

DRILL STEM TESTS:

API #15-095-21681

#1 Mississippian 3980 - 4032 45-45-60-60 GTS SIP  
 FFP 5" 5.320 MCFG  
 15" 5.320 "  
 25" 5.320 "  
 35" 5.320 "  
 45" 5.185 "

COPY

Recovery 45' mud with slight show of oil Temp 113°  
 FP's 42-52 / 63-63  
 SIP's 115 - 115  
 HP's 1895 - 1874

#2 Viola 4276 - 4297 45-45-60-60 GTS FFP 25"  
 Recovery 2500' fluid

FFP 30" 1.83 MCFGPD 60' clean gassy oil (41 1/2%)  
 40" 1.78 " 60' SOCMW (17%G, 8%O, 30%M, 45%W)  
 45" 1.83 " 120" SOCMW (10%G 5%O 30%M 55% W)  
 50" 1.59 " 1260' VSOCW (1% O, 99% W).  
 55" 1.59 " 1000' Water (less than 1% O 68000 chlorides  
 at 119°)

FP's 55-607 / 651 - 958  
 SIP's 1035 - 1035  
 HP's 2143 - 2077

#3 Mississippian 3980 - 4050 60-60-60-60  
 Recovery 185' Total Fluid  
 65' mud FP's 111-144/144-167  
 60' MW tr. oil (oil-tr. 58%M, SIP's 711 - 612  
 42%W)  
 60 VSOCM (± 1/2% O, 50% M, 50% W) HP's 2002 - 1980  
 Temp 117°  
 Chlorides 28,000

RECEIVED  
STATE CORPORATION COMMISSION

OCT 25 1993

CONSERVATION DIVISION  
Wichita, Kansas

# Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

Date 8-24-1993 Location NE-NE-SW 14-27-10<sup>W</sup> Elevation 1741 G.A.S. 1746 K.B. County KINGMAN

Company Mach Petroleum Inc. Number of Copies 5

Charts Mailed to P.O. Box 25583 Tulsa Oklahoma 74153

Drilling Contractor White & Ellis Drilling Rig #8

Length Drill Pipe 3949 I.D. Drill Pipe 3.80 Tool Joint Size 4 1/2" X.H.

Length Weight Pipe NONE I.D. Weight Pipe NONE Tool Joint Size NONE

Length Drill Collars NONE I.D. Drill Collars NONE Tool Joint Size NONE

Top Packer Depth 3975 Bottom Packer Depth 3980 Number of Packers 2 Packer Size 6 3/4"

TESTED FROM 3980 TO 4032 ANCHOR LENGTH 52 TOTAL DEPTH 4032 Hole Size 7 1/8"

LEASE & WELL NO. Sale #1 FORMATION TESTED Mississippi TEST NO. 1

Mud Weight 9.2 Viscosity 47 Water Loss 8 Chlorides - Pits 8000 D.S.T. \_\_\_\_\_

Maximum Temp. 113 °F Initial Hydrostatic Pressure (A) 1895 P.S.I. Final Hydrostatic Pressure (H) 1874 P.S.I.

Tool Open I.F.P. from 8:00 A.M. to 8:45 A.M. 45 min

Tool Closed I.C.I.P. from 8:45 A.M. to 9:30 A.M. 45 min

Tool Open F.F.P. from 9:30 A.M. to 10:30 A.M. 60 min

Tool Closed F.C.I.P. from 10:30 A.M. to 11:30 A.M. 60 min

Initial Blow Strong blow - bottom of a 5 Gallon bucket in 35 sec.

Final Blow Strong blow - Gas to surface during initial shut-in

Total Feet Recovered 45 Gravity of Oil \_\_\_\_\_ Corrected \_\_\_\_\_

45 Feet of mud with a show of oil less than 1% oil 0% Gas 1/2+ % Oil 100 % Mud 0 % Water

\_\_\_\_\_ Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of There was a fair show of oil on top % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of of the tool & a good show of oil % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of Between the shut-in & hydraulic tools % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

\_\_\_\_\_ Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water

Remarks \_\_\_\_\_

Extra Equipment - Jars NONE Safety Joint YES Extra Packer NONE Straddle NONE Hook Wall NONE

Top Recorder No. 11088 Clock No. 47441 Depth 4026 Cir. Sub NONE Sampler NONE

Bottom Recorder No. 11087 Clock No. 47442 Depth 4029 Insurance NONE

Price of Job \_\_\_\_\_

Tool Operator Sean D. Kelly

Approved By \_\_\_\_\_

Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to the property or personnel of the one for whom a test is made, of for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

No 11029

# Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

## GAS FLOW REPORT

Date 9-24-1993 Ticket # 11029 Company Mach Petroleum Inc  
 Well Name and No Sale #1 DST No. 1 Interval Tested 3780 - 4032  
 County KINGMAN State KANSAS Sec. 14 Twp. 27S Rg. 10N

Time Gauge Pre-Flow	Time Gauge in Min.	Inches of Water on Orifice Well Tester	Inches of Mercury on Orifice Well Tester	P.S.I. on Orifice Well Tester	P.S.I. on Pitot Tester	Choke Size	Gas Rate MCF
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### PRE FLOW


GAS TO SURFACE DURING THE INITIAL SHUT-IN

### SECOND FLOW

9:30	TOOL OPEN						
9:35	5	10				.25	5.320
9:45	15	10				.25	5.320
9:55	25	10				.25	5.320
10:05	35	10				.25	5.320
10:15	45	9.5				.25	5.185
10:25	55	9.5				.25	5.185
10:30	60	CAUGHT A GAS SAMPLE					

### GAS BOTTLE

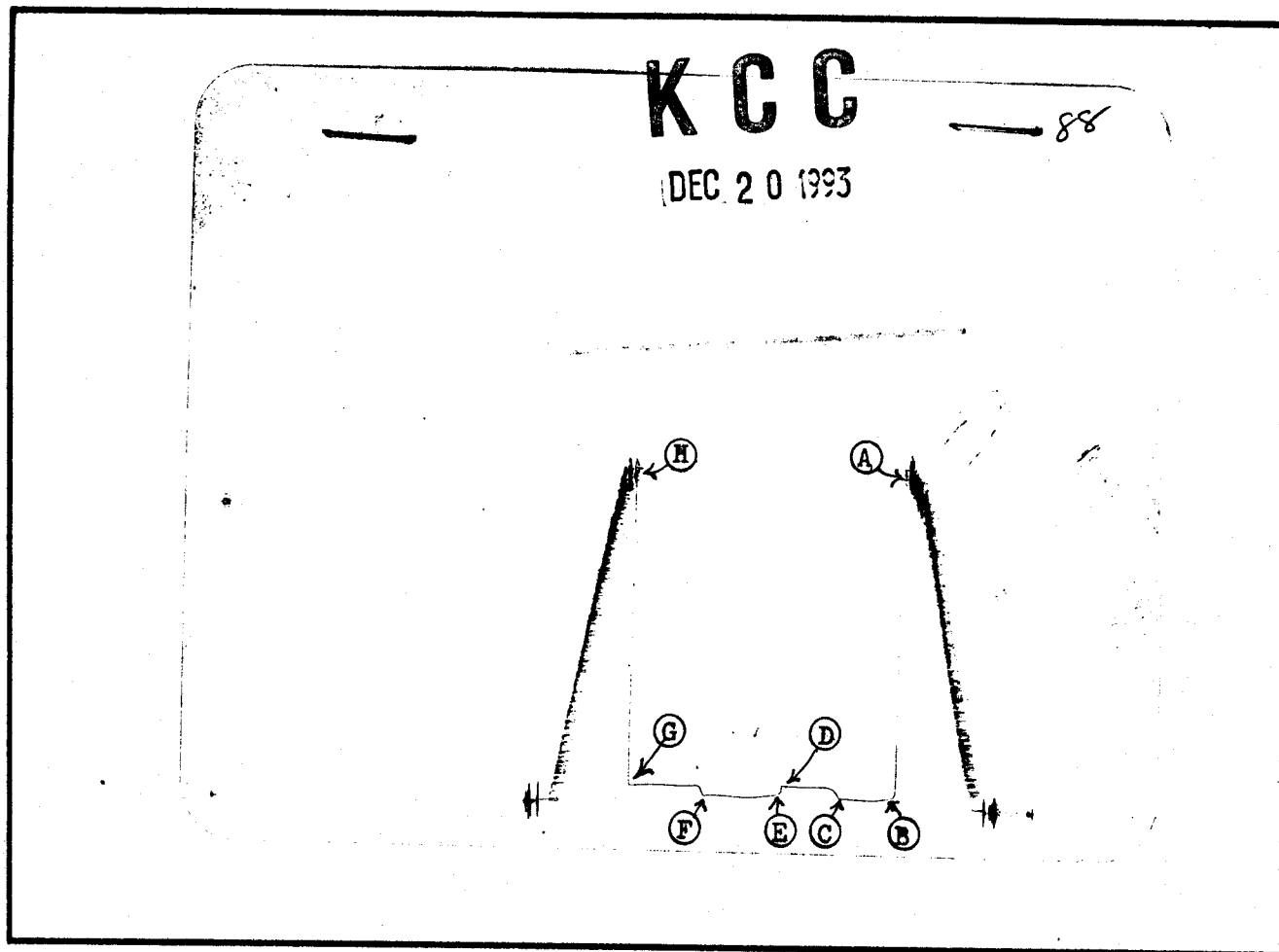
Serial No. \_\_\_\_\_ Date Bottle Filled \_\_\_\_\_ Date to be Invoiced \_\_\_\_\_ Test Ticket # \_\_\_\_\_

Requisition and Provisions for high pressure steel gas bottles. Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to property or personnel of the one whom gas bottle is filled or for any loss suffered or sustained directly or indirectly through the use of these bottles. By signing of this ticket showing receipt of a gas testing bottle, the undersigned agrees for himself and as agent for operator, to return this bottle to Superior Testers Enterprises, Inc. within thirty (30) days free of charge or be invoiced in the amount of \$125.00 (total charge). Should valve or seal plug be missing or damaged beyond repair, operator shall be invoiced for repairs at our invoiced price.

All charges subject to 1½% per month, equal to 18% interest per annum after 30 days from date of invoice. Any expense incurred for collection will be added to the original amount.

COMPANY'S NAME \_\_\_\_\_

Authorized by \_\_\_\_\_



This is an actual photograph of recorder chart.

POINT	PRESSURE		P.S.I.
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	1895	1999	P.S.I.
(B) First Initial Flow Pressure .....	42	82	P.S.I.
(C) First Final Flow Pressure .....	52	59	P.S.I.
(D) Initial Closed-in Pressure .....	115	127	P.S.I.
(E) Second Initial Flow Pressure .....	63	85	P.S.I.
(F) Second Final Flow Pressure .....	63	61	P.S.I.
(G) Final Closed-in Pressure .....	115	120	P.S.I.
(H) Final Hydrostatic Mud .....	1874	1958	P.S.I.

