PVT EVALUATION PRESSURE. . . .	P	1.1050E+03	Psig
PRESSURE AT SHUT-IN.	Pwf	2.6600E+02	Psig
FINAL RECORDED PRESSURE. . . .	.Ps	1.1050E+03	Psig
PRODUCTION RATE.	Q	1.2416E+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 2.5 TO 2

SLOPE OF THE LINE.	5.5596E+02	psi/cycle
FALSE PRESSURE, PSTAR.	1.2734E+03	psi
PRESSURE AT 1 HOUR	1.1382E+03	psi

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

TRANSMISSIBILTY.	.Kh/u	4.6144E+01	md-ft/cp
FLOW CAPACITY.	.Kh	4.1251E+01	md-ft
PERMEABILITY to PHASE.	K	6.8752E+00	md
DAMAGE RATIO	.Dr	5.4445E-01	
RADIUS OF INVESTIGATION. .	.Rinv	3.2132E+01	ft
SKIN FACTOR.	S	-1.7462E+00	
AVERAGE PRESSURE	.Pbar	1.2731E+03	psig
DIMENSIONLESS TIME	Tda	7.4603E-05	
MATTHEWS-BRONS-HAZEBROEK .	PDmbh	9.3749E-04	

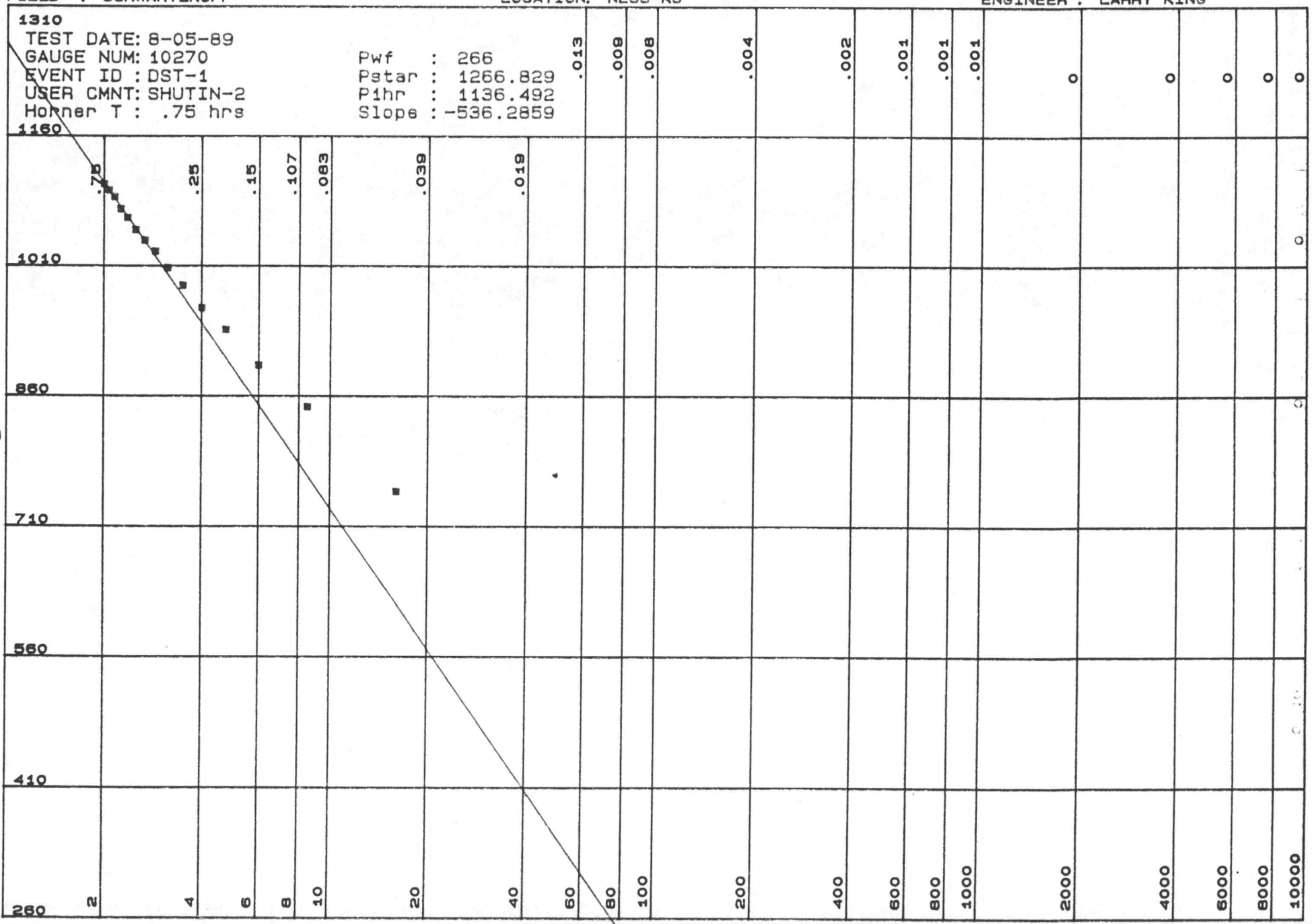
COMPANY: VIKING RESOURCES
FIELD : SCHWARTZKOPF

WELL # : #1
LOCATION: NESS-KS

PROCESSED: 08-08-1989
ENGINEER : LARRY KING

TEST DATE: 8-05-89
GAUGE NUM: 10270
EVENT ID : DST-1
USER CMNT: SHUTIN-2
Horner T : .75 hrs

Pwf : 266
Pstar : 1266.829
P1hr : 1136.492
Slope : -536.2859



Job No. 15114
WESTERN TESTING CO. INC.

RES-TRAN

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY	: VIKING RESOURCES
RIG	: NESS-KS
FIELD	: SCHWARTZKOPF
WELL	: #1
DATE	: 8-05-89
GAUGE NO	: 10270
TEST	: SHUT IN 2

