

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

Form C-122
Revised 3-1965

RECEIVED BY
SEP 22 1983
O. C. D.
ARTESIA, OFFICE

Type Test ☒ Initial 4-POINT ☐ Annual ☐ Special						Test Date 8-26-83			
Company SUN OIL COMPANY				Connection TRANSWESTERN					
Pool PECOS SLOPE				Formation ABO				Unit	
Completion Date		Total Depth 5366		Plug Back		Elevation		Farm or Lease Name CHAVES A FEDERAL	
Well Size 5.500	Wt. 14.0	d 5.012	Set At 5366	Perforations: From 3932 To 4288		Well No. #1			
Trq. Size 2.375	Wt. 4.7	d 1.995	Set At 4508	Perforations: From 0 To 0		Unit Sec. Twp. Rge. 6 21-5-86			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple DUAL						Factor Set At 4508		County CHAVES	
Producing Thru CASING		Reservoir Temp. °F 115 4110		Mean Annual Temp. °F 60.0		Entro. Press. - P _h 13.2		State NEW MEXICO	
L 4110	H 4110	Cg 0.645	% CO ₂ 0.487	% N ₂ 4.600	% H ₂ S 0	Provor 0	Matur Run 2.067	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	CHOKE	Temp. °F	Press. p.s.i.g.		Temp. °F
51									831	90	24.0
1.	2.067	X	1.000	278	7.84	92	10/64	0	827	85	1.0
2.	2.067	X	1.000	262	13.69	92	12/64	0	825	84	1.0
3.	2.067	X	1.000	268	40.96	92	14/64	0	818	86	1.0
4.	2.067	X	1.000	278	90.25	90	16/64	0	810	87	1.0
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	4.946	47.81	291.6	.9706	1.245	1.021	292
2	4.946	61.42	275.6	.9706	1.245	1.020	374
3	4.946	107.26	280.9	.9706	1.245	1.020	654
4	4.946	162.22	291.6	.9723	1.245	1.022	993
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
1	.44	552	1.54	.959	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
2	.42	552	1.54	.961	Specific Gravity Separator Gas _____ .645
3	.42	552	1.54	.961	Specific Gravity Flowing Fluid _____ .645
4	.44	550	1.53	.958	Critical Pressure _____ 661 P.S.I.A.
5					Critical Temperature _____ 359 °R

NO.	P _i ²	P _w ²	P _w ²	P _c ² - P _w ²	$(1) \frac{P_c^2}{P_c^2 - P_w^2} = \frac{20.4212}{10.5481}$ $(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 10.5481$ $AOI = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 10474$
1	705.9	840.2	705.9	6.8	
2	702.6	839.2	702.6	10.1	
3	690.9	831.2	690.9	21.8	
4	677.7	823.2	677.8	34.9	
5					

Absolute Open Flow _____ 10474 Mcfd @ 15.025	Angle of Slope _____ 52.0	Slope, n _____ 0.781
Remarks: _____		
Approved By Commission: _____		
Conducted By: RICHARD TOWNLEY	Calculated By: BENNETT & CATHEY	Checked By: _____

