

GEOLOGICAL AND ENGINEERING REPORT
FOR THE NIOBRARA PARTICIPATING AREA

MOORE 1-10MH
MC HATTON RESERVOIR UNIT
RIO BLANCO COUNTY, COLORADO

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NOV 8 1983
COLO. OIL & GAS CONS. COMM.

The McHatton Reservoir was approved by the U.S.G.S. on October 20, 1981.

The Moore 1-10 was the 5th well drilled by Coors Energy Company in the McHatton Reservoir Unit. The Moore 1-10 is located in the SE/4NE/4 of Section 10 at 1003' FEL and 1780'FNL. It was spudded 12/23/82 and had Colorado State Drilling Permit No. 05-103-9031. The well reached a depth of 2900' and 5½" casing was set at 2896'. A 4-¾" hole was then drilled to 3334' and the well was completed open hole in the Niobrara.

The Niobrara was open hole fraced with 150,000# 20/40 sand and 1,218,000 SCF N₂ and 20,660 gallons water. The well hole caved in after the frac and had to be cleaned out with a cable tool rig.

The well was tested September 20, 1983 at 34 MCF/day on a ¼" orifice plate. ISIP was 250 psig with a BHP of 345 psig. *[Handwritten signature]*

The Niobrara Formation is a marine shale. The top of the Niobrara was at 2900'. The thickness of the Niobrara in this well is approximately 300'; the total thickness of the Niobrara is approximately 1500'.

Our payout well determination showed that this well would never payout at an initial production rate of 34 MCF/day using a discount factor of 9%.



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WELL PRODUCTION ANALYSIS FOR THE NIOBRARA FORMATION

MOORE 1-10MH
SECTION 10, T1N-R93W
RIO BLANCO COUNTY, COLORADO

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Pt.	Static BHP	$p^2 - p_1^2$ 10^3	Poten. Rate MCFPD	Prod. Rate at .8 Potential Rate	Average Rate	Gas In Place	Gas Prod.	Cumm. Prod.	Days	Years	Cumm. Years
1	345	24.77	34	27.2		462.538					
2	335	17.97	28	22.4	24.5	498.174	14.36	14.36	586	1.6	1.6
3	325	11.37	18	14.4	18.0	434.333	13.84	28.20	768	2.1	3.7
4	315	4.9	9	7.2	10.5	420.075	14.258	42.46	1,358	3.7	7.4
5	310	1.85	4	3.2	5.2	412.96	7.11	49.57	1,367	3.7	12.1

$$P_1 = 307 \text{ psig at lowest perforation} \quad P_1^2 = (307)^2 = 94.25 \times 10^3$$

$$\text{Gas in place at 345 BHP} = 160 \times \frac{43560}{10^6} \times 50 \times .10 \times (1-.35) \times \frac{345}{14.7} \times \frac{520}{560} \times .937 = 462.538 \text{ MMSCF}$$

Note:

345	$462.538 \times 345/345 \times .937/.937 = 462.538$	MMSCF
335	$462.538 \times 335/345 \times .937/.939 = 448.174$	MMSCF
325	$462.538 \times 325/345 \times .937/.940 = 434.333$	MMSCF
315	$462.538 \times 315/345 \times .937/.942 = 420.075$	MMSCF
310	$462.538 \times 310/345 \times .937/.943 = 412.96$	MMSCF

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BASIS FOR WELL PRODUCTION ANALYSIS FOR THE NIOBRARA FORMATION

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Well: Moore 1-10MH
T.D. 3340'

Drilling and
Completion Costs: \$160,000.00

Test: Stabilized at 34 MSCFPD through a $\frac{1}{4}$ " orifice
plate at 50 psig tubing pressure and 140 psig
casing pressure. ISIP surface pressure was
250 psig (345 ISIP BHP at lowest perforation).

Pipeline Intake: 212 psi or 307 BHP at lowest perforation.

BHT: 100° or 560° absolute.

Z: .937 at initial reservoir pressure and temperature.

Spacing: 160 acres.

Porosity: 10% in matrix.

Water Saturation: 35%

Net Pay: 50 feet open hole, 2896-3334'.

Production Rate: 0.8 of full potential.

PAYOUT FOR THE NIOBRARA FORMATION

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Monthly Operating Costs: \$100.00
Total Royalty: 12.5% or Net .875.
Tax: 7.4% (severance plus ad valorem)
Net = .926.
Discount: 9% per year.
Gas Price: October 1983 FERC 107
5.650/MSCF.

(1) Year	(2) Avg. Prod. Rate MSCFPD	(3) Yearly Prod. MMSCF	(4) W.I. Prod. MMSCF	(5) W.I. Value (\$5.650)	(6) Less Oper. Cost	(7) Discount Factor	(8) \$1000 Net WI	(9) \$1000 Payout \$160,000-(8)
1	23	8.39	6.8	38,420	37,148	.9547	35,465	-124,535
2	20	7.3	5.9	33,408	32,136	.8754	28,131	-96,404
3	16.5	6.02	4.8	27,561	26,289	.8035	21,123	-75,281
4	13.5	4.93	3.99	22,543	21,271	.7372	15,680	-59,601
5	11.5	4.19	3.39	19,153	17,881	.6763	12,092	-47,509
6	10	3.65	2.96	16,724	15,452	.6205	9,587	-37,922
7	8.5	3.1	2.51	14,181	12,909	.5692	7,347	-30,580
8	7	2.5	2.02	11,413	10,141	.5222	5,295	-25,285
9	6	2.19	1.77	10,000	8,728	.4791	4,181	-21,104
10	5	1.8	1.45	8,192	6,920	.4396	3,042	-18,062
11	4.5	1.64	1.32	7,458	6,186	.4032	2,494	-15,568
12	3.5	1.27	1.63	5,819	4,547	.3699	1,681	-13,887

Note: Column (3) = Column (2) x 365
Column (4) = Column (3) x (1-royalty) (1-tax) = Column (3) x .875 x .926 = .810
Column (6) = Column (5) - operation cost \$1200 x 6% profit = Column (5) - \$1272