**SUPERIOR TESTERS ENTERPRISES INC.**

**WELL IDENTIFICATION DATA**

-----  
COMPANY : MACH PETROLEUM INC.                      WELL NAME : SALE #1  
ADDRESS : P.O.BOX 35583.TULSA                    LOCATION : NE-NE-SW 14-27S-10W  
STATE & COUNTY : KANSAS.KINGMAN                FIELD :  
ELEV.(GR) : 1746            (KB) : 1751            TEST DATE : 8-24-1993

**EQUIPMENT AND HOLE DATA**

-----  
FORMATION TESTED : MISSISSIPPI                      DRILL PIPE LENGTH(ft) : 3949  
TEST INT. KB : 3980            to 4032            DRILL PIPE O.D.(in) : 3.82  
ANCHOR LENGTH(ft) : 52                              WEIGHT PIPE LENGTH(ft) :  
TYPE OF TEST : Conventional                        WEIGHT PIPE ID : 2.75  
TOTAL DEPTH(ft-*kb*) : 4032                         DRILL COLLAR LENGTH(ft) :  
MAIN HOLE SIZE(in) : 7 7/8                         DRILL COLLAR I.D.(in) : 2.259  
MUD WEIGHT : 9.2                                    TOP PACKER DEPTH(*kb*) : 3975  
MUD VISCOSITY : 47                                 BOTTOM PACKER DEPTH(*kb*) : 3980  
MUD CHLORIDES : 8000                              DUAL PACKERS :  
SURFACE CHOKE : 3/4                                PACKER SIZE(in) : 6 3/4  
BOTTOM CHOKE(in) : 3/4                            PACKER HOLD : Yes  
TOOL SIZE(O.D.) : 5 1/2                            TOOL PLUG : No  
TOOL JOINT SIZE(F.H.) : 4 1/2                    REVERSED OUT : No  
RESERVOIR TEMPERATURE(F) : 113                   TEST TICKET NUMBER : 11029

EXTRA EQUIPMENT : -SAFETY JOINT

ELEMENT SERIAL NO. : 11088  
RANGE :            0 - 4400                                      CLOCK RANGE : 12 HOURS  
CAL. EQU. : 1102.93 \* Defl. +            4.88

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**SURFACE BLOW**

1st Opening :            STRONG BLOW BOTTOM OF THE BUCKET IN 35 SECONDS  
2nd Opening :            STRONG BLOW-GAS TO SURFACE ON 1ST SHUT-IN

**RECOVERY**

Recovered 45 feet of MUD WITH A SHOW OF OIL ON TOP OF THE TOOL

**REMARKS :**

THERE WAS A GOOD SHOW OF OIL BETWEEN THE SHUT-IN TOOL AND THE HYDROLIC TOOL

WITNESSED BY : DAN FREDLUND                                      TOOL OPERATOR : GENE BUDIG

**SUPERIOR TESTERS ENTERPRISES INC.**

**SUBSURFACE PRESSURE MEASUREMENTS**

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COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-24-1993  
 DEPTH : 4026.0

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SERIAL NO. : 11088

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	----- CORRECTED
TEST NO.:1					
Depth : 4026.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.807	1997.88	1.36	1999.23
-8:00 1ST FLOW	0.0	.074	86.50	-4.02	82.48
- 8:05	5.0	.056	66.64	-4.23	62.41
- 8:10	10.0	.053	63.34	-4.26	59.07
- 8:15	15.0	.049	58.92	-4.31	54.61
- 8:20	20.0	.049	58.92	-4.31	54.61
- 8:25	25.0	.049	58.92	-4.31	54.61
- 8:30	30.0	.049	58.92	-4.31	54.61
- 8:35	35.0	.050	60.03	-4.30	55.73
- 8:40	40.0	.052	62.23	-4.28	57.96
- 8:45	45.0	.053	63.34	-4.26	59.07
-8:45 END FLOW	0.0	.053	63.34	-4.26	59.07
- 8:46	1.0	.060	71.06	-4.18	66.87
- 8:47	2.0	.072	84.29	-4.04	80.25
- 8:48	3.0	.084	97.53	-3.90	93.62
- 8:49	4.0	.092	106.35	-3.81	102.54
- 8:50	5.0	.098	112.97	-3.74	109.22
- 8:51	6.0	.102	117.38	-3.70	113.68
- 8:54	9.0	.100	115.17	-3.72	111.45
- 8:57	12.0	.111	127.31	-3.59	123.71
- 9:00	15.0	.111	127.31	-3.59	123.71
- 9:03	18.0	.111	127.31	-3.59	123.71
- 9:06	21.0	.111	127.31	-3.59	123.71
- 9:09	24.0	.111	127.31	-3.59	123.71
- 9:12	27.0	.111	127.31	-3.59	123.71
- 9:15	30.0	.111	127.31	-3.59	123.71
- 9:18	33.0	.111	127.31	-3.59	123.71
- 9:21	36.0	.112	128.41	-3.58	124.83
- 9:24	39.0	.112	128.41	-3.58	124.83
- 9:27	42.0	.113	129.51	-3.57	125.94
- 9:30	45.0	.114	130.61	-3.56	127.06
-9:30 1ST SHUT-IN	0.0	.114	130.61	-3.56	127.06
-9:30 2ND FLOW	0.0	.077	89.81	-3.99	85.82
- 9:35	5.0	.064	75.47	-4.14	71.33
- 9:40	10.0	.061	72.16	-4.17	67.99
- 9:45	15.0	.058	68.85	-4.21	64.64
- 9:50	20.0	.054	64.44	-4.25	60.19
- 9:55	25.0	.052	62.23	-4.28	57.96
- 10:00	30.0	.052	62.23	-4.28	57.96
- 10:05	35.0	.052	62.23	-4.28	57.96

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-24-1993  
 DEPTH : 4026.0

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SERIAL NO. : 11088

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:1					
- 10:10	40.0	.053	63.34	-4.26	59.07
- 10:15	45.0	.053	63.34	-4.26	59.07
- 10:20	50.0	.054	64.44	-4.25	60.19
- 10:25	55.0	.054	64.44	-4.25	60.19
- 10:31	61.0	.055	65.54	-4.24	61.30
-10:31 END FLOW	0.0	.055	65.54	-4.24	61.30
- 10:32	1.0	.067	78.78	-4.10	74.67
- 10:33	2.0	.084	97.53	-3.90	93.62
- 10:34	3.0	.101	116.28	-3.71	112.57
- 10:35	4.0	.104	119.58	-3.67	115.91
- 10:36	5.0	.107	122.89	-3.64	119.26
- 10:37	6.0	.107	122.89	-3.64	119.26
- 10:40	9.0	.107	122.89	-3.64	119.26
- 10:43	12.0	.107	122.89	-3.64	119.26
- 10:46	15.0	.107	122.89	-3.64	119.26
- 10:49	18.0	.107	122.89	-3.64	119.26
- 10:52	21.0	.107	122.89	-3.64	119.26
- 10:55	24.0	.107	122.89	-3.64	119.26
- 10:58	27.0	.107	122.89	-3.64	119.26
- 11:01	30.0	.107	122.89	-3.64	119.26
- 11:04	33.0	.108	124.00	-3.63	120.37
- 11:07	36.0	.108	124.00	-3.63	120.37
- 11:10	39.0	.108	124.00	-3.63	120.37
- 11:13	42.0	.108	124.00	-3.63	120.37
- 11:16	45.0	.108	124.00	-3.63	120.37
- 11:19	48.0	.108	124.00	-3.63	120.37
- 11:22	51.0	.108	124.00	-3.63	120.37
- 11:25	54.0	.108	124.00	-3.63	120.37
- 11:28	57.0	.108	124.00	-3.63	120.37
- 11:31	60.0	.108	124.00	-3.63	120.37
-11:31 2ND SHUT-IN	0.0	.108	124.00	-3.63	120.37
-2ND HYDROSTATIC	0.0	1.770	1957.07	1.38	1958.44

# SUPERIOR TESTERS ENTERPRISES INC.

## DATA SUMMARY

COMPANY : MACH PETROLEUM INC.  
DATE OF TEST : 8-24-1993

WELL NAME : SALE #1  
LOCATION : NE-NE-SW 14-27S-10W

### RECOVERY INFORMATION

#### LIQUID RECOVERY

Total Fluid Recovered :

Recovered 45 feet of MUD WITH A SHOW OF OIL ON TOP OF THE TOOL

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#### GAS RECOVERY

Measured With : ORFICE TESTER  
(INCHES OF WATER )

