

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

August 9, 1973

C
O
P
Y
Exxon Company, USA
P. O. Box 1600
Midland, Texas 79701

Attention: Mr. R. E. Hammond

Administrative Order TX-40

Gentlemen:

Reference is made to your recent application for an exception to Rule 107(D)(2) of the Commission Rules and Regulations to permit the production of gas through the 3 1/2-inch O.D. casing in your South Carlsbad Com Well No. 1 located in Unit N of Section 23, Township 23 South, Range 26 East, South Carlsbad Morrow Gas Pool, Eddy County, New Mexico. It is our understanding that the gas produced from this well is extremely dry and not of a corrosive nature.

Exxon Company, USA, is hereby granted an exception to the aforesaid rule for the subject well, provided however that this authority may be rescinded at any time that due to liquids or other production problems it may be deemed advisable to install tubing.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

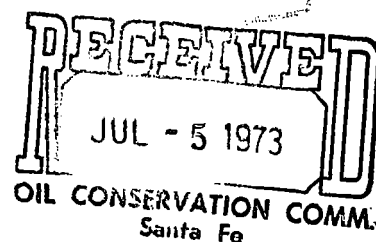
ALP/DSN/dr

cc: Oil Conservation Commission - Artesia
Oil & Gas Engineering Committee - Hobbs

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 • MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION
R. E. HAMMOND
OPERATIONS MANAGER

July 2, 1973



File No. 22-3

Exception to Statewide Rule
107(D)(2)
South Carlsbad Gas Com No. 1
Well No. 1
South Carlsbad Morrow Gas Field
Eddy County, New Mexico

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr.
Secretary-Director

Gentlemen:

Statewide Rule 107(D)(2) provides that all gas wells equipped with casing larger in size than 2-7/8" O.D. shall be tubed.

We respectfully request an administrative exception to this rule that will allow us to produce this well as a tubingless completion through the 3-1/2" O.D. casing. As evidenced by the gas analysis, this well will produce extremely dry non-corrosive gas. No production difficulties are anticipated.

In support of this application, we have attached a copy of Form C-122, Back Pressure Test and Curve, Certificate of Analysis and Bottom Hole Pressure Record.

If further information is needed, please advise.

Very truly yours,

A handwritten signature in dark ink, appearing to read "R. E. Hammond".

R. E. Hammond

DLC:mej

Attachment

cc: NMOCC, Drawer DD, Artesia, New Mexico 88210



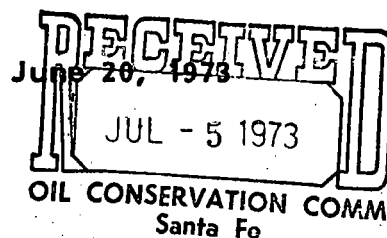
COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3813

3713 W. MARLAND ST.

P. O. BOX 1829

HOBBS, NEW MEXICO 88240



Exxon Company, USA
P. O. Box 1897
Andrews, Texas 79714

Re: South Carlsbad Gas Com. No. 1, No. 1
South Carlsbad Morrow Gas
4-Point Back Pressure Test
Gas Sample & Analysis

Gentlemen:

In compliance with your instructions a 4-point back pressure was conducted, and the absolute open flow potential was calculated to be 8860 MCF/D. The average gas production was recorded as 4227.6 MCF/D with no liquid hydrocarbons.

The gas sample taken during the test yielded component percentages as follows:

Carbon Dioxide	1.40
Nitrogen	0.15
Methane	96.81
Ethane	1.33
Propane	0.19
Iso-Butanes	0.02
N-Butanes	0.02
Pentanes Plus	<u>0.08</u>

Total 100.00

Calculated Sp.G	0.5786
Calculated BTU Dry	1011
Calculated BTU Wet	993

Enclosures:

Very Truly Yours,

COLEMAN PETROLEUM ENG. CO.

Joe A. Coleman

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 6/20/73					
Company Exxon Company, USA						Connection None					
Pool South Carlsbad						Formation Morrow Gas					
Completion Date 6/18/73			Total Depth 11,991'			Plug Back TD 11,847'			Elevation 3,285' KB		
Form or Lease Name South Carlsbad Gas						Well No. 1					
Csg. Size 3 1/2	Wt. 9.2	d 2.992	Set At 11,990	Perforations: From 11,433 To 11,797							
Thg. Size -	Wt. -	d -	Set At -	Perforations: w/65 holes							
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single, tubing less completion						Packer Set At None			County Eddy		
Producing Thru Casing		Reservoir Temp. °F 202° 11,615		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2			State New Mexico		
L 11,615	H -	G _g 0.579	% CO ₂ 1.40	% N ₂ 0.15	% H ₂ S 0.00	Prover -	Meter Run ✓	Taps F			

