

**FOSTER TESTERS, INC.**

ODESSA, TEXAS

TEST TICKET NO. 2326

ORDER NO. _____

DATE MARCH 17, 1970COMPANY KLABZUBA MUNSON SEAMAN LEASE WHITE WELL NO. 1FIELD WILDCAT COUNTY CHAVES STATE NEW MEXICO TEST NO. 3MAIL CHARTS TO KLABZUBA MUNSON SEAMAN, 822 FORT WORTH NATIONAL BANK BLDG.MAIL INVOICE TO FORT WORTH, TEXAS 76100

FORMATION TESTED - TOTAL DEPTH 6,678' MAIN HOLE 7 7/8" RAT HOLE -
INTERVAL TESTED FROM 6,658' TO 6,678' PACKER TYPE BT SIZE 6 5/8" NUMBER 2
DRILL PIPE SIZE 4"FH I.D. 3.240" DRILL COLLAR SIZE 4"H90 I.D. 2 1/4"
TIME PACKER SET A.M. 7:40 P.M. PACKER SET 6 HRS. - MIN. PRE FLO TIME - MINS.
INITIAL FLOW - MINS. 2ND FLOW - MINS. FINAL FLOW 240 MINS.
INITIAL SHUT-IN - MINS. 2ND SHUT-IN - MINS. FINAL SHUT-IN 120 MINS.
RECORDER TYPE AK-1 CAPACITY 7500# 6600# NUMBER: TOP 2755 BOTTOM 2837
TOP RECORDER DEPTH 6,668' BOTTOM RECORDER DEPTH 6,673'
MAX. TEMP. 128° TEMP. DEPTH 6,673' CHOICE SIZE: TOP 1" BOTTOM 5/8"
MUD TYPE GEL & STARCH MUD WEIGHT 9.8 VISCOSITY 43 FILTER CAKE 2/32 WTR. LOSS 11.6
FLUID CUSHION TYPE - AMOUNT - REVERSED OUT - YES - NO X
CONVENTIONAL TEST YES STRADDLE TEST - CASING TEST - MISS RUN -
SECOND ASSEMBLY YES ROTARY JAR YES SAFETY JOINT YES
SAMPLER YES X NO - FFE FLOW TOOL YES - NO X CIRC. SUB YES - NO X
SURFACE ACTION: TOOL OPENED WITH GOOD BLOW. GAS TO SURFACE IN 1 HOUR AND 50 MINUTES.

RECOVERY: 700' TOTAL FLUID: 30' DRILLING FLUID. CHLORIDES 8400 P.P.M.
670' SLIGHTLY MUD CUT OIL. GRAVITY 49.

SAMPLER CONTENTS: 1500 cc OIL. 300 cc WATER.
CHLORIDES 1860 P.P.M.

REMARKS: TOOL PARTIALLY PLUGGED AT START OF TEST. DID NOT TAKE A PRE FLOW OR INITIAL SHUT IN.

450' TOTAL DRILL COLLAR LENGTH.

TESTER FRANK WILLIAMS TEST APPROVED BY LEE HARVARD

	RECORDER NO. <u>2837</u>		RECORDER NO.		RECORDER NO.
A INITIAL HYDROSTATIC PRESSURE	<u>3410</u>	P.S.I.		P.S.I.	P.S.I.
B INITIAL SHUT IN PRESSURE	<u>----</u>	P.S.I.	<u>B-1</u>	P.S.I.	P.S.I.
C INITIAL FLOW PRESSURE	<u>124</u>	P.S.I.	<u>C-1</u>	P.S.I.	P.S.I.
D FINAL FLOW PRESSURE	<u>302</u>	P.S.I.	<u>D-1</u>	P.S.I.	P.S.I.
E FINAL SHUT IN PRESSURE	<u>2636</u>	P.S.I.		P.S.I.	P.S.I.
F FINAL HYDROSTATIC PRESSURE	<u>3410</u>	P.S.I.		P.S.I.	P.S.I.