Riser : 2 INCH

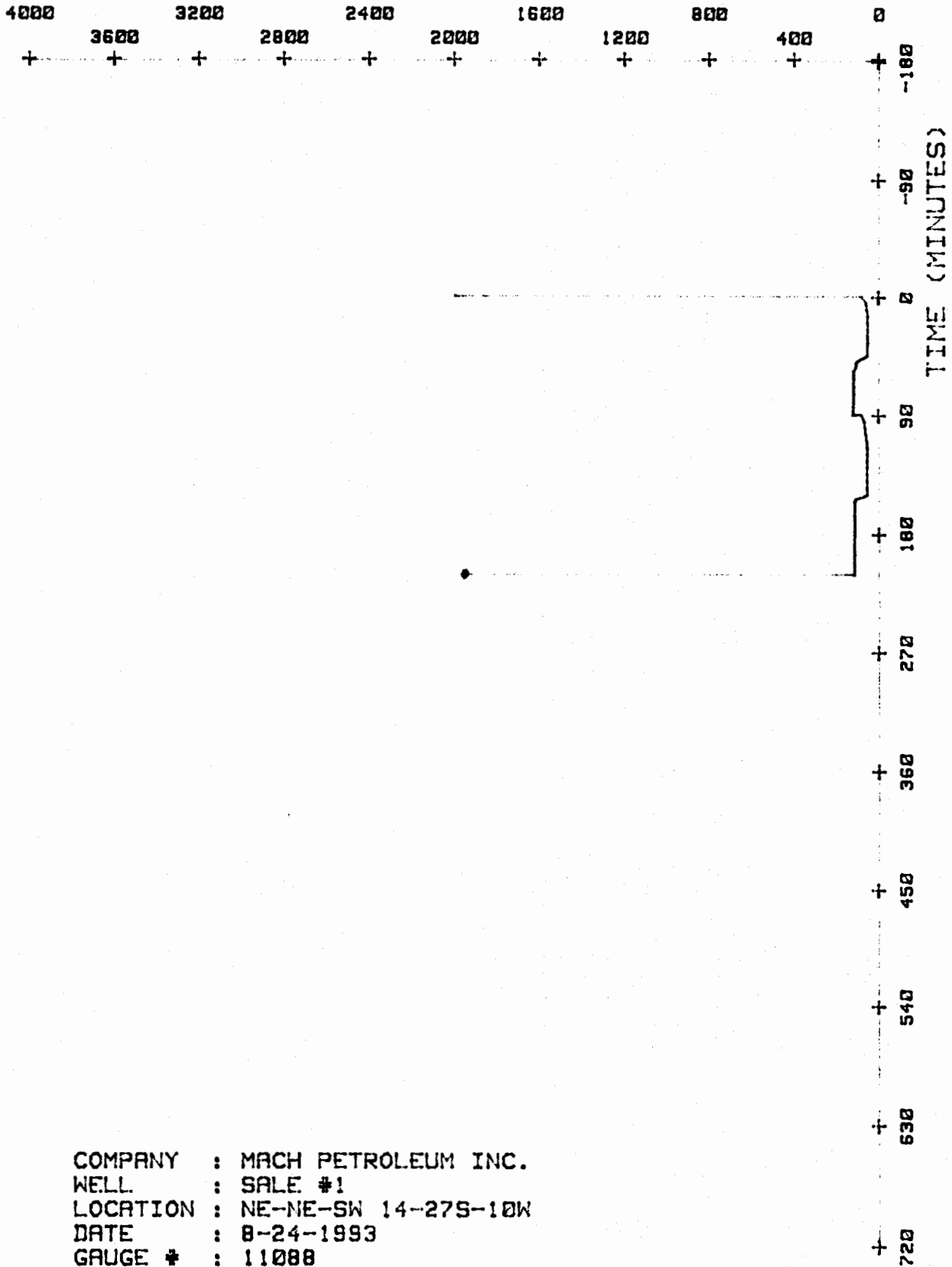
Time (min.)	Reading	Surface Choke (in.)	Cubic feet/day
9:35	10.00	.25	5320
9:45	10.00	.25	5320
9:55	10.00	.25	5320
10:05	10.00	.25	5320
10:15	9.50	.25	5185
10:25	9.50	.25	5185

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#### FLUID PROPERTIES

	Viscosity (cp)	Compressibility (psi <sup>-1</sup> )	Pore Space Saturation
Oil	.8	7.7E-6	.1
Gas	.2	9.2E-6	.8
Water	.45	3.1E-6	.1

PRESSURE ( P S I G )



COMPANY : MACH PETROLEUM INC.  
 WELL : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 DATE : 8-24-1993  
 GAUGE # : 11088

GAUGE # : 11088

DATE : 8-24-1993

LOCATION : NE-NE-SW 14-27S-10W

Pwf 59  $\frac{10}{10}$  \* Initial Shut In Extrapolated Pressure p# = 140



PRESSURE (CORRECTED, PSI)

TIME (MINUTES) : (T+dt)/dt - (Semilog scale)

**SUPERIOR TESTERS ENTERPRISES INC.**

**HORNER ANALYSIS**

COMPANY : MACH PETROLEUM INC.  
 WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 STATE & COUNTY : KANSAS, KINGMAN  
 DATE OF TEST : 8-24-1993  
 TEST INT. KB : 3980 to 4032  
 TOTAL INTERVAL (ft) K.B. : 52.00  
 ELEV. (GR) : 1746 (KB) : 1751  
 FIELD :

ELEMENT SERIAL NO. : 11088  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG
Refer. depth :	4026.0 ft-kb		
-8:45 END FLOW	0.00	0.00	59.07
	1.00	46.00	66.87
	2.00	23.50	80.25
	3.00	16.00	93.62
	4.00	12.25	102.54
	5.00	10.00	109.22
	6.00	8.50	113.68
	9.00	6.00	111.45
	12.00	4.75	123.71
	15.00	4.00	123.71
	18.00	3.50	123.71
	21.00	3.14	123.71
	24.00	2.88	123.71
	27.00	2.67	123.71
	30.00	2.50	123.71
	33.00	2.36	123.71
	36.00	2.25	124.83
	39.00	2.15	124.83
	42.00	2.07	125.94
	45.00	2.00	127.06
-9:30 1ST SHUT-IN	0.00	0.00	127.06

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES. INC.

SUPERIOR TESTERS ENTERPRISES INC.

D A T A S U M M A R Y

COMPANY : MACH PETROLEUM INC.  
DATE OF TEST : 8-24-1993  
DST. NO : 1

WELL NAME : SALE #1  
LOCATION : NE-NE-SW 14-27S-10W  
SHUT-IN PERIOD : 1

INTERPRETIVE DATA (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	140.00
Slope of Build-up Curve (psi/log cycle): .....	36.72
Effective Producing Time (min): .....	45.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.



SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : MACH PETROLEUM INC.  
 WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 STATE & COUNTY : KANSAS, KINGMAN  
 DATE OF TEST : 8-24-1993  
 TEST INT. KB : 3980 to 4032  
 TOTAL INTERVAL (ft) K.B. : 52.00  
 ELEV. (GR) : 1746 (KB) : 1751  
 FIELD :

ELEMENT SERIAL NO. : 11088  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG	-----
Refer. depth :	4026.0	ft-kb		
-10:31 END FLOW	0.00	0.00	61.30	
	1.00	106.00	74.67	
	2.00	53.50	93.62	
	3.00	36.00	112.57	
	4.00	27.25	115.91	
	5.00	22.00	119.26	
	6.00	18.50	119.26	
	9.00	12.67	119.26	
	12.00	9.75	119.26	
	15.00	8.00	119.26	
	18.00	6.83	119.26	
	21.00	6.00	119.26	
	24.00	5.37	119.26	
	27.00	4.89	119.26	
	30.00	4.50	119.26	
	33.00	4.18	120.37	
	36.00	3.92	120.37	
	39.00	3.69	120.37	
	42.00	3.50	120.37	
	45.00	3.33	120.37	
	48.00	3.19	120.37	
	51.00	3.06	120.37	
	54.00	2.94	120.37	
	57.00	2.84	120.37	
	60.00	2.75	120.37	
-11:31 2ND SHUT-IN	0.00	0.00	120.37	

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-24-1993  
 DST. NO : 1

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SHUT-IN PERIOD : 2

INTERPRETIVE DATA (OIL)

TRANSMISSIBILITY

Oil (md.ft/cp): ..... 1.38  
 Gas (md.ft/cp): ..... 0.00

EFFECTIVE PERMEABILITY

Oil (md): ..... .11  
 Gas (md): ..... 0.00

TOTAL MOBILITY (md/cp): ..... .14

TOTAL COMPRESSIBILITY (psi<sup>-1</sup>): ..... 8.92E-06

ESTIMATED DAMAGE RATIO: ..... 1.36

CALCULATED DAMAGE RATIO: ..... 2.17

Reservoir Temperature (F): ..... 113.00

Formation Porosity : ..... .18

Formation Thickness (ft): ..... 10.00

Wellbore Radius (in): ..... 3.94

Reservoir Compressibility (psi<sup>-1</sup>): ..... 4.80E-07

Calculated Skin Factor : ..... 3.94

PRODUCTION WITH DAMAGE REMOVED (bbl/D): ..... .19

PRODUCTIVITY INDEX (bbl/psi): ..... 0.00

Final Flow Pressure (psi): ..... 61.00

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 12.58

Total Flowing Time (min): ..... 105.00

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 126.00

Slope of Build-up Curve (psi/log cycle): ..... 10.25

Effective Producing Time (min): ..... 105.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

# SUPERIOR TESTERS ENTERPRISES INC.

## DATA SUMMARY

COMPANY : MACH PETROLEUM INC.                      WELL NAME : SALE #1  
DATE OF TEST : 8-24-1993                            LOCATION : NE-NE-SW 14-27S-10W  
DST. NO : 1    SHUT-IN PERIOD : 2

### INTERPRETIVE DATA                      (GAS)

#### TRANSMISSIBILITY

Oil (md.ft/cp): ..... 0.00  
Gas (md.ft/cp): ..... 2158.10

#### EFFECTIVE PERMEABILITY

Oil (md): ..... 0.00  
Gas (md): ..... 36.69

TOTAL MOBILITY (md/cp): ..... 183.44

TOTAL COMPRESSIBILITY (psi<sup>-1</sup>): ..... 9.20E-04

ESTIMATED DAMAGE RATIO: ..... 1.16

CALCULATED DAMAGE RATIO: ..... 1.34

Reservoir Temperature (F): ..... 113.00

Formation Porosity : ..... .18

Formation Thickness (ft): ..... 10.00

Wellbore Radius (in): ..... 3.94

Reservoir Compressibility (psi<sup>-1</sup>): ..... 4.80E-07

Calculated Skin Factor : ..... 1.59

PRODUCTION WITH DAMAGE REMOVED (MCF/D): ..... 6.97

PRODUCTIVITY INDEX (MCF/psi): ..... .08

Final Flow Pressure (psi): ..... 61.00

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 44.92

Total Flowing Time (min): ..... 105.00

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 126.09

Slope of Build-up Curve (psi/log cycle): ..... 2252.32

Effective Producing Time (min): ..... 105.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

# Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

Date 8-25-1993 Location NE-NE-SW 14-27<sup>S</sup>-10<sup>N</sup> Elevation 1751 K.B. County KINGMAN

Company Mach Petroleum Inc. Number of Copies 5

Charts Mailed to P.O. Box 35583 - Tulsa Oklahoma 74153

Drilling Contractor White & Ellis Drilling Rig #8

Length Drill Pipe 4255 I.D. Drill Pipe 3.80 Tool Joint Size 4 1/2" X.H.

Length Weight Pipe NONE I.D. Weight Pipe NONE Tool Joint Size NONE

Length Drill Collars NONE I.D. Drill Collars NONE Tool Joint Size NONE

Top Packer Depth 4271 Bottom Packer Depth 4276 Number of Packers 2 Packer Size 6 3/4"

TESTED FROM 4276 TO 4297 ANCHOR LENGTH 21 TOTAL DEPTH 4297 Hole Size 7 7/8"

LEASE & WELL NO. SALE #1 FORMATION TESTED Viola TEST NO. 2

Mud Weight 9.3 Viscosity 46 Water Loss 8 Chlorides - Pits 9000 D.S.T. 68000

Maximum Temp. 119 °F Initial Hydrostatic Pressure (A) 2143 P.S.I. Final Hydrostatic Pressure (H) 2077 P.S.I.

