

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10-26-81			
Company Maralo, Inc. ✓				Connection E.P.N.G. CO.				NOV 2 1981	
Pool Avalon				Formation Morrow				Unit Avalon	
Completion Date 7-21-81		Total Depth 11,040		Blue Back TD 11,040		Elevation 3205 GL.		Farm or Lease Name Hanson Federal	
Csq. Size 5½	Wt. 15½	d 4.950	Set At 11,024	Perforations: 10572 From 10,553 To 10,921			Well No. 2		
Tbg. Size 2 3/8	Wt. 4.7	d 1.995	Set At 10,550	Perforations: From OPENENDED			Unit 0	Soc. 28	
Type Well - Single - Bradenhead - G.C. or G.O. Multiple SINGLE				Packer Set At 10,550		County EDDY			
Producing Thru Tubing		Reservoir Temp. °F 178 @ 10,737		Mean Annual Temp. °F 60°		Baro. Press. - P _a 13.2		State New Mexico	
L 10,737	H 10,737	Gg .6253	% CO ₂ .824	% N ₂ .578	% H ₂ S	Prover	Meter Run 4"	Taps Flange	

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI							2130		PKR		72 Hrs.
1.	4"	x	1"	534	2.25	76	2015	72			1 Hr.
2.	4"	x	1"	534	5.76	72	1710	70			1 Hr.
3.	4"	x	1"	549	6.25	72	1330	69			1 Hr.
4.	4"	x	1"	549	15.21	67	540	66			1 Hr.
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	4.753	35.09	547.2	.9850	1.265	1.045	217
2	4.753	56.13	547.2	.9887	1.265	1.047	349
3	4.753	59.28	562.2	.9887	1.265	1.048	369
4	4.753	92.47	562.2	.9933	1.265	1.051	580
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio 31.56 Mcf/bbl.
1.	.813	536	1.48	.915	A.P.I. Gravity of Liquid Hydrocarbons 54° @ 60° Deg.
2.	.813	532	1.47	.913	Specific Gravity Separator Gas XXXXX
3.	.835	532	1.47	.910	Specific Gravity Flowing Fluid XXXXX
4.	.835	527	1.45	.906	Critical Pressure 673 P.S.I.A. 671 P.S.I.A.
5.					Critical Temperature 363 R 393 R

P _c *2056.77 P _c ² 4230.3				
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²
1		1947.4	3792.4	437.9
2		1657.0	2745.6	1484.7
3		1308.	1710.9	2519.4
4		602	362.4	3867.9
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 9.66042$

ACF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 674$

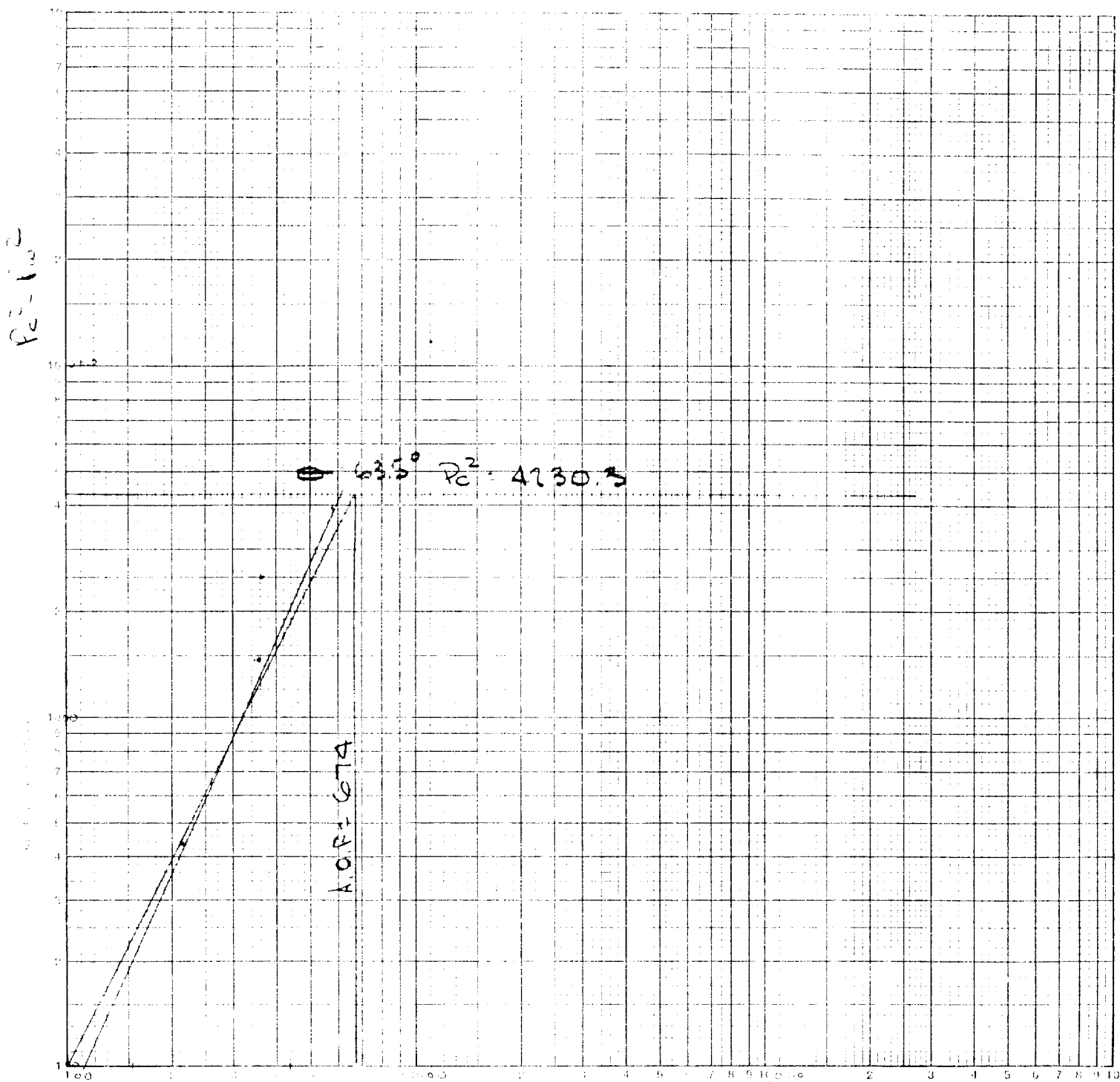
(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.10812$