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. DW	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI							3802				24.0 hrs
1.	4	12/64	2.50	600	28	89	2792	82	-	-	2.0
2.	4	10/64	2.50	550	22	93	2940	85	-	-	1.0
3.	4	8/64	2.50	550	15	93	3215	81	-	-	1.0
4.	4	5/64	2.50	430	8	93	3539	79	-	-	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 F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	32.64	131.05	613.2	0.9732	1.314	1.035	5661.6
2	32.64	111.30	563.2	0.9697	1.314	1.031	4772.3
3	32.64	91.91	563.2	0.9697	1.314	1.031	3940.9
4	32.64	59.54	443.2	0.9697	1.314	1.024	2535.6
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Dry Gas	
1.	0.90	549	1.61	0.933	A.P.I. Gravity of Liquid Hydrocarbons	-	Mcft/bbl.
2.	0.83	553	1.63	0.941	Specific Gravity Separator Gas	0.579	XXXXXXX
3.	0.83	553	1.63	0.941	Specific Gravity Flowing Fluid	XXXXX	
4.	0.65	553	1.63	0.953	Critical Pressure	679	P.S.I.A.
5.					Critical Temperature	340	R

$P_c = 4882.2$ $P_c^2 = 23835.9$					$(1) \frac{P_c^2}{P_r^2 - P_w^2} = 1.983$	$(2) \left[\frac{P_c^2}{P_r^2 - P_w^2} \right]^n = 1.565$
NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²		
1	-	3437.2	11814.3	12021.6		
2	-	3830.2	14670.4	9165.5		
3	-	4135.2	17099.9	6736.0		
4	-	4502.2	20269.8	3566.1		
5						

$AOF = Q \left[\frac{P_c^2}{P_r^2 - P_w^2} \right]^n = 8860$

Absolute Open Flow **8860** Mcfd @ 15.025 Angle of Slope **56° 48'** Slope, n **0.655**

Remarks: + BHP @ (-8330), 11615' used for pressure calculations.

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	Coleman Petr. Engr.	Co. Joe A. Coleman	Joe A. Coleman



P. O. BOX 1499

OF NEW MEXICO

PHONE 393-7751

HOBBS, NEW MEXICO 88240

No. 2528

Run No.

Date of Run. 6-21-73

Date Secured

CERTIFICATE OF ANALYSIS

A Sample of South Carlsbad Com. No. 1, No. 1
Secured from Coleman Engineering
At Box 1829
Hobbs, N. M. 88240

Secured by

Time

Date

Sampling conditions

Press

Temp.

Exxon Company, USA

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	1.40		
Air			
Nitrogen	.15		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	96.81		
Ethane	1.33		.355
Propane	.19		.052
Butanes			
Iso-Butane	.02		.006
N-Butane	.02		.006
Pentanes Plus	.08		.029
Iso-Pentane			
N-Pentane			
Hexanes			
Heptanes			
TOTAL	100.00		.448

Calc. Sp. Gr. 0.5786

Calc. A.P.I.

Calc. Vapor Press.

P.S.I.A.

Sp. Gr.

Mol. Wt.

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.

Butanes Calc. G.P.M.

Pentanes Plus. G.P.M.

Ethane Calc. G.P.M.

RVP Gasoline G.P.M.

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.

Dry Basis

1011

Wet Basis

993

Sulfur Analysis by Titration

Gr./100 Cu. Ft.