Tool Open I.F.P. from 3:15 P.m to 4:00 P.m 45 min

Tool Closed I.C.I.P. from 4:00 P.m to 4:45 P.m 45 min

Tool Open F.F.P. from 4:45 P.m to 5:45 P.m 60 min

Tool Closed F.C.I.P. from 5:45 P.m to 6:45 P.m 60 min

from [B]	<u>55</u>	P.S.I. to [C]	<u>607</u>	P.S.I.
[D]	<u>1035</u>			P.S.I.
from [E]	<u>651</u>	P.S.I. to [F]	<u>958</u>	P.S.I.
[G]	<u>1035</u>			P.S.I.

Initial Blow Fair blow - built to the bottom of a 5 Gallon bucket in 2 minutes

Final Blow Fair blow - built to the bottom of a 5 Gallon bucket in 3 1/4 minutes

Total Feet Recovered 2500 Gravity of Oil 41 1/2 Corrected

Feet of	% Gas	% Oil	% Mud	% Water
<u>60</u> Feet of <u>CLEAR GASSY OIL</u>				
<u>60</u> Feet of <u>Slightly Oil cut muddy water</u>	<u>17</u>	<u>8</u>	<u>30</u>	<u>45</u>
<u>120</u> Feet of <u>Slightly Oil cut muddy water</u>	<u>10</u>	<u>5</u>	<u>30</u>	<u>55</u>
<u>1260</u> Feet of <u>VERY SLIGHTLY OIL cut water</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>99</u>
<u>1000</u> Feet of <u>water with a trace of oil - less than 1%</u>	<u>1 1/2</u>			<u>100</u>
Feet of <u>oil</u>				
Feet of _____				
Feet of _____				
Feet of _____				

Remarks GAS to SURFACE 25 minutes into the 2ND OPENING

REVERSED WATER out to the RESERVE PIT

Extra Equipment - Jars NONE Safety Joint YES Extra Packer NONE Straddle NONE Hook Wall NONE

Top Recorder No. 11088 Clock No. 47441 Depth 4270 Cir. Sub 9/85 Sampler NONE

Bottom Recorder No. 11087 Clock No. 47442 Depth 4273 Insurance NONE

Price of Job \_\_\_\_\_

Tool Operator Gene Rudy

Approved By \_\_\_\_\_

No 11030

Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to the property or personnel of the one for whom a test is made, of for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

# Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

## GAS FLOW REPORT

Date 8-25-1993 Ticket # 11030 Company Mach Petroleum Inc.  
 Well Name and No. SALE #1 DST No. 2 Interval Tested 4276-4297  
 County KINGMAN State KANSAS Sec. 14 Twp. 27<sup>s</sup> Rg. 10<sup>w</sup>

Time Gauge Pre-Flow	Time Gauge In Min.	Inches of Water on Orifice Well Tester	Inches of Mercury on Orifice Well Tester	P.S.I. on Orifice Well Tester	P.S.I. on Pitot Tester	Choke Size	Gas Rate MCF
---------------------	--------------------	--	--	-------------------------------	------------------------	------------	--------------

### PRE FLOW


### SECOND FLOW

5:10	25	GAS TO SURFACE					
5:15	30	12				1/8	1.83
5:25	40	14				1/8	1.78
5:30	45	12				1/8	1.83
5:35	50	9				1/8	1.59
5:40	55	9				1/8	1.59
5:45	60	CAUGHT A GAS SAMPLE					

### GAS BOTTLE

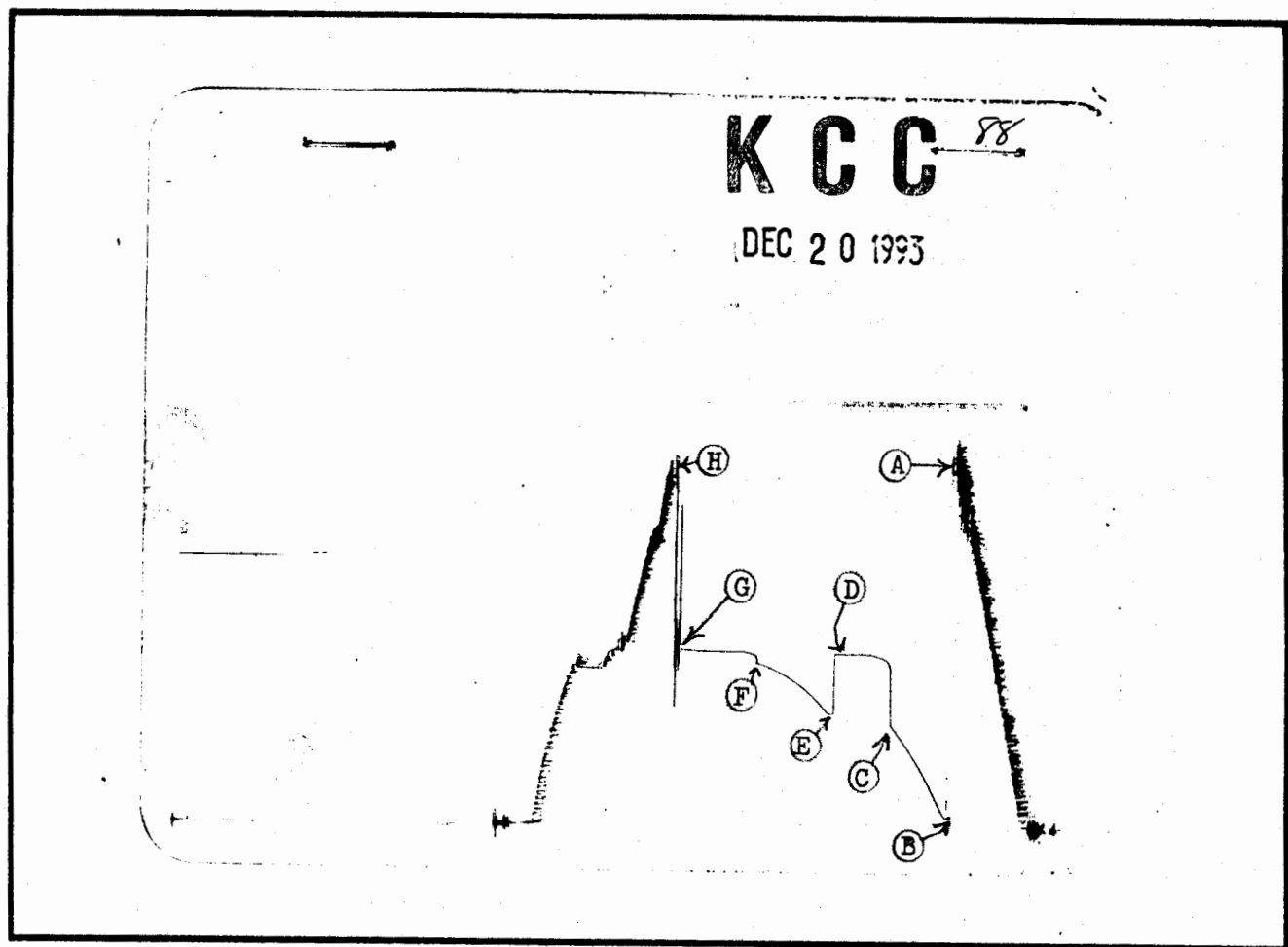
Serial No. \_\_\_\_\_ Date Bottle Filled \_\_\_\_\_ Date to be Invoiced \_\_\_\_\_ Test Ticket # \_\_\_\_\_

Requisition and Provisions for high pressure steel gas bottles. Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to property or personnel of the one whom gas bottle is filled or for any loss suffered or sustained directly or indirectly through the use of these bottles. By signing of this ticket showing receipt of a gas testing bottle, the undersigned agrees for himself and as agent for operator, to return this bottle to Superior Testers Enterprises, Inc. within thirty (30) days free of charge or be invoiced in the amount of \$125.00 (total charge). Should valve or seal plug be missing or damaged beyond repair, operator shall be invoiced for repairs at our invoiced price.

All charges subject to 1½% per month, equal to 18% interest per annum after 30 days from date of invoice. Any expense incurred for collection will be added to the original amount.

COMPANY'S NAME \_\_\_\_\_

Authorized by \_\_\_\_\_



This is an actual photograph of recorder chart.

POINT	PRESSURE		
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	<u>2143</u>	<u>2166</u>	P.S.I.
(B) First Initial Flow Pressure .....	<u>55</u>	<u>61</u>	P.S.I.
(C) First Final Flow Pressure .....	<u>607</u>	<u>613</u>	P.S.I.
(D) Initial Closed-in Pressure .....	<u>1035</u>	<u>1032</u>	P.S.I.
(E) Second Initial Flow Pressure .....	<u>651</u>	<u>674</u>	P.S.I.
(F) Second Final Flow Pressure .....	<u>958</u>	<u>977</u>	P.S.I.
(G) Final Closed-in Pressure .....	<u>1035</u>	<u>1045</u>	P.S.I.
(H) Final Hydrostatic Mud .....	<u>2077</u>	<u>2078</u>	P.S.I.

SUPERIOR TESTERS ENTERPRISES INC.

WELL IDENTIFICATION DATA

-----  
COMPANY : MACH PETROLEUM INC. WELL NAME : SALE #1  
ADDRESS : P.O.BOX 35583.TULSA LOCATION : NE-NE-SW 14-27S-10W  
STATE & COUNTY : KANSAS.KINGMAN FIELD :  
ELEV.(GR) : 1746 (KB) : 1751 TEST DATE : 8-25-1993

EQUIPMENT AND HOLE DATA

-----  
FORMATION TESTED : VIOLA DRILL PIPE LENGTH(ft) : 4255  
TEST INT. KB : 4276 to 4297 DRILL PIPE O.D.(in) : 3.82  
ANCHOR LENGTH(ft) : 21 WEIGHT PIPE LENGTH(ft) :  
TYPE OF TEST : Conventional WEIGHT PIPE ID : 2.75  
TOTAL DEPTH(ft-kb) : 4297 DRILL COLLAR LENGTH(ft) :  
MAIN HOLE SIZE(in) : 7 7/8 DRILL COLLAR I.D.(in) : 2.259  
MUD WEIGHT : 9.2 TOP PACKER DEPTH(kb) : 4271  
MUD VISCOSITY : 46 BOTTOM PACKER DEPTH(kb) : 4276  
MUD CHLORIDES : 9000 DUAL PACKERS :  
SURFACE CHOKE : 3/4 PACKER SIZE(in) : 6 3/4  
BOTTOM CHOKE(in) : 3/4 PACKER HOLD : Yes  
TOOL SIZE(O.D.) : 5 1/2 TOOL PLUG : No  
TOOL JOINT SIZE(F.H.) : 4 1/2 REVERSED OUT : YES  
RESERVOIR TEMPERATURE(F) : 119 TEST TICKET NUMBER : 11030