Absolute Open. Flow 674 Mcfd @ 15.025	Angle of Slope @ 63.5	Slope, n .5000
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Remarks: Use 63.5 thru low rate.
* Calculated from Bottom Hole Pressures.

Approved By Commission:	Conducted By: M.R.	Calculated By: M.K.	Checked By: M.K.
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$$217 \left(\frac{4230.3}{437.9} \right)^{.5} = 674$$



H.C.F/D = 1000'S.

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_1 or P_2)

FROM KNOWN BOTTOM HOLE PRESSURE (P_1 or P_2)

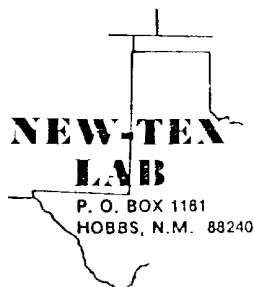
COMPANY Mayfield, Inc. LEASE Hansen WELL NO. 1 DATE 10-26-81

LOCATION: Unit 0 Section 28 Township 20S Range 27E

10737 10737 LH 1000 G_{max} 7191 G₀₀ 824 578 07

GH 7721 P₀ 1 TO 193

TABLE 10		TABLE 11		TABLE 12		TABLE 13		TABLE 14		TABLE 15	
S.I.	S.T.	S.I.	S.T.	S.I.	S.T.	S.I.	S.T.	S.I.	S.T.	S.I.	S.T.
1	520	1	536	1	536	1	536	1	536	1	536
2	638	2	638	2	638	2	638	2	638	2	638
3	587	3	587	3	587	3	587	3	587	3	587
4	773	4	765	4	765	4	772	4	765	4	765
5	45375	5	449055	5	449055	5	45162	5	468	5	52015
6	17.01583	6	17.1938	6	17.1938	6	17.09617	6	16.49781	6	14.5431
7	1.89287	7	1.9055	7	1.9055	7	1.89858	7	1.85645	7	1.744758
8	2839.7	8	2839.2	8	26882	8	22837	8	17822	8	71522
9	8061.06	9	8061.06	9	722642	9	521300	9	317624	9	6322.3
10	4258.64	10	4230.31	10	3792.31	10	274574	10	1710.92	10	362.42
11	2063.6	11	2056.77	11	1947.38	11	1657.03	11	1308.0	11	602
12		12	2447.99	12	2317.19	12	1970.12	12	1545.1	12	698.61
13	3.65	13	3.65	13	3.44	13	2.94	13	2.30	13	1.64
14	1.49	14	1.49	14	1.49	14	1.49	14	1.49	14	1.48
15	765	15	765	15	765	15	772	15	800	15	893



No. 5905
Run No.
Date of Run 10-27-81
Date Secured 10-26-81

CERTIFICATE OF ANALYSIS

A Sample of Maralo, Inc. Hansen Federal #2
Secured from John West Engineering
At 412 No. Dal Paso St. Secured by
Hobbs, New Mexico 88240 Time Date
Sampling conditions Press
Temp.
Station No.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	.824		
Air			
Nitrogen	.578		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	90.776		
Ethane	4.977		1.327
Propane	1.644		.451
Butanes			
Iso-Butane	.322		.105
N-Butane	.396		.125
Pentanes			
Iso-Pentane	.176		.064
N-Pentane	.104		.038
Hexanes	.075		.031
Heptanes Plus	.128		.059
Octanes			
TOTAL	100.000		2.200

Calc. Sp. Gr. 0.6253
Calc. A.P.I.
Calc. Vapor Press. PSIA
Sp. Gr.
Mol. Wt. 18.12

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M. .451
Butanes Calc. G.P.M. .230
Pentanes Plus G.P.M. .192
Ethane Calc. G.P.M. 1.327
RVP Gasoline G.P.M.