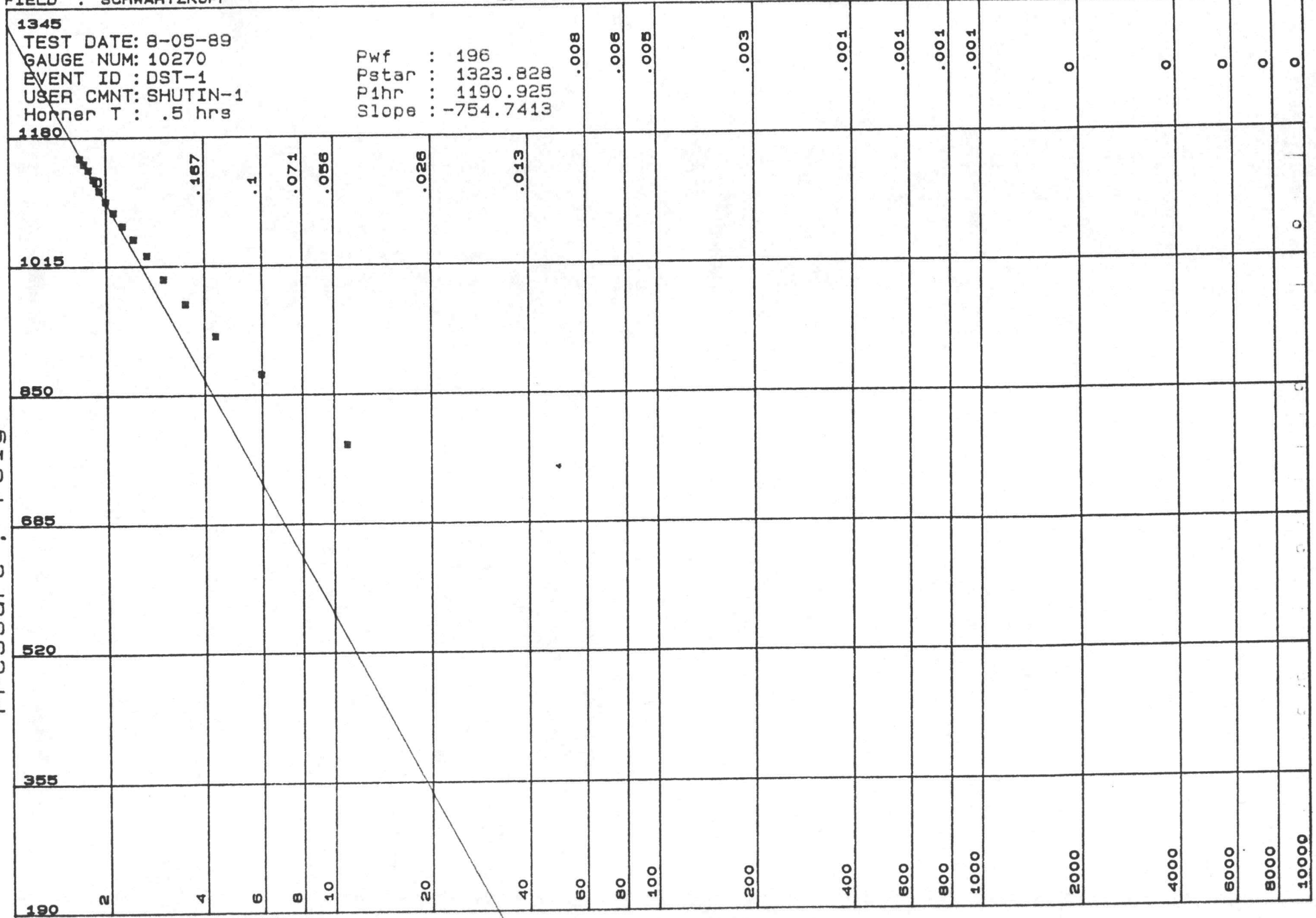
COMPANY: VIKING RESOURCES
FIELD : SCHWARTZKOPF

WELL # : #1
LOCATION: NESS-KS

PROCESSED: 08-08-1989
ENGINEER : LARRY KING

TEST DATE: 8-05-89
GAUGE NUM: 10270