EXTRA EQUIPMENT : -SAFETY JOINT -CIRC.SUB

ELEMENT SERIAL NO. : 11088  
RANGE : 0 - 4400 CLOCK RANGE : 12 HOURS  
CAL. EQU. : 1102.93 \* Defl. + 4.88

SURFACE BLOW

1st Opening : FAIR BLOW-BOTTOM OF THE BUCKET IN 2 MINUTES  
2nd Opening : FAIR BLOW-BOTTOM OF THE BUCKET IN 3 1/4 MINUTES

RECOVERY

Recovered 60 feet of CLEAN OIL GRAVITY 41 1/2 CORRECTED  
Recovered 60 feet of SLIGHTLY OIL CUT MUDDY WATER  
Recovered 120 feet of SLIGHTLY OIL CUT MUDDY WATER  
Recovered 1260 feet of VERY SLIGHTLY OIL CUT WATER  
Recovered 1000 feet of WATER WITH A TRACE OF OIL

REMARKS :

GAS TO SURFACE 25 MINUTES INTO THE 2ND OPENING-SEE GAS REPORT  
REVERSED FLUID OUT TO THE RESERVE PIT

WITNESSED BY : DAN FREDLUND TOOL OPERATOR : GENE BUDIG

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-25-1993  
 DEPTH : 4270.0

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SERIAL NO. : 11088

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	CORRECTED
TEST NO.:2					
Depth : 4270.0 ft-kb					
-1ST HYDROSTATIC	0.0	1.959	2165.52	1.28	2166.80
-3:15 1ST FLOW	0.0	.055	65.54	-4.24	61.30
- 3:20	5.0	.091	105.25	-3.82	101.42
- 3:25	10.0	.159	180.25	-3.03	177.21
- 3:30	15.0	.230	258.55	-2.21	256.34
- 3:35	20.0	.296	331.35	-1.44	329.90
- 3:40	25.0	.356	397.52	-.75	396.78
- 3:45	30.0	.410	457.08	-.12	456.96
- 3:49	34.0	.446	496.79	.30	497.08
- 3:54	39.0	.500	556.35	.92	557.27
- 4:00	45.0	.551	612.59	.89	613.49
-4:00 END FLOW	0.0	.551	612.59	.89	613.49
- 4:03	3.0	.899	996.41	.67	997.08
- 4:06	6.0	.909	1007.44	.66	1008.10
- 4:09	9.0	.916	1015.16	.65	1015.82
- 4:12	12.0	.921	1020.68	.65	1021.33
- 4:15	15.0	.924	1023.99	.65	1024.64
- 4:18	18.0	.926	1026.19	.65	1026.84
- 4:21	21.0	.928	1028.40	.65	1029.05
- 4:24	24.0	.928	1028.40	.65	1029.05
- 4:27	27.0	.929	1029.50	.65	1030.15
- 4:30	30.0	.929	1029.50	.65	1030.15
- 4:33	33.0	.929	1029.50	.65	1030.15
- 4:36	36.0	.929	1029.50	.65	1030.15
- 4:39	39.0	.929	1029.50	.65	1030.15
- 4:42	42.0	.929	1029.50	.65	1030.15
- 4:45	45.0	.931	1031.71	.64	1032.35
-4:45 1ST SHUT-IN	0.0	.931	1031.71	.64	1032.35
-4:45 2ND FLOW	0.0	.606	673.26	.86	674.11
- 4:50	5.0	.620	688.70	.85	689.54
- 4:55	10.0	.655	727.30	.82	728.12
- 5:00	15.0	.691	767.00	.80	767.81
- 5:05	20.0	.725	804.50	.78	805.28
- 5:10	25.0	.754	836.49	.76	837.25
- 5:15	30.0	.779	864.06	.74	864.81
- 5:19	34.0	.795	881.71	.73	882.44
- 5:24	39.0	.817	905.97	.72	906.69
- 5:30	45.0	.838	929.14	.70	929.84
- 5:35	50.0	.855	947.89	.69	948.58
- 5:40	55.0	.869	963.33	.68	964.01

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-25-1993  
 DEPTH : 4270.0

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SERIAL NO. : 11088

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	----- CORRECTED
TEST NO.:2					
- 5:45	60.0	.881	976.56	.68	977.24
-5:45 END FLOW	0.0	.881	976.56	.68	977.24
- 5:46	1.0	.914	1012.96	.66	1013.61
- 5:47	2.0	.919	1018.47	.65	1019.13
- 5:48	3.0	.923	1022.88	.65	1023.53
- 5:51	6.0	.929	1029.50	.65	1030.15
- 5:54	9.0	.933	1033.91	.64	1034.56
- 5:57	12.0	.935	1036.12	.64	1036.76
- 6:00	15.0	.935	1036.12	.64	1036.76
- 6:03	18.0	.935	1036.12	.64	1036.76
- 6:06	21.0	.935	1036.12	.64	1036.76
- 6:09	24.0	.935	1036.12	.64	1036.76
- 6:12	27.0	.935	1036.12	.64	1036.76
- 6:15	30.0	.936	1037.22	.64	1037.86
- 6:18	33.0	.936	1037.22	.64	1037.86
- 6:21	36.0	.936	1037.22	.64	1037.86
- 6:24	39.0	.937	1038.33	.64	1038.97
- 6:27	42.0	.937	1038.33	.64	1038.97
- 6:30	45.0	.937	1038.33	.64	1038.97
- 6:33	48.0	.938	1039.43	.64	1040.07
- 6:36	51.0	.940	1041.63	.64	1042.27
- 6:39	54.0	.941	1042.74	.64	1043.38
- 6:42	57.0	.942	1043.84	.64	1044.48
- 6:45	60.0	.943	1044.94	.64	1045.58
-6:45 2ND SHUT-IN	0.0	.943	1044.94	.64	1045.58
-2ND HYDROSTATIC	0.0	1.879	2077.29	1.32	2078.61

**SUPERIOR TESTERS ENTERPRISES INC.**

**DATA SUMMARY**

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-25-1993

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W

**RECOVERY INFORMATION**

**LIQUID RECOVERY**

Total Fluid Recovered :

Recovered 60 feet of CLEAN OIL GRAVITY 41 1/2 CORRECTED  
 Recovered 60 feet of SLIGHTLY OIL CUT MUDDY WATER  
 Recovered 120 feet of SLIGHTLY OIL CUT MUDDY WATER  
 Recovered 1260 feet of VERY SLIGHTLY OIL CUT WATER  
 Recovered 1000 feet of WATER WITH A TRACE OF OIL

**GAS RECOVERY**

Measured With : ORFICE TESTER  
 (INCHES OF WATER )

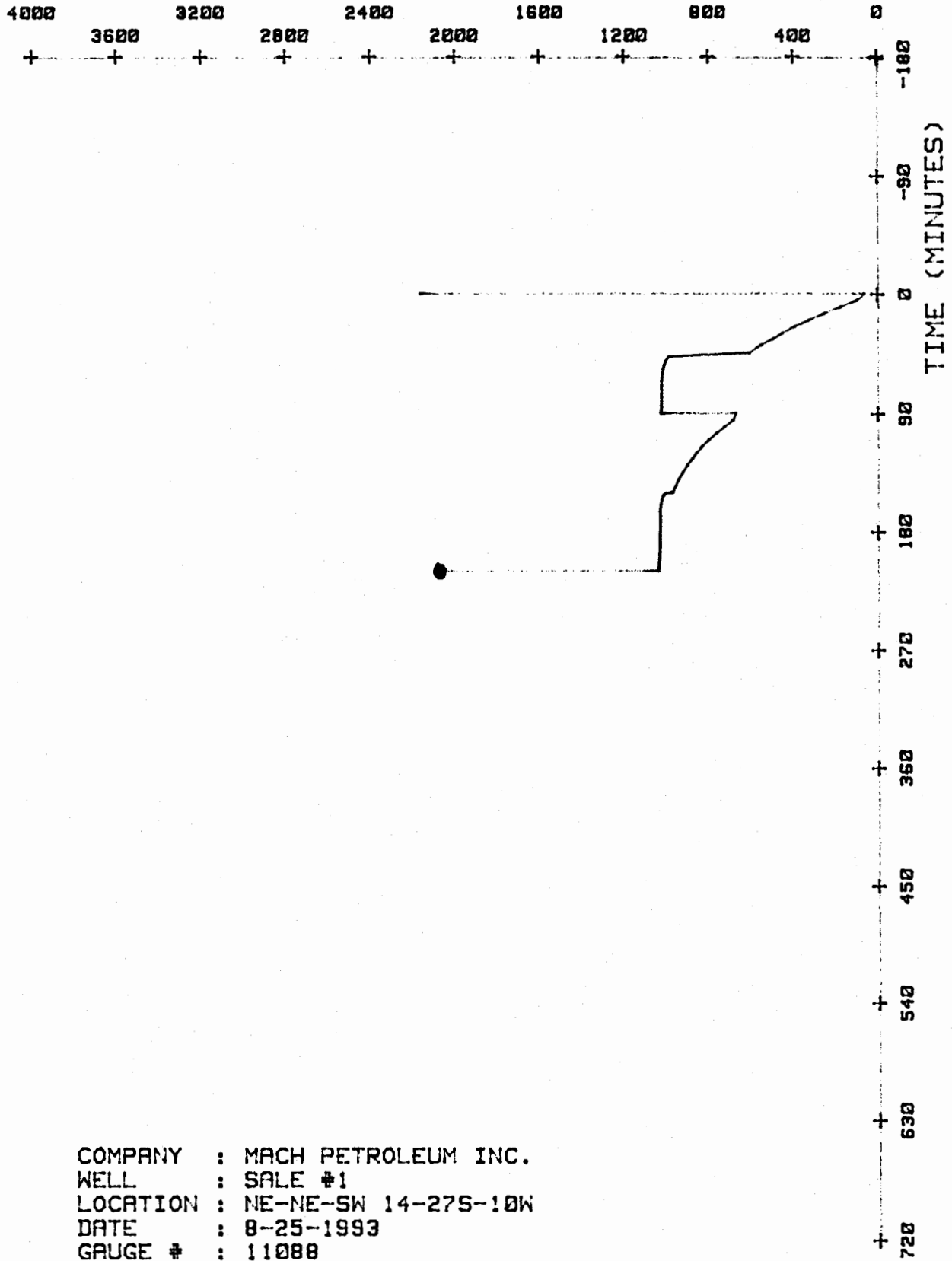
Riser : 2 INCH

Time (min.)	Reading	Surface Choke (in.)	Cubic feet/day
5:15	12.00	.08	1830
5:25	14.00	.08	1780
5:30	12.00	.08	1830
5:35	9.00	.08	1590
5:40	9.00	.08	1590

