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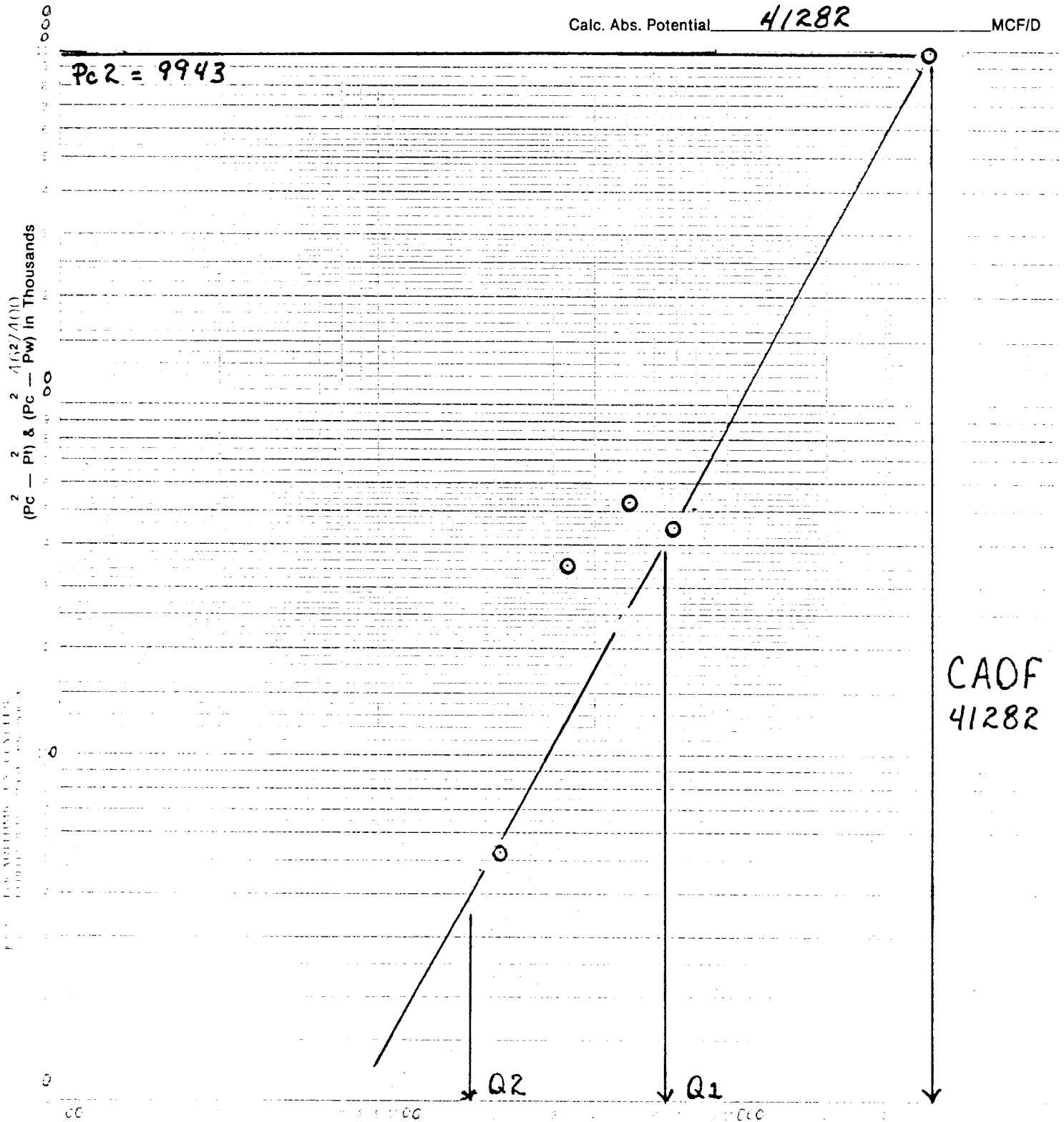
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 12-29-90	
Company COQUINA /		Connection N.G.P.L.	
Pool Frontier Hills Strawn		Formation STRAWN	
Completion Date 12-18-90		Total Depth 10600	
Csg. Size 7.000		Set At 10600	
Trq. Size 2.875		Set At 10056	
Plug Back TD 10432		Elevation 12	
Farm or Lease Name PHILLY FED		Well No. 2	
Unit S21-T23S-R26E		Sec. Twp. Rge.	
Type Well - Single - Dradhead - G.G. or G.O. Multiple SINGLE (GAS)		Packer Set At 10056	
Producing Thru TBG. (GAS)		Reservoir Temp. °F 162 @ 10223	
Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
State NM		County EDDY	
L 10223	H 10223	G _g .710	% CO ₂ .46
% N ₂ .59	% H ₂ S 00	Prover 0	Meter Run 4.0
Taps FLANGE			
FLOW DATA			
NO.	Prover Line Size	X	Orifice Size
1	4.00 X 2.000		
2	4.00 X 2.000		
3	4.00 X 2.000		
4	4.00 X 2.000		
5			
TUBING DATA			
NO.	Prover Line Size	X	Orifice Size
1	4.00 X 2.000		
2	4.00 X 2.000		
3	4.00 X 2.000		
4	4.00 X 2.000		
5			
CASING DATA			
NO.	Prover Line Size	X	Orifice Size
1	4.00 X 2.000		
2	4.00 X 2.000		
3	4.00 X 2.000		
4	4.00 X 2.000		
5			
RATE OF FLOW CALCULATIONS			
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m
1	19.83	81.12	598.2
2	19.83	132.10	623.2
3	19.83	197.03	693.2
4	19.83	271.69	753.2
5			
NO.	P _r	Temp. °R	T _r
1	.90	523	1.34
2	.93	524	1.34
3	1.04	522	1.34
4	1.13	523	1.34
5			
Gas Liquid Hydrocarbon Ratio 31.3 Mcf/bbl.			
A.P.I. Gravity of Liquid Hydrocarbons 58.0 Deg.			
Specific Gravity Separator Gas .710			
Specific Gravity Flowing Fluid .791			
Critical Pressure 668. P.S.I.A.			
Critical Temperature 390. R			
Rate of Flow Q, Mcfd			
1	2045		
2	3336		
3	5037		
4	6988		
5			
$P_c = 3153.2 \quad P_c^2 = 9943$			
NO.	P _r ²	P _w ²	P _w ² - P _r ²
1	9817	3145	9889
2	9445	3097	9592
3	9110	3068	9412
4	8929	3081	9490
5			
$(1) \frac{P_c^2}{P_r^2 - P_w^2} = 21.9886 \quad (2) \left[\frac{P_c^2}{P_r^2 - P_w^2} \right]^n = 5.9072$			
$AOF = Q \left[\frac{P_c^2}{P_r^2 - P_w^2} \right]^n = 41282$			
Absolute Open Flow 41282 Mcfd @ 15.025			
Angle of Slope 60.1			
Slope, n .575			
Remarks: CHOKE SIZES: 1ST RATE: 10/64 2ND RATE: 13/64			
3RD RATE: 16/64 4TH RATE: 18 1/2/64			
Approved By Division		Conducted By:	
BENNETT-CATHEY		JIM SMITH P.E.	
Calculated By:		Checked By:	
M. R. RANDOLPH			