Hydrogen Sulfide

Mercaptans

Sulfides

Residual Sulfur

Total Sulfur

Run by Deane Simpson

Checked by

Approved by

Additional Data and Remarks

Company Exxon Company, USA

Well Souyh Carlsbad Gas Com No. 1, No. 1

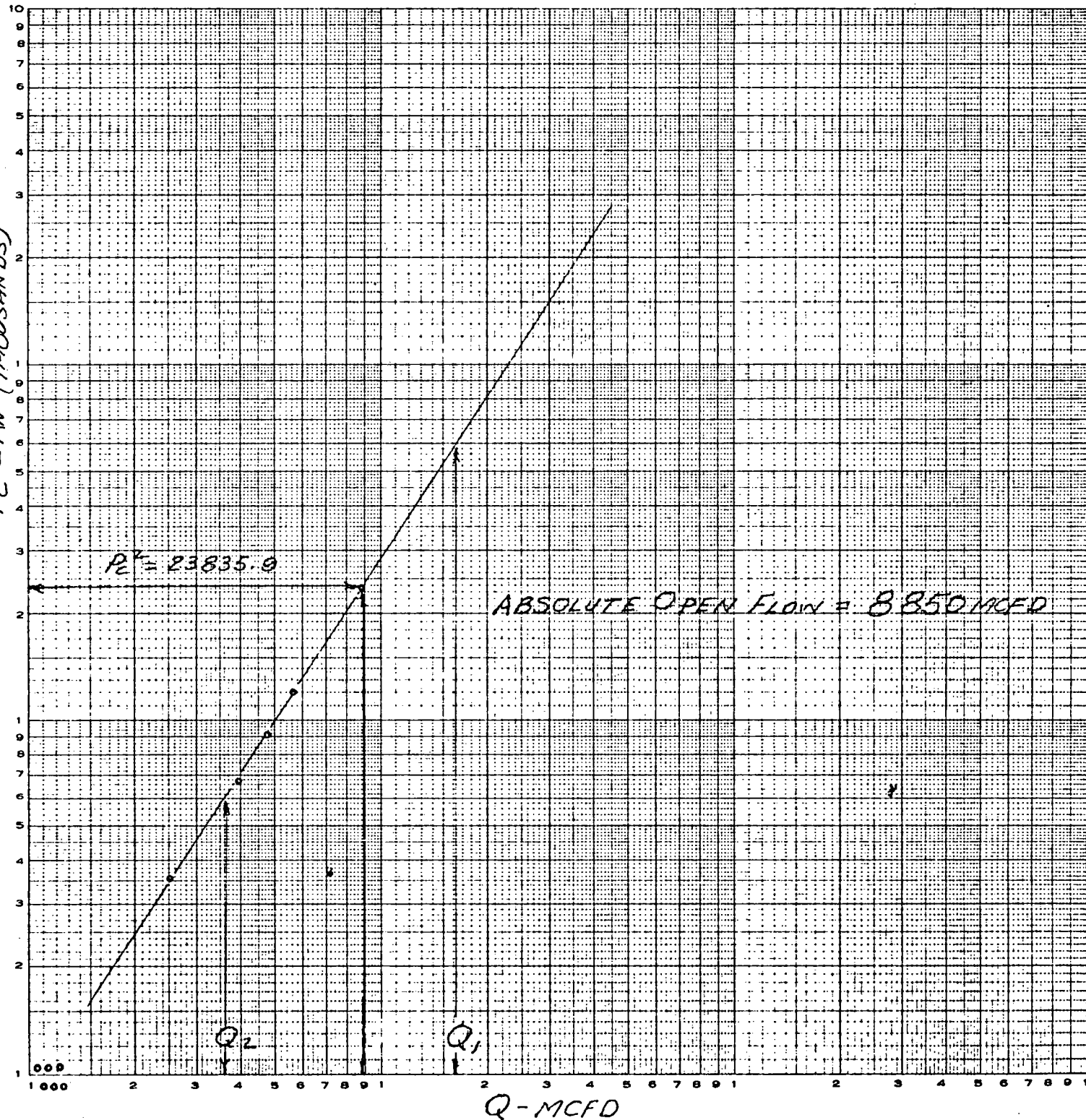
Location Unit N, sec 23, 23s, 26e

County Eddy

Date June 20, 1973

EUGENE DIETZGEN CO.
MADE IN U. S. A.
 $P_e^2 - P_w^2$ (THOUSANDS)