**FLUID PROPERTIES**

	Viscosity (cp)	Compressibility (psi <sup>-1</sup> )	Pore Space Saturation
Oil	.8	7.7E-6	.2
Gas	.2	9.2E-6	.2
Water	.45	3.1E-6	.6

PRESSURE ( P S I G )



COMPANY : MACH PETROLEUM INC.  
WELL : SALE #1  
LOCATION : NE-NE-SW 14-27S-10W  
DATE : 8-25-1993  
GAUGE # : 11088

GRAUGE # : 11088

DATE : 8-25-1993

LOCATION : NE-NE-SW 14-27S-10W

Pwf 614      \* Initial Shut In Extrapolated Pressure p\* = 1049

2000

1800

1600

1400

1200

1000

800

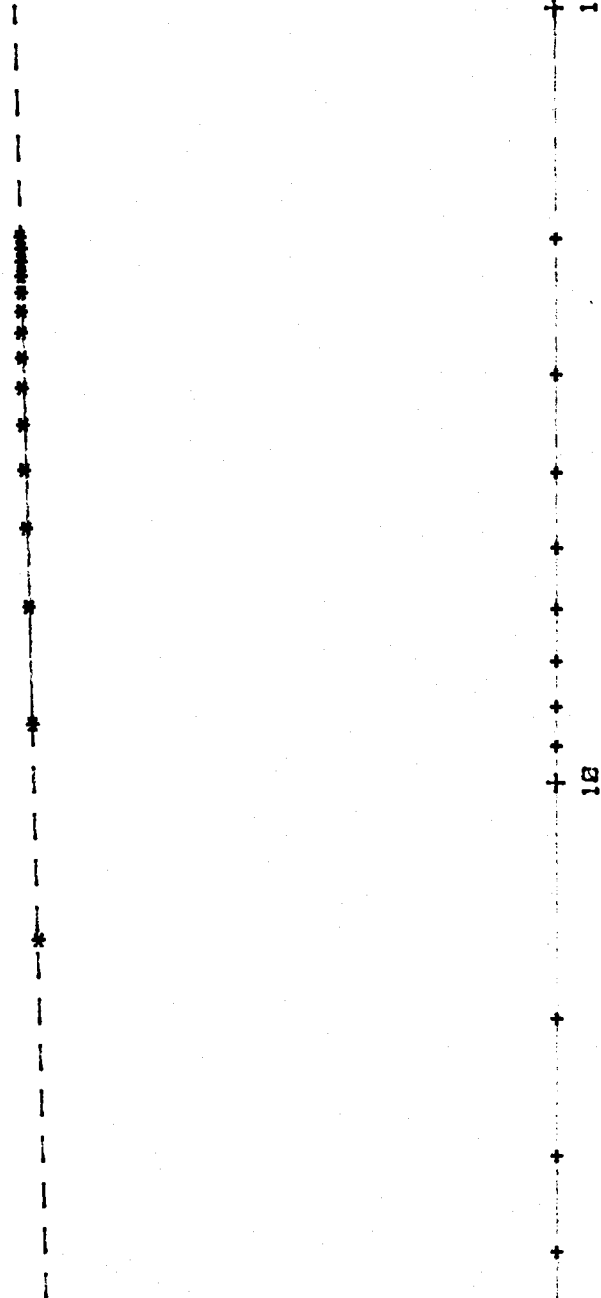
600

400

200

0

PRESSURE (CORRECTED, PSI)



TIME (MINUTES) : (T+dt)/dt - (Semilog scale)

100

10

1

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : MACH PETROLEUM INC.  
 WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 STATE & COUNTY : KANSAS, KINGMAN  
 DATE OF TEST : 8-25-1993  
 TEST INT. KB : 4276 to 4297  
 TOTAL INTERVAL (ft) K.B. : 21.00  
 ELEV.(GR) : 1746 (KB) : 1751  
 FIELD :

ELEMENT SERIAL NO. : 1108B  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG
Refer. depth :	4270.0 ft-kb		
-4:00 END FLOW	0.00	0.00	614.11
	3.00	16.00	1001.97
	6.00	8.50	1013.12
	9.00	6.00	1020.92
	12.00	4.75	1026.49
	15.00	4.00	1029.83
	18.00	3.50	1032.06
	21.00	3.14	1034.29
	24.00	2.88	1034.29
	27.00	2.67	1035.41
	30.00	2.50	1035.41
	33.00	2.36	1035.41
	36.00	2.25	1035.41
	39.00	2.15	1035.41
	42.00	2.07	1035.41
	45.00	2.00	1037.64
-4:45 1ST SHUT-IN	0.00	0.00	1037.64

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : MACH PETROLEUM INC.  
DATE OF TEST : 8-25-1993  
DST. NO : 2

WELL NAME : SALE #1  
LOCATION : NE-NE-SW 14-27S-10W  
SHUT-IN PERIOD : 1

INTERPRETIVE DATA (OIL)

EXTRAPOLATED RESERVOIR PRESSURE (psi): .....	1049.00
Slope of Build-up Curve (psi/log cycle): .....	35.82
Effective Producing Time (min): .....	45.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

GAUGE # : 11088

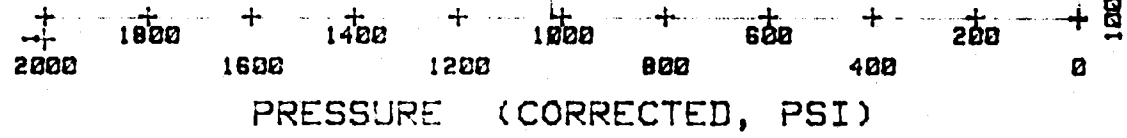
DATE : 8-25-1993

LOCATION : NE-NE-SW 14-27S-10W

100

10

Pwf 982 X Final Shut In Extrapolated Pressure px - 1054



PRESSURE (CORRECTED, PSI)

TIME (MINUTES) : (T+dt)/dt - (Semi log scale)

SUPERIOR TESTERS ENTERPRISES INC.

HORNER ANALYSIS

COMPANY : MACH PETROLEUM INC.  
 WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 STATE & COUNTY : KANSAS.KINGMAN  
 DATE OF TEST : 8-25-1993  
 TEST INT. KB : 4276 to 4297  
 TOTAL INTERVAL (ft) K.B. : 21.00  
 ELEV.(GR) : 1746 (KB) : 1751  
 FIELD :

ELEMENT SERIAL NO. : 11088  
 LATEST CALIBRATION :

COMMENTS	TIME min	(T+dt)/dt min	----- PRESSURES CORR PSIG -----
Refer. depth :	4270.0 ft-kb		
-5:45 END FLOW	0.00	0.00	981.91
	1.00	106.00	1018.69
	2.00	53.50	1024.26
	3.00	36.00	1028.72
	6.00	18.50	1035.41
	9.00	12.67	1039.87
	12.00	9.75	1042.09
	15.00	8.00	1042.09
	18.00	6.83	1042.09
	21.00	6.00	1042.09
	24.00	5.37	1042.09
	27.00	4.89	1042.09
	30.00	4.50	1043.21
	33.00	4.18	1043.21
	36.00	3.92	1043.21
	39.00	3.69	1044.32
	42.00	3.50	1044.32
	45.00	3.33	1044.32
	48.00	3.19	1045.44
	51.00	3.06	1047.67
	54.00	2.94	1048.78
	57.00	2.84	1049.90
	60.00	2.75	1051.01
-6:45 2ND SHUT-IN	0.00	0.00	1051.01

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-25-1993  
 DST. NO : 2

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SHUT-IN PERIOD : 2

INTERPRETIVE DATA (OIL)

TRANSMISSIBILITY

Oil (md.ft/cp): ..... 158.40  
 Gas (md.ft/cp): ..... 0.00

EFFECTIVE PERMEABILITY

Oil (md): ..... 13.05  
 Gas (md): ..... 0.00

TOTAL MOBILITY (md/cp): ..... 487.39

TOTAL COMPRESSIBILITY (psi<sup>-1</sup>): ..... 5.72E-06

ESTIMATED DAMAGE RATIO: ..... .98

CALCULATED DAMAGE RATIO: ..... .69

Reservoir Temperature (F): ..... 119.00  
 Formation Porosity : ..... .18  
 Formation Thickness (ft): ..... 10.00  
 Wellbore Radius (in): ..... 3.94  
 Reservoir Compressibility (psi<sup>-1</sup>): ..... 4.80E-07  
 Calculated Skin Factor : ..... -2.37

PRODUCTION WITH DAMAGE REMOVED (bbl/D): ..... 15.26

**Water Production with damage removed(bb/D):..... 453.82**

PRODUCTIVITY INDEX (bbl/psi): ..... .21

Final Flow Pressure (psi): ..... 982.00

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 928.94

Total Flowing Time (min): ..... 105.00

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 1054.00

Slope of Build-up Curve (psi/log cycle): ..... 15.66

Effective Producing Time (min): ..... 105.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

SUPERIOR TESTERS ENTERPRISES INC.

DATA SUMMARY

COMPANY : MACH PETROLEUM INC.                      WELL NAME : SALE #1  
 DATE OF TEST : 8-25-1993                         LOCATION : NE-NE-SW 14-27S-10W  
 DST. NO : 2     SHUT-IN PERIOD : 2

INTERPRETIVE DATA                      (GAS)

TRANSMISSIBILITY

Oil (md.ft/cp): ..... 0.00  
 Gas (md.ft/cp): ..... 45.22

EFFECTIVE PERMEABILITY

Oil (md): ..... 0.00  
 Gas (md): ..... .77

TOTAL MOBILITY (md/cp): ..... 215.83

TOTAL COMPRESSIBILITY (psi-1): ..... 9.20E-04

ESTIMATED DAMAGE RATIO: ..... .95

CALCULATED DAMAGE RATIO: ..... 1.08

Reservoir Temperature (F): ..... 119.00

Formation Porosity : ..... .18

Formation Thickness (ft): ..... 10.00

Wellbore Radius (in): ..... 3.94

Reservoir Compressibility (psi-1): ..... 4.80E-07

Calculated Skin Factor : ..... .39

PRODUCTION WITH DAMAGE REMOVED (MCF/D): ..... 1.72

**Water Production with damage removed (bbl/D)..... 490.12**

PRODUCTIVITY INDEX (MCF/psi): ..... .02

Final Flow Pressure (psi): ..... 982.00

APPROXIMATE RADIUS OF INVESTIGATION (ft): ..... 48.73

Total Flowing Time (min): ..... 105.00

EXTRAPOLATED RESERVOIR PRESSURE (psi): ..... 1054.48

Slope of Build-up Curve (psi/log cycle): ..... 33307.48

Effective Producing Time (min): ..... 105.00

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES, INC.