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.
Dry Basis 1092
Wet Basis 1073

Sulfur Analysis by Titration
Gr./100 Cu. Ft.
Hydrogen Sulfide
Mercaptans
Sulfides
Residual Sulfur
Total Sulfur

Run by R. H. Hamilton Checked by Deane Simpson Approved by Deane Simpson

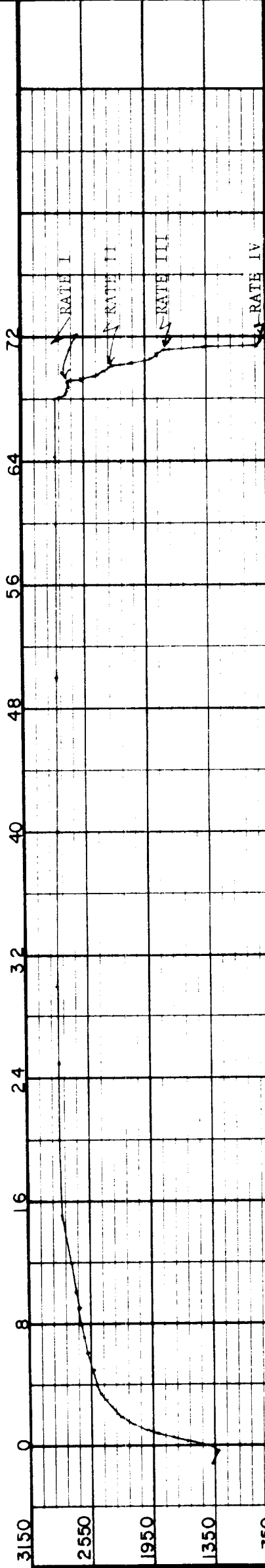
Additional Data and Remarks

TEST DATE: OCTOBER 23-26, 1981
TEST DEPTH: 10,737 FEET

ELEMENT NO: 23882
RANGE: 0-6400 psi
CLOCK NO: 10835
RANGE: 0-72 HOUR

Note: See tabualtion of Times and Pressures on attached sheet.

TIME IN HOURS.



MARALO, INC.

HANSON FEDERAL NO. 2

BOTTOM HOLE PRESSURE BUILD-UP TEST AND 4-POINT
BACK PRESSURE TEST.

JOHN W. WEST ENGINEERING CO. HOBBS, NEW MEXICO

Date: 10-28-81 Drawn by: BSN Scale: As shown

MARALO, INC.

HANSON FEDERAL NO. 2
BOTTOM HOLE PRESSURE BUILD-UP TEST AND
4-POINT BACK PRESSURE TEST.
TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: OCTOBER 23-26, 1981
TEST DEPTH: 10,737 FEET
ELEMENT NO: 23882 (0-6400 psi)
OPERATOR: T.B.

DATE	TIME	CUM HRS. / MIN.	PSIG @ 10,737 FEET
10-23-81	3:45 P.M.		1359 Gauge reached 10737 Feet
	4:15 P.M.		1343
	4:45 P.M.	00 Hrs. 00 Min.	1362 Shut-In, Begin Build-Up
		00 15	1612
		00 30	1766
		00 45	1910
	5:45 P.M.	01 00	2006
		01 30	2154
	6:45 P.M.	02 00	2267
		02 30	2341
	7:45 P.M.	03 00	2405
		03 30	2450
	8:45 P.M.	04 00	2479
	9:45 P.M.	05 00	2527
	10:45 P.M.	06 00	2572
10-23-81	11:45 P.M.	07 00	2608
10-24-81	12:45 A.M.	08 00	2640
	1:45 A.M.	09 00	2666
	2:45 A.M.	10 00	2695
	4:45 A.M.	12 00	2733
	7:45 A.M.	15 00	2826
	12:45 P.M.	20 00	2830
	5:45 P.M.	25 00	2836
10-24-81	10:45 P.M.	30 00	2846
10-25-81	8:45 A.M.	40 00	2810
10-25-81	6:45 P.M.	50 00	2814
10-26-81	4:45 A.M.	60 00	2823
10-26-81	9:00 A.M.	64 15	2826 Gauge out to change chart.
10-26-81	11:00 A.M.	66 15	2826
10-26-81	12:45 P.M.	00 Hrs. 00 Min.	2826 Open choke, Begin Test.
	1:00 P.M.	00 15	2759
	1:15 P.M.	00 30	2707
	1:30 P.M.	00 45	2695
	1:45 P.M.	01 00	2675 End Rate I
	2:00 P.M.	01 15	2559
	2:15 P.M.	01 30	2428
	2:30 P.M.	01 45	2338
	2:45 P.M.	02 00	2270 End Rate II
	3:00 P.M.	02 15	2071
	3:15 P.M.	02 30	1872
	3:30 P.M.	02 45	1837
	3:45 P.M.	03 00	1769 End Rate III
	4:00 P.M.	03 15	1362
	4:15 P.M.	03 30	867
	4:30 P.M.	03 45	802
	4:45 P.M.	04 00	782 End Rate IV. End Test.