BENNETT & CATHEY PRODUCTION TESTING BACK PRESSURE CUR

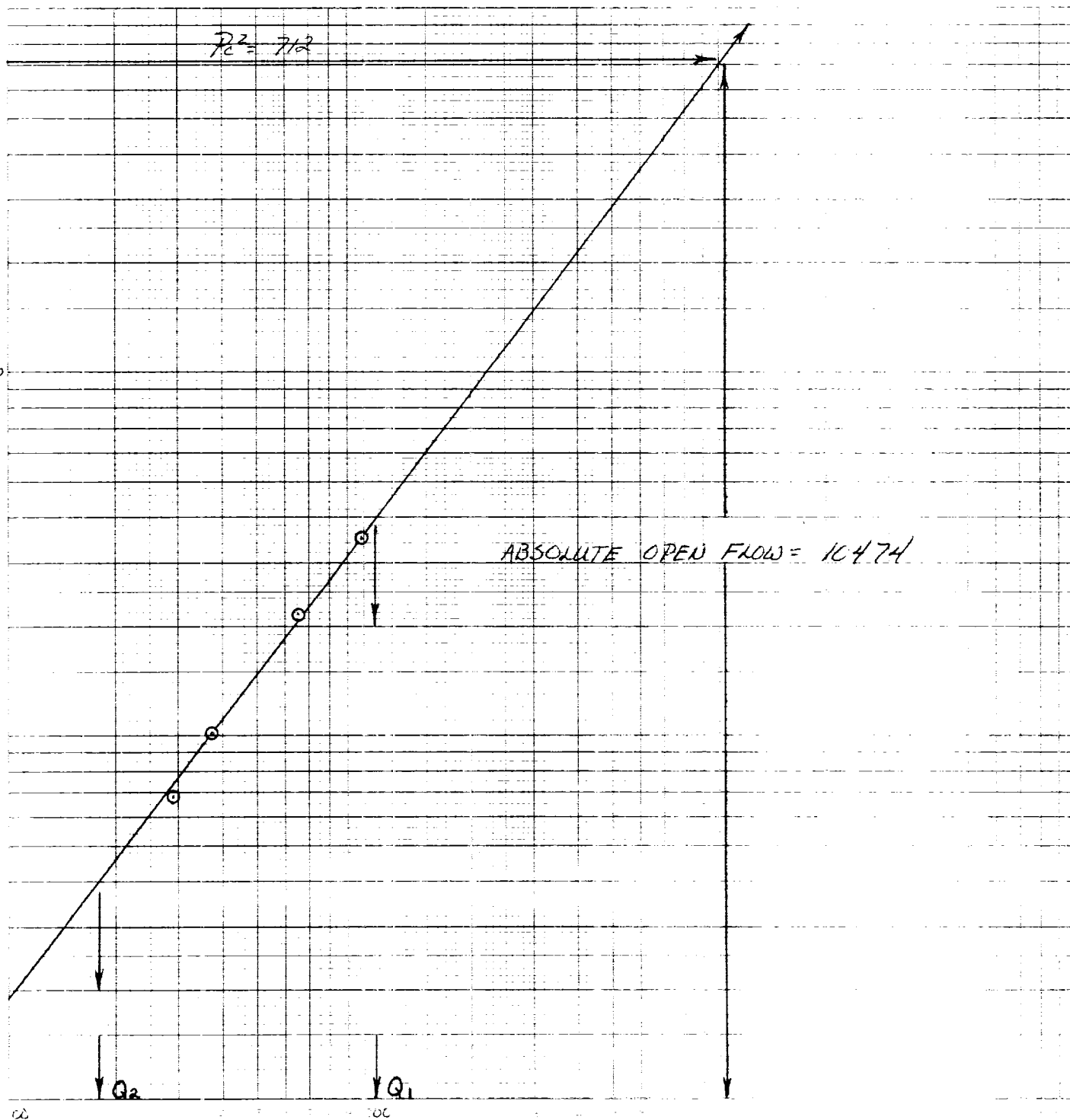
Operator Sun Oil Co. Lease Charles A. Federal Well No. 1
 County Chaves Field Fair Slope U.D. (660) Location _____
 Date of Test E-26-83 Slope "n" ~~786.781~~ Angle of Slope ~~54.75~~ 52.0

Calc. Abs. Potential _____

MCF/D

46,7400
 $(P_c - P_h)^2$ & $(P_c - P_w)^2$ in Thousands

LOGARITHMIC PLOT CYCLES
 BENNETT & CATHEY



$$\Delta P^2 \quad P_c^2 - P_w^2 = 40$$

$$\Delta P^2 \quad P_c^2 - P_h^2 = 4$$

$$C_1 = 180$$

$$C_2 = 1087$$

Q in MCF/Day

$$\text{LOG } C_1 = 3.0362$$

$$\text{LOG } Q_2 = 2.2553$$

$$n = 0.7809 = 0.781$$

Charles H Federal #1

Co

500.08	TZ
5.713085906	GHTZ
1.238920854	ES
.1928459377	-EIS
705.93604	PPR
0.826032144	FC
0.241201386	FCOM
.0581781086	L/H
.0112194119	PM
705.9472594	PUR
874.6127813	PSR
935.2073467	PS
887.7036734	P
1.342070762	PR
497.84	TZ
5.73079158	GHTZ
1.240115703	ES
.1906136292	-EIS
705.93604	PPR
0.822832112	FC
.2401209767	FCOM
.0576580835	L/H
.0111639674	PM
705.947204	PUR
875.4562132	PSR
935.6581711	PS
887.9290856	P
1.343011778	PR