# Superior Testers Enterprises, Inc.

R.R. 3, Box 295B, Great Bend, Kansas 67530

(316) 792-6902

Date 8-27-1993 Location NE-NE-SW 14-27-10<sup>W</sup> Elevation 1751 R.B. County KINGMAN

Company Mach Petroleum Inc. Number of Copies 6

Charts Mailed to P.O. Box 35583 - Tulsa Oklahoma 74153

Drilling Contractor White & Ellis Drilling Rig #8

Length Drill Pipe 2953 I.D. Drill Pipe 3.80 Tool Joint Size 4 1/2" X.H.

Length Weight Pipe NONE I.D. Weight Pipe NONE Tool Joint Size NONE

Length Drill Collars NONE I.D. Drill Collars NONE Tool Joint Size NONE

Top Packer Depth 3975-3980 Bottom Packer Depth 4050 Number of Packers 3 Packer Size 6 3/4"

TESTED FROM 3980 TO 4050 ANCHOR LENGTH 70 TOTAL DEPTH 4435 Hole Size 7 7/8"

LEASE & WELL NO. Sale #1 FORMATION TESTED Mississippi TEST NO. 3

Mud Weight 8.9 Viscosity 53 Water Loss 8 Chlorides - Pits 9000 D.S.T. 28000

Maximum Temp. 117 °F Initial Hydrostatic Pressure (A) 2002 P.S.I. Final Hydrostatic Pressure (H) 1980 P.S.I.

Tool Open I.F.P. from 3:15 A.m to 4:15 A.m 60 min

Tool Closed I.C.I.P. from 4:15 A.m to 5:15 A.m 60 min

Tool Open F.F.P. from 5:15 A.m to 6:15 A.m 60 min

Tool Closed F.C.I.P. from 6:15 A.m to 7:15 A.m 60 min

from [B] 111 P.S.I. to [C] 144 P.S.I.

[D] 711 P.S.I.

from [E] 144 P.S.I. to [F] 167 P.S.I.

[G] 612 P.S.I.

Initial Blow WEAK blow built to 12 inches DECREASED to WEAK SURFACE blow

Final Blow WEAK blow built to 3 inches DECREASED to A WEAK STEADY 1/4 inch blow

Total Feet Recovered 185 Gravity of Oil \_\_\_\_\_ Corrected

65 Feet of MUD % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

60 Feet of Muddy water with a trace of oil % Gas Trace % Oil 58 % Mud 42 % Water \_\_\_\_\_

60 Feet of Very slightly oil cut muddy water % Gas 1/2+ % Oil 50 % Mud 50 % Water \_\_\_\_\_

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

Feet of \_\_\_\_\_ % Gas \_\_\_\_\_ % Oil \_\_\_\_\_ % Mud \_\_\_\_\_ % Water \_\_\_\_\_

Remarks 2nd Recorder #906 Clock # 8036 Depth 4035

Hit a bridge at approx 1800 FEET

Extra Equipment - Jars YES Safety Joint YES Extra Packer YES(3) Straddle YES Hook Wall NONE

Top Recorder No. 11088 Clock No. 47442 Depth 4043 Cir. Sub NONE Sampler NONE

Bottom Recorder No. 11087 Clock No. 47441 Depth 4432 Insurance NONE

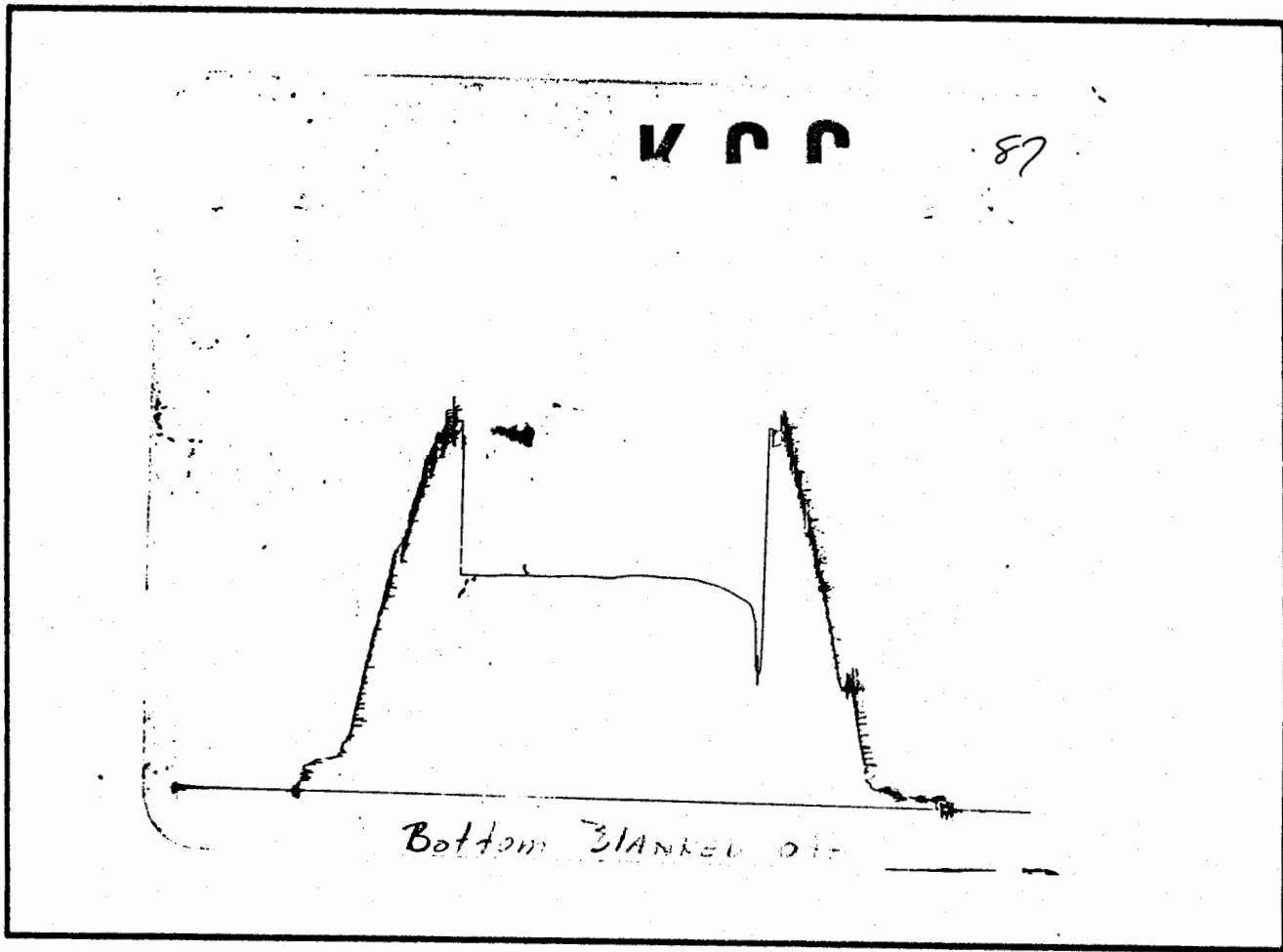
Price of Job \_\_\_\_\_

Tool Operator Gene Budig

Approved By \_\_\_\_\_

No 11031

Superior Testers Enterprises, Inc. shall not be liable for damage of any kind to the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



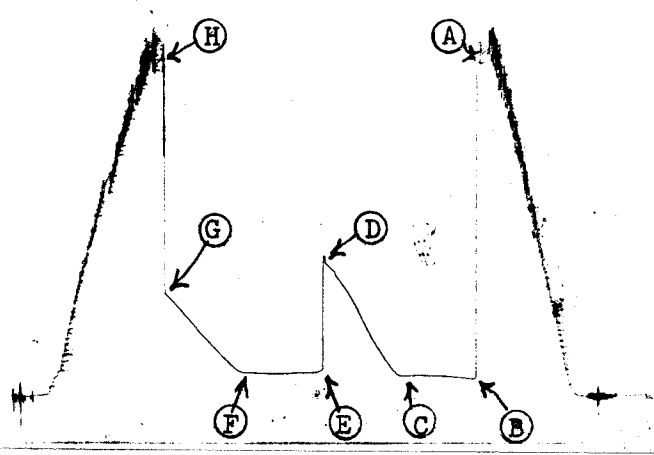
This is an actual photograph of recorder chart.

POINT	PRESSURE		
	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud .....	2002	2054	P.S.I.
(B) First Initial Flow Pressure .....	111	117	P.S.I.
(C) First Final Flow Pressure .....	144	134	P.S.I.
(D) Initial Closed-in Pressure .....	711	830	P.S.I.
(E) Second Initial Flow Pressure .....	144	152	P.S.I.
(F) Second Final Flow Pressure .....	167	154	P.S.I.
(G) Final Closed-in Pressure .....	612	614	P.S.I.
(H) Final Hydrostatic Mud .....	1980	2005	P.S.I.

K O O

DEC 20 1993

88



**SUPERIOR TESTERS ENTERPRISES INC.**

**WELL IDENTIFICATION DATA**

COMPANY : MACH PETROLEUM INC.                      WELL NAME : SALE #1  
ADDRESS : P.O. BOX 35583. TULSA                    LOCATION : NE-NE-SW 14-27S-10W  
STATE & COUNTY : KANSAS. KINGMAN                   FIELD :  
ELEV. (GR) : 1746                    (KB) : 1751                    TEST DATE : 8-27-1993

**EQUIPMENT AND HOLE DATA**

FORMATION TESTED : MISSISSIPPI                    DRILL PIPE LENGTH(ft) : 3953  
TEST INT. KB : 3980                    to 4050                    DRILL PIPE O.D.(in) : 3.82  
ANCHOR LENGTH(ft) : 70                    WEIGHT PIPE LENGTH(ft) :  
TYPE OF TEST : Conventional                    WEIGHT PIPE ID : 2.75  
TOTAL DEPTH(ft-kb) : 4435                    DRILL COLLAR LENGTH(ft) :  
MAIN HOLE SIZE(in) : 7 7/8                    DRILL COLLAR I.D.(in) : 2.259  
MUD WEIGHT : 8.9                    TOP PACKER DEPTH(kb) : 3975-3980  
MUD VISCOSITY : 53                    BOTTOM PACKER DEPTH(kb) : 4050  
MUD CHLORIDES : 9000                    DUAL PACKERS : THREE  
SURFACE CHOKE : 3/4                    PACKER SIZE(in) : 6 3/4  
BOTTOM CHOKE(in) : 3/4                    PACKER HOLD : Yes  
TOOL SIZE(O.D.) : 5 1/2                    TOOL PLUG : No  
TOOL JOINT SIZE(F.H.) : 4 1/2                    REVERSED OUT : No  
RESERVOIR TEMPERATURE(F) : 117                    TEST TICKET NUMBER : 11031

EXTRA EQUIPMENT : -JARS -SAFETY JOINT -EXTRA PACKER  
-STRADDLE

ELEMENT SERIAL NO. : 11088  
RANGE :            0 - 4400                    CLOCK RANGE : 12 HOURS  
CAL. EQU. : 1102.93 \* Defl. +            4.88

**SURFACE BLOW**

1st Opening :            WEAK BUILT TO 12 INCHES DECREASED TO VERY WEAK  
2nd Opening :            WEAK BUILT 3 INCHES DECREASED TO WEAK 1/4 INCH

**RECOVERY**

Recovered 65            feet of MUD  
Recovered 60            feet of MUDDY WATER WITH A TRACE OF OIL  
Recovered 60            feet of VERY SLIGHTLY OIL CUT MUDDY WATER

**REMARKS :**

THERE WAS NOT ENOUGH BREAK OVER ON EITHER SHUT-IN TO GET  
A TRUE AND ACCURATE EXTRAPOLATION

WITNESSED BY : DAN FREDLUND                    TOOL OPERATOR : GENE BUDIG

INTERPRETATION BY : SUPERIOR TESTERS ENTERPRISES INC.