EVENT ID : DST-1
USER CMNT: SHUTIN-1
Horner T : .5 hrs

Pwf : 196
Pstar : 1323.828
P1hr : 1190.925
Slope : -754.7413



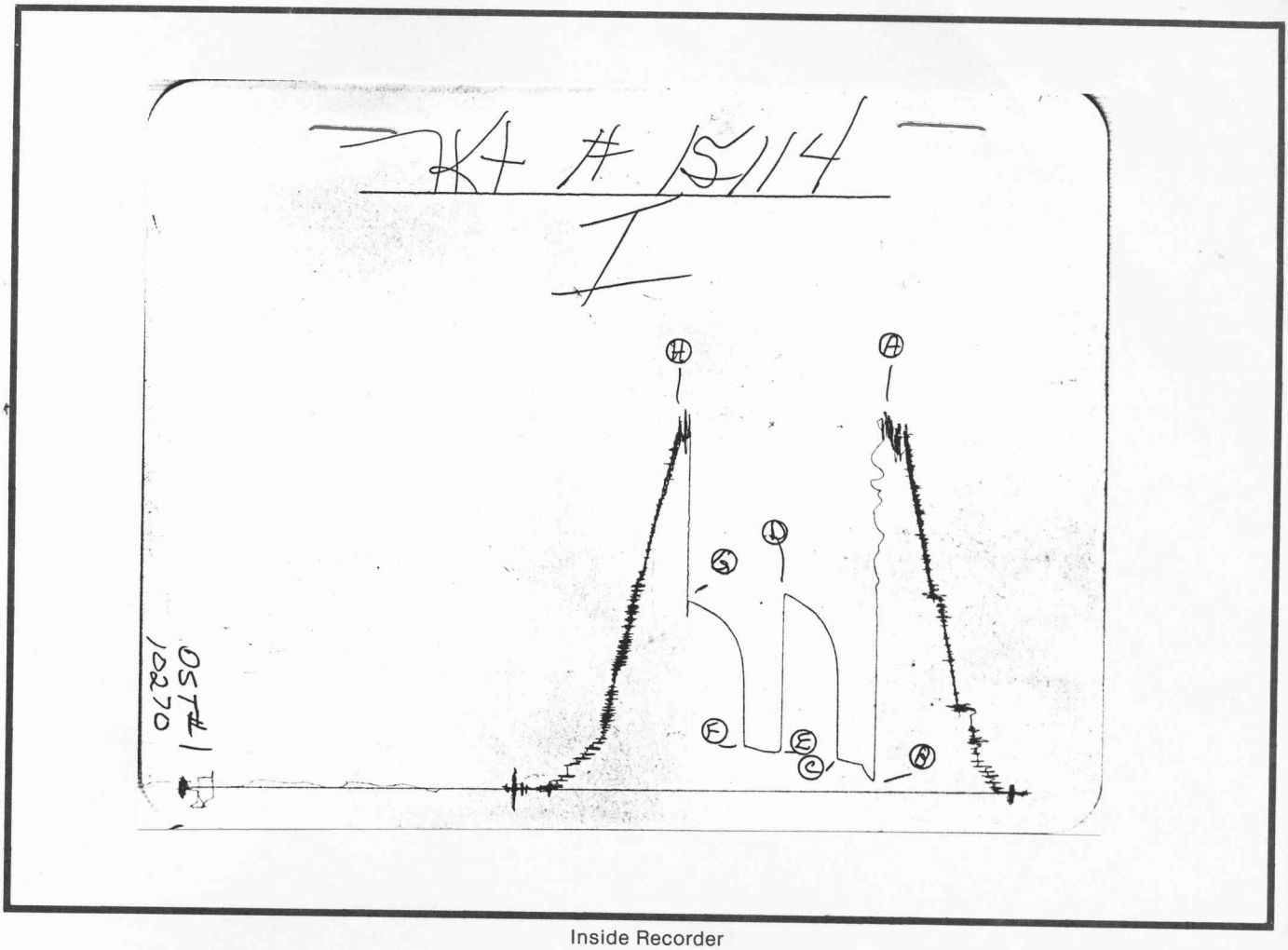
Job No. 15114
WESTERN TESTING CO. INC.

RES-TRAN

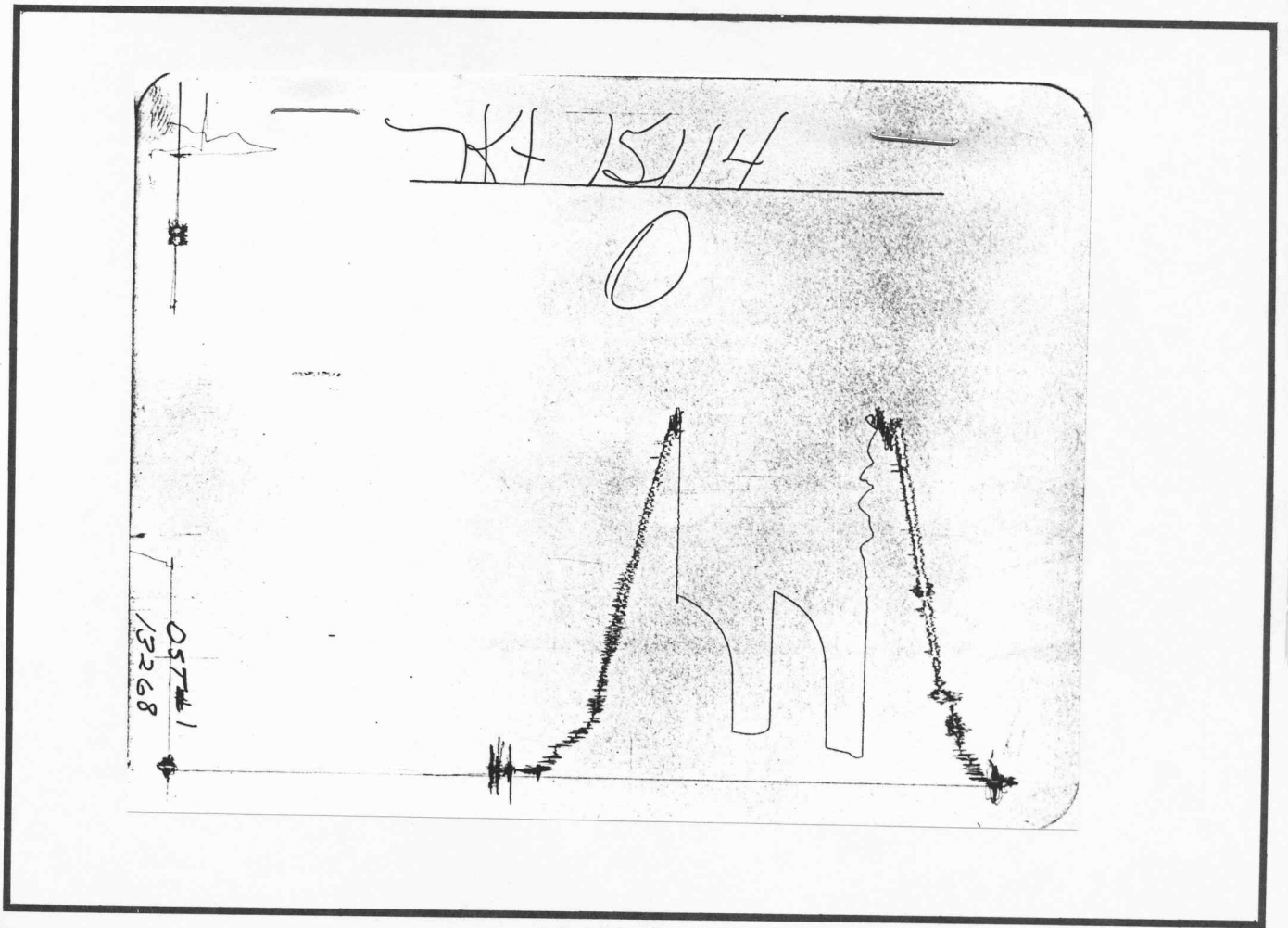
COMPANY : VIKING RESOURCES
WELL : #1
GAUGE # : 10270
DATE : 5/ 8/89
Comment : SHUT IN 1
Horner T: .5 Hours

FIELD : SCHWARTZKOPF
JOB # : 15114
DEPTH : 4342
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	2:45: 0	0.000	196.000	124.00	0.0000	0.000
9	2:48: 0	0.050	785.000	124.00	11.0000	589.000
10	2:51: 0	0.100	876.000	124.00	6.0000	680.000
11	2:54: 0	0.150	925.000	124.00	4.3333	729.000
12	2:57: 0	0.200	966.000	124.00	3.5000	770.000
13	3: 0: 0	0.250	998.000	124.00	3.0000	802.000
14	3: 3: 0	0.300	1028.000	124.00	2.6667	832.000
15	3: 6: 0	0.350	1049.000	124.00	2.4286	853.000
16	3: 9: 0	0.400	1066.000	124.00	2.2500	870.000
17	3:12: 0	0.450	1083.000	124.00	2.1111	887.000
18	3:15: 0	0.500	1097.000	124.00	2.0000	901.000
19	3:18: 0	0.550	1111.000	124.00	1.9091	915.000
20	3:21: 0	0.600	1126.000	124.00	1.8333	930.000
21	3:24: 0	0.650	1138.000	124.00	1.7692	942.000
22	3:27: 0	0.700	1146.000	124.00	1.7143	950.000
23	3:30: 0	0.750	1153.000	124.00	1.6667	957.000



Inside Recorder



Outside Recorder