DRILL STEM TEST PRESSURE BREAKDOWN RESULTS

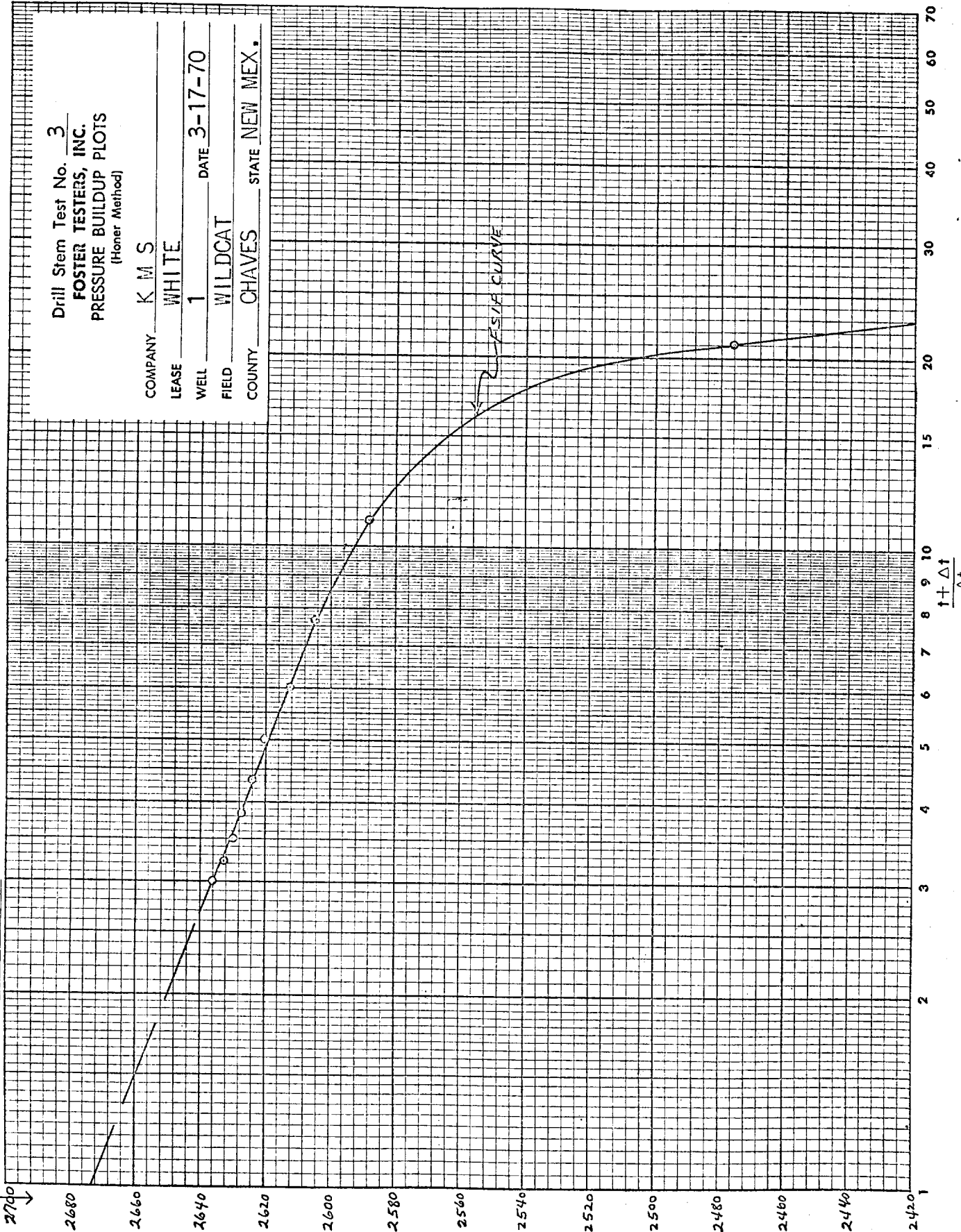
Odessa, Texas

TYPE RECORDER AK-1 TOP OR BOTTOM RECORDER BOTTOM RECORDER DEPTH 6,673' OTHER _____

Initial Flow time, to: _____ min. ISIP time: _____ min. Flow Period Time, to: 240 min. FSIP time: 120 min. Packer Set 360 min.

[illegible]

PRESSURE — PSIG @ 66.73'



FOSTER TESTERS, INC., Odessa, Texas

DRILL STEM TEST CALCULATIONS AND ANALYSIS **OIL RESERVOIR**

COMPANY KLABZUBA MUNSON SEAMAN COUNTY CHAVES STATE NEW MEX.
 LEASE WHITE WELL 1 TEST NO. 3

TEST DEPTHS	PRESSURE DATA	RECOVERY AND FLUID DATA	
FORMATION -	INITIAL HYDROSTATIC PRESS. IHP 3410 psig	DC SIZE 4 1/2 H90 in.	WATER RECOVERY - ft.
ELEVATION - ft.	FINAL HYDROSTATIC PRESS. FHP 3410 psig	DC LENGTH 450 ft.	OIL GRAV. 49 °API @ - °F
TOTAL DEPTH 6678 ft.	INITIAL SHUT IN PRESS. ISIP - - - - psig	DP SIZE 4FH in.	TEMP. 128 °F @ 6673 ft.
INTERVAL 20 ft.	INITIAL FLOWING PRESS. IFP 124 psig	SURFACE	MUD WT. 9.8 #/gal.
DATUM DEPTH, L 6673 ft.	FINAL FLOWING PRESS. FFP 302 psig	OIL PROD. - bbls.	OIL VISC. EST. 0.45 cp.
RECORDER NO. 2837	FINAL SHUT IN PRESS. FSIP 2636 psig	OIL RECOVERY - ft.	GOR - Bo 1.285 v/v.
		GAS RECOVERY -	EST.