C & W WIRELINE, INC. d/b/a BENNETT-CATHEY WELL TESTING
BACK PRESSURE CURVE

Operator Coquina Pet. Lease Philly FFO Well No. *2
 County Eddy Field N/A Location 521-T235-R26E
 Date of Test 12-29-90 Slope "n" 0.575 Angle of Slope 60.1

Calc. Abs. Potential 41282 MCF/D



$$\overline{\Delta P}_1^2 \quad P_c^2 - P_w^2 = 400$$

$$\overline{\Delta P}_2^2 \quad P_c^2 - P_w^2 = 40$$

$$Q_1 = 6400$$

$$Q_2 = 1700$$

$Q, \text{ Mcfd}$

$$\text{LOG } Q_1 = 3.806$$

$$\text{LOG } Q_2 = 3.231$$

$$n = 0.575$$

2BEC6

REPORT NO.
125253

PAGE NO. 1

TEST DATE:
09-NOV-1990

STAR

Schlumberger Transient Analysis Report

Based on Semilog Interpretation
Pressure Data Analysis

Schlumberger

NOV 14 1990

COMPANY: COQUINA OIL CORPORATION

WELL: PHILLY FEDERAL No.2

TEST IDENTIFICATION

Test Type OH-DST
Test No. ONE
Formation STRAWN
Test Interval (ft) 10045 to 10246
Depth Reference KB

WELL LOCATION

Field FRONTIER HILLS
County EDDY
State NEW MEXICO
Sec/Twn/Rng S.21 T.23s
Elevation (ft) 3338

HOLE CONDITIONS

Total Depth (MD/TVD) (ft) 10246/10246
Hole Size (in) 8.75
Casing/Liner I.D. (in)
Perf'd Interval/Net Pay (ft) .. / 12
Shot Density/Diameter (in) ...