SUPERIOR TESTERS ENTERPRISES INC.

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-27-1993  
 DEPTH : 4043.0

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SERIAL NO. : 11088

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	----- CORRECTED
TEST NO.:3					
Depth : 4043.0 ft-kb					
- 0:00	0.0	1.857	2053.02	1.33	2054.35
-1ST HYDROSTATIC	0.0	1.857	2053.02	1.33	2054.35
-3:15 1ST FLOW	0.0	.105	120.69	-3.66	117.03
- 3:20	5.0	.107	122.89	-3.64	119.26
- 3:25	10.0	.109	125.10	-3.61	121.48
- 3:30	15.0	.112	128.41	-3.58	124.83
- 3:35	20.0	.115	131.72	-3.54	128.17
- 3:40	25.0	.118	135.03	-3.51	131.52
- 3:45	30.0	.118	135.03	-3.51	131.52
- 3:50	35.0	.119	136.13	-3.50	132.63
- 3:55	40.0	.121	138.33	-3.48	134.86
- 4:00	45.0	.121	138.33	-3.48	134.86
- 4:05	50.0	.121	138.33	-3.48	134.86
- 4:10	55.0	.121	138.33	-3.48	134.86
- 4:15	60.0	.121	138.33	-3.48	134.86
-4:15 END FLOW	0.0	.121	138.33	-3.48	134.86
- 4:18	3.0	.134	152.67	-3.32	149.35
- 4:21	6.0	.156	176.94	-3.07	173.87
- 4:24	9.0	.186	210.02	-2.72	207.30
- 4:27	12.0	.216	243.11	-2.37	240.74
- 4:30	15.0	.248	278.41	-2.00	276.41
- 4:33	18.0	.280	313.70	-1.63	312.07
- 4:36	21.0	.317	354.51	-1.20	353.31
- 4:39	24.0	.358	399.73	-.72	399.01
- 4:42	27.0	.401	447.15	-.22	446.93
- 4:45	30.0	.443	493.48	.26	493.74
- 4:48	33.0	.488	543.11	.79	543.90
- 4:51	36.0	.524	582.82	.91	583.72
- 4:54	39.0	.558	620.32	.89	621.20
- 4:57	42.0	.592	657.81	.87	658.68
- 5:00	45.0	.621	689.80	.85	690.65
- 5:03	48.0	.643	714.06	.83	714.90
- 5:06	51.0	.683	758.18	.81	758.99
- 5:09	54.0	.705	782.45	.79	783.24
- 5:10	55.0	.742	823.25	.77	824.02
- 5:12	57.0	.748	829.87	.76	830.64
-5:12 1ST SHUT-IN	0.0	.748	829.87	.76	830.64
-5:12 2ND FLOW	0.0	.137	155.98	-3.29	152.69
- 5:17	5.0	.137	155.98	-3.29	152.69
- 5:22	10.0	.137	155.98	-3.29	152.69

SUPERIOR TESTERS ENTERPRISES INC.

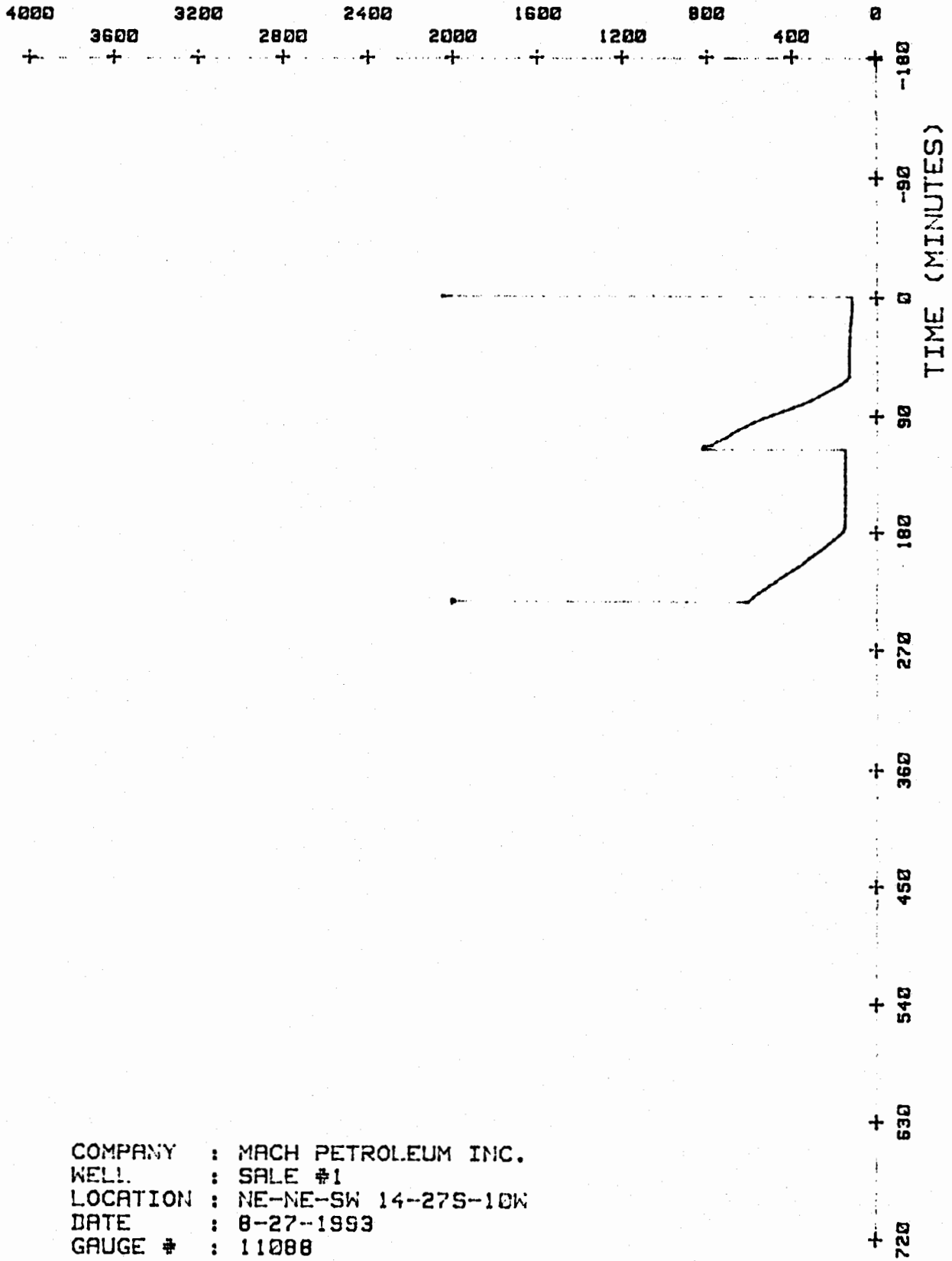
SUBSURFACE PRESSURE MEASUREMENTS

COMPANY : MACH PETROLEUM INC.  
 DATE OF TEST : 8-27-1993  
 DEPTH : 4043.0

WELL NAME : SALE #1  
 LOCATION : NE-NE-SW 14-27S-10W  
 SERIAL NO. : 11088

COMMENTS	TIME min	DEFL in	PRESSURE PSIG		
			----- CALC	CORR	----- CORRECTED
TEST NO.:3					
- 5:27	15.0	.137	155.98	-3.29	152.69
- 5:32	20.0	.137	155.98	-3.29	152.69
- 5:37	25.0	.136	154.88	-3.30	151.58
- 5:42	30.0	.136	154.88	-3.30	151.58
- 5:47	35.0	.136	154.88	-3.30	151.58
- 5:52	40.0	.136	154.88	-3.30	151.58
- 5:57	45.0	.136	154.88	-3.30	151.58
- 6:02	50.0	.137	155.98	-3.29	152.69
- 6:07	55.0	.137	155.98	-3.29	152.69
- 6:12	60.0	.139	158.19	-3.27	154.92
-6:12 END FLOW	0.0	.139	158.19	-3.27	154.92
- 6:15	3.0	.148	169.11	-3.16	164.95
- 6:18	6.0	.163	184.66	-2.99	181.67
- 6:21	9.0	.184	207.82	-2.74	205.08
- 6:24	12.0	.204	229.88	-2.51	227.37
- 6:27	15.0	.223	250.83	-2.29	248.54
- 6:30	18.0	.245	275.10	-2.04	273.06
- 6:33	21.0	.269	301.57	-1.76	299.81
- 6:36	24.0	.292	326.94	-1.49	325.45
- 6:39	27.0	.312	348.99	-1.26	347.74
- 6:42	30.0	.334	373.26	-1.00	372.26
- 6:45	33.0	.360	401.93	-.70	401.23
- 6:48	36.0	.387	431.71	-.39	431.33
- 6:51	39.0	.411	458.18	-.11	458.08
- 6:54	42.0	.433	482.45	.15	482.60
- 6:57	45.0	.459	511.12	.45	511.57
- 7:00	48.0	.481	535.39	.70	536.09
- 7:03	51.0	.504	560.76	.92	561.68
- 7:06	54.0	.527	586.12	.91	587.03
- 7:10	58.0	.552	613.70	.89	614.59
-7:10 2ND SHUT-IN	0.0	.552	613.70	.89	614.59
-2ND HYDROSTATIC	0.0	1.813	2004.49	1.35	2005.85

PRESSURE ( P S I G )



COMPANY : MACH PETROLEUM INC.  
WELL : SALE #1  
LOCATION : NE-NE-SW 14-27S-10W  
DATE : 8-27-1993  
GAUGE # : 11088