CALCULATIONS AND ANALYSIS

CALCULATIONS	FORMULA	RESULTS
1. EXTRAPOLATED STATIC PRESSURE Initial Final	P _{oi} P _{oi}	2673 psig psig
2. RESERVOIR PRESSURE GRADIENT	$G = \frac{P_{oi}}{L}$	0.400 psi/ft.
3. CALCULATED HYDROSTATIC PRESSURE	$CHP = L \frac{MW}{8.33} (.433)$	3400 psig
4. PRESSURE ELEMENT ACCURACY	$E = \frac{IHP (100)}{CHP}$	100.3% %
5. SLOPE OF FSIP (Horner Plot)	M	78 psi/cycle
6. OIL PRODUCTION RATE	$Q_o = 24 \frac{Rec.}{T}$	28.2 bopd
7. TRANSMISSABILITY	$\frac{K_{oh}}{\mu} = \frac{162.6 Q_o B_o}{M}$	75.5 md-ft. cp
8. PERMEABILITY CAPACITY	$K_{oh} = \frac{K_{oh}}{\mu_o} \mu_o$	33.9 md-ft.
9. EFFECTIVE OIL PERMEABILITY	$K_o = \frac{K_{oh}}{h}, h = 20'$	1.7 md.
10. DAMAGE RATIO	$DR = .183 \frac{P_{oi} - P_f}{M}$	5.56
11. PRODUCTIVITY INDEX	$PI = \frac{Q_o}{P_{oi} - P_f}$	0.0118 bopd psi
12. PRODUCTION WITH DAMAGE REMOVED	$Q_{o,} = Q_o DR$	157 bopd
13. APPROX. RADIUS OF INVESTIGATION	$a \cong \sqrt{K_o T}$	20.2 ft.

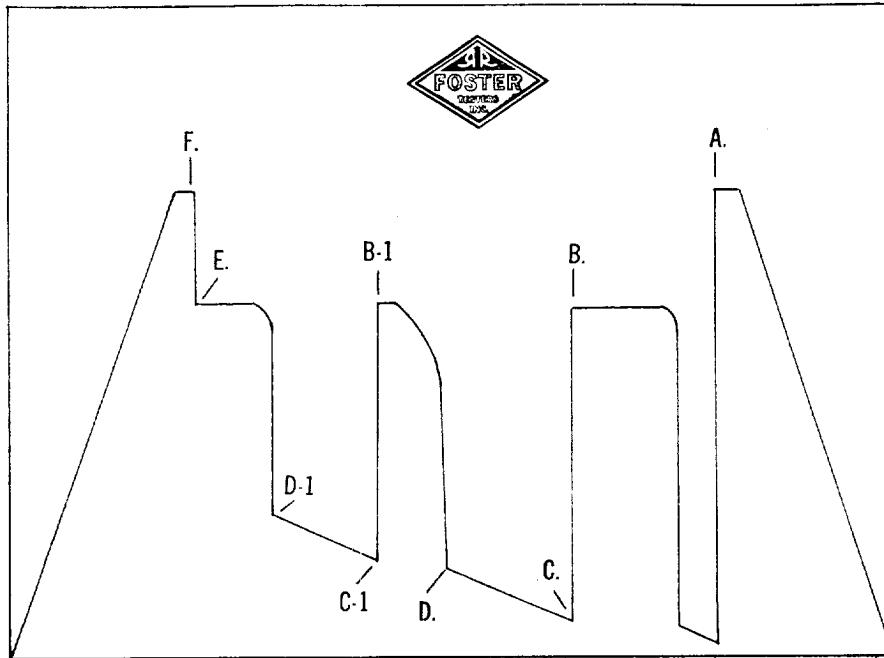
REMARKS:

THIS APPEARS TO BE A SATISFACTORY TEST, WITH INDICATIONS OF HIGH WELL BORE DAMAGE AND FAIR PERMEABILITY. SINCE NO INITIAL SHUT IN PRESSURE WAS TAKEN, NO CHECK FOR DEPLETION CAN BE MADE. FLUID RECOVERY WAS LOW DUE TO DAMAGE EFFECTS, AND THIS ZONE APPEARS TO PRODUCE SOME WATER (15-20%) WITH THE OIL.

NOTICE: These calculations and all remarks are designed to furnish you with the facts of the Drill Stem Test, and as such are

FOSTER TESTERS, INC., opinion only.

IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



- A. INITIAL HYD. FLUID
- B. INITIAL SHUT IN
- C. INITIAL FLOW
- D. FINAL FLOW
- E. FINAL SHUT IN
- F. FINAL HYD. FLUID
- B-1 SECOND SHUT IN
- C-1 SECOND FLOW
- D-1 FINAL FLOW