MUD PROPERTIES

Mud Type SALTWATER/GEL
Mud Weight (lb/gal) 10.5
Mud Resistivity (ohm.m)065 @ 70F
Filtrate Resistivity (ohm.m)..
Filtrate Chlorides (ppm) 165000

INITIAL TEST CONDITIONS

Initial Hydrostatic (psi) 5650
Gas Cushion Type
Surface Pressure (psi)
Liquid Cushion Type
Cushion Length (ft)

TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 9742 / 3.8
Collar Length (ft)/I.D. (in) .. 268 / 2.25
Packer Depths (ft) 10039, 10045,
Bottomhole Choke Size (in)9375
Gauge Depth (ft)/Type 10240/J200-888

NET PIPE RECOVERY

Volume	Fluid Type	Properties
13.65 bbl	FLOWED WATER	Rw. 0.6 @ 70F 150000ppm
	FLOWED	
5.2 bbl	CONDENSATE	API 65.7 @ 60F

NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Properties
22.32 cuft	Gas	
trace	Oil	
Pressure: 3050		GOR: 0
		GLR: 0

INTERPRETATION RESULTS

Model of Behavior Homogen/Bound
Fluid Type Used for Analysis.. Gas
Reservoir Pressure (psi) 4267
Transmissibility (md.ft/cp) .. 13733
Effective Permeability (md) .. 28.6
Skin Factor/Damage Ratio 2.5
Storativity Ratio, Omega
Interporos. Flow Coef., Lambda..
Distance to an Anomaly (ft) .. 134 (approx)
Radius of Investigation (ft)..
Potentiometric Surface (ft) ..

ROCK/FLUID/WELLBORE PROPERTIES

Oil Density (deg. API) 65.7
Basic Solids (%)
Gas Gravity 0.70 (est.)
GOR (scf/STB)
Water Cut (%) 0
Ave. Viscosity (cp) 0.025
Ave. Compressibility (1/psi) .. 2.039e-5
Porosity (%) 10 (est.)
Reservoir Temperature (F) 180
Form. Vol. Factor (bbl/STB)

RATE DURING LAST FLOW: 1500 mcf/d

COMMENTS:

THIS DRILL STEM TEST WAS MECHANICALLY SUCCESSFUL. IT WAS NOT POSSIBLE TO REVERSE OUT, PERFORATED SECOND JOINT OF DRILLPIPE ABOVE THE DRILL COLLARS. THEN CONVENTIONALLY CIRCULATED THE HOLE. SURFACE GAS RATES WERE RECORDED BY C&W WIRELINE INC. 1500 MCFD WAS USED AS THE AVERAGE RATE FOR THE LAST FLOW PERIOD. THIS ANALYSIS INDICATES THE TESTED INTERVAL HAS GOOD PERMEABILITY TO GAS WITH A SMALL AMOUNT OF WELLBORE DAMAGE. A BOUNDARY WAS INDICATED APPROXIMATELY 130 FEET FROM THE WELLBORE.

WELL TEST INTERPRETATION REPORT #:125253		PAGE: 2.
CLIENT : COQUINA OIL CORPORATION		13-NOV-90
REGION :WTD	SEQUENCE OF EVENTS	FIELD:FRONTIER HILLS
DISTRICT:SNYDER		ZONE :STRAWN
BASE :MDS		WELL :PHILLY FED.#2
ENGINEER:B.WILKINSON		LOCATION:S.21 T.23s

DATE	TIME (HR:MIN)	DESCRIPTION	ET (MINS)	BHP (PSIA)	WHP (PSIG)
09-NOV	21:39	SET PACKERS	-1	5650	
	21:40	START FLOW w/STRONG BLOW	0	1967	
	21:45	on 1/4" choke	5		700
	21:46	GAS TO SURFACE	6		950
09-NOV	21:50	END FLOW & START SHUTIN	10	3115	1500
	21:53	Cycled Tool	13		
10-NOV	00:39	END SHUTIN	179	4266	1600
10-NOV	00:40	START FLOW on 3/8"choke	180	3287	1700
	00:45		185		2300
	00:50		190		2500
	00:55	2500 MCF/DAY	195		2550
10-NOV	01:05	END FLOW & START SHUTIN	205	4096	2550
10-NOV	02:16	END SHUTIN	276	4257	750
10-NOV	02:17	START FLOW on 1/4"choke	277	2428	750
	02:22		282		1800
	02:27		287		2450
	02:32		292		2750
	02:37		297		2800
	02:42		302		2850
	02:47	1500 MCF/DAY	307		2900
10-NOV	03:12	END FLOW & START SHUTIN	332	4127	2900
10-NOV	07:15	PULLED PACKERS LOOSE	575	4259	
10-NOV	07:45	ATTEMPTED TO REVERSE OUT	605	5622	
10-NOV	16:00	PERFORATE DRILL PIPE	1100		
10-NOV	18:00	START CIRCULATING (convent)	1220		
11-NOV	07:00	START OUT OF HOLE w/TOOLS	2000		