NO. 340R-L33 DIETZGEN GRAPH PAPER
LOGARITHMIC
3 CYCLES X 3 CYCLES



$$Q_1 = 16250 \text{ MCFD}; \log Q_1 = 4.21085$$

$$Q_2 = 3600 \text{ MCFD}; \log Q_2 = 3.55630$$

$$n = 0.65455 = 0.655$$



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PHONE 393-3813

3713 W. MARLAND ST.

P. O. BOX 1829

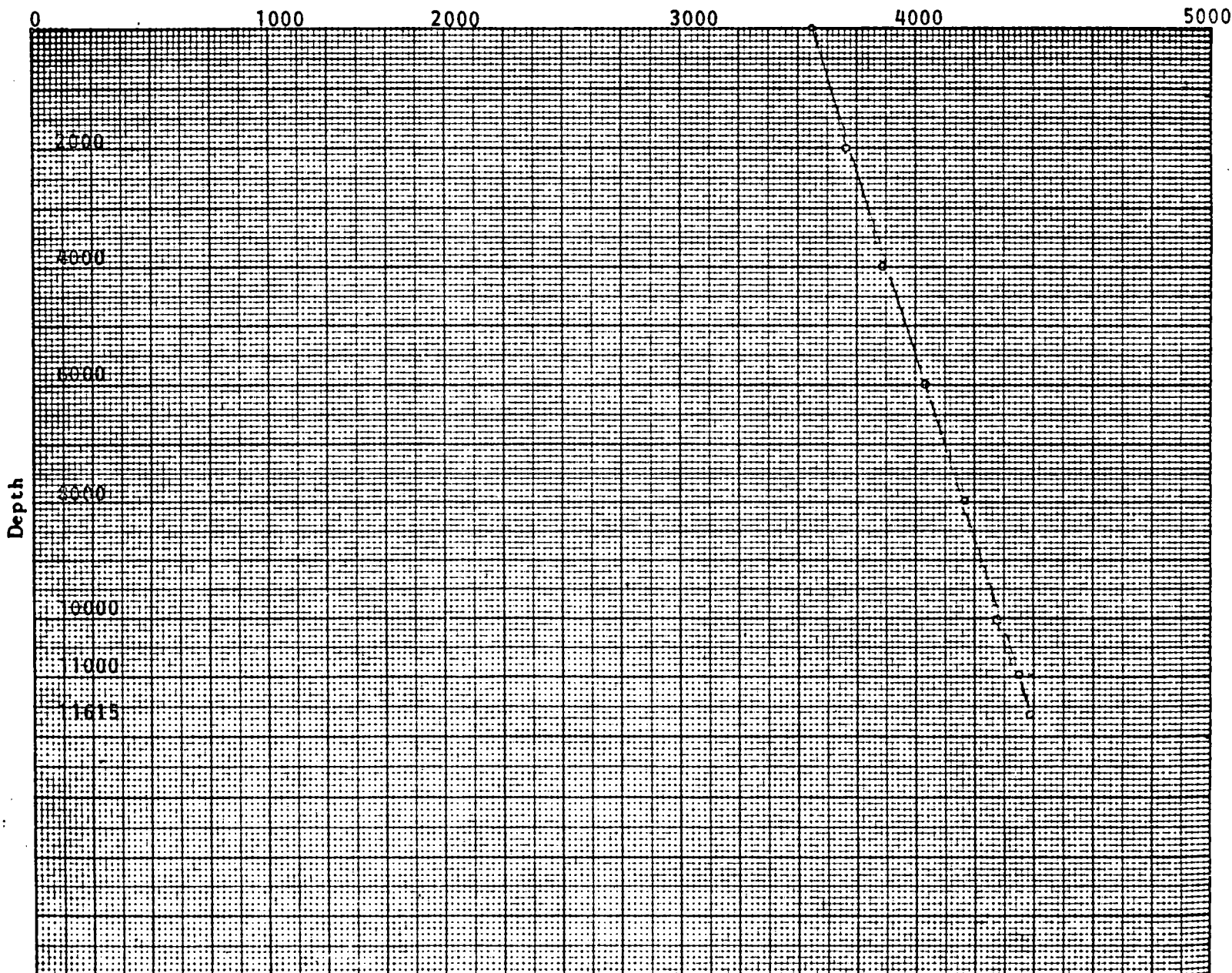
HOBBS, NEW MEXICO 88240

BOTTOM HOLE PRESSURE RECORD

OPERATOR Exxon Company, USA
FIELD South Carlsbad FORMATION Morrow Gas
LEASE South Carlsbad Gas ComWELL 1
COUNTY Eddy No. 1 STATE New Mexico
DATE 6-20-73 TIME 10:00 PM
Status Flowing on Test depth 11615
~~Flowing~~ choke 5/6" Last test date -
Tub Pres. 3563 BHP last test -
Cas. Pres. - BHP change -
Elev. 3285' KB Fluid top Flowing
Datum (-8830)** Water top -
Temp. @ 202 F Run by Adkins
Cal. No. A7756N Chart No. 2

Depth	Pressure	Gradient
0	3563	-
2000	3703	.070
4000	3873	.085
6000	4039	.083
8000	4218	.090
10000	4349	.066
11000	4432	.083
11615 (-8330)	4489**	.093

Pressure **Mid Point of Casing Perforations





COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3813

3713 W. MARLAND ST.

P. O. BOX 1829

HOBBS, NEW MEXICO 88240

BOTTOM HOLE PRESSURE RECORD

OPERATOR Exxon Company, USAFIELD South Carlsbad FORMATION Morrow GasLEASE South Carlsbad Gas Comwell 1COUNTY Eddy No. 1 STATE New MexicoDATE 6-20-73 TIME 10.30 AMStatus Shut in Test depth 11615Time S. I. 24.0 hrs Last test date InitialTub Pres. 3802 DWT BHP last test -Cas. Pres. - BHP change -Elev. 3285' KB Fluid top 11351'Datum (-8330)** Water top -Temp. @ 202 F Run by AdkinsCal. No. A7756N Chart No. 1

Depth	Pressure	Gradient
0	3802	-
2000	3966	.082
4000	4132	.083
6000	4298	.083
8000	4464	.083
10000	4632	.084
11000	4716	.084
11615 (-8330)	4869**	.249

Pressure **Mid Point of Casing Perforations