RATE #1

1st TRIAL

2nd TRIAL

494.6335	TZ
5.71891484	GHTZ
1.20958077	ES
.1900004584	-EIS
702.57924	PPR
.8252046153	FC
.3086001861	FCOM
.0952711105	L/H
0.018387368	PM
702.5976274	PUR
870.6295248	PSR
932.075305	PS
885.6076525	P
1.309045163	PR
497.3955	TZ
5.74092008	GHTZ
1.240354224	ES
.1937786956	-EIS
702.57924	PPR
.8215078869	FC
.3072776097	FCOM
.094495294	L/H
.0182964933	PM
702.5975365	PUR
871.4698219	PSR
933.52548	PS
885.86274	P
1.340185688	PR

RATE #2

1st TRIAL

2nd TRIAL

1.087	TZ
5.701404711	GHTZ
1.238987558	ES
.1914083469	-EIS
690.89344	PPR
.8276055066	FC
.543128613	FCOM
.2900196138	L/H
.0584057913	PM
690.9498458	PUR
855.663692	PSR
925.0209143	PS
878.1104572	P
1.328457575	PR
494.2845	TZ
5.713072229	GHTZ
1.239077654	ES
.1914088098	-EIS
690.89344	PPR
.8210463371	FC
.5382053845	FCOM
.2897511551	L/H
.0560078111	PM
690.9494978	PUR
856.6028424	PSR
925.5170321	PS
878.3035161	P
1.318378239	PR

RATE #3

1st TRIAL

2nd TRIAL

502.656	TZ
5.683807614	GHTZ
1.207561344	ES
.1919092475	-EIS
677.65824	PPR
.8302071808	FC
.8244751705	FCOM
.6797093068	L/H
0.100486085	PM
677.7087261	PUR
838.8051271	PSR
915.8030504	PS
869.5315252	P
1.305478858	PR
498.729	TZ
5.728062005	GHTZ
1.209640075	ES
.1933142366	-EIS
677.65824	PPR
.8238005622	FC
.8180039583	FCOM
.6691795569	L/H
.1293619352	PM
677.7076019	PUR
840.2126735	PSR
916.6311546	PS
869.9155773	P
1.316059875	PR

RATE #4

1st TRIAL

2nd TRIAL



PRECISION SERVICE INC.

Flow Measurement Engineers

Analysis Results Summary

Casper, WY 82601

Run No. 829-4
Date Run 08/29/83
Date Sampled 08/26/83

Analysis For: BENNETT & CATHEY WRLN.

Lease: Chaves Federal #1

Location Pecos Slope

Purpose Well Test

Sampling Temp. 83 °F

Volume/day 1500 MCF

Pressure on Bomb 500

Producer Sun Oil Corp

County Chaves State New Mexico

Sampled By E. S. C. WRLN.

Atmos Temp. 90 °F

Formation ADO

PSIG: Line Pressure 500 PSIG

Gas Component

Analysis

Press. Base: 14.73

Mol. %

Liq. %

GPM
Per MCF

Carbon Dioxide CO₂

.487

Oxygen O₂

.064

Nitrogen N₂

4.600

Hydrogen Sulfide H₂S

Methane C₁

87.105

Ethane C₂

4.532

Propane C₃

1.694

Iso-Butane IC₄

.282

Nor-Butane NC₄

.552

Iso-Pentane IC₅

.186

Nor-Pentane NC₅

.177

Hexanes plus

.321

Hexanes C₆

Heptanes

Heptanes Plus C₇+

Total

100.000

Pentane + G.P.M.

.271

Propane + GPM

1.002

26-lb Gasoline

.834

BTU Dry

1065

BTU Wet

1064

Calc. Specific Gravity

.445

@ Std. Press. 14.696

BTU Dry

1063

BTU Wet

1062

Calc. Vap. Press. #/Sq.In.

Reid Vap. Press. #/Sq.In.

Z Factor

.9976

N Value

1.3041

Ave Mol Wt

18.6535

Ave Cu Ft/Gal

Run by Jeffrey A. Prann

Calculated By Jeffrey A. Prann

Ethane + GPM

2.211

Remarks: BTU Wet adjusted to flowing conditions as established by FERC Order #93/93-A and calculated per GPA Reference Bulletin 181-82.

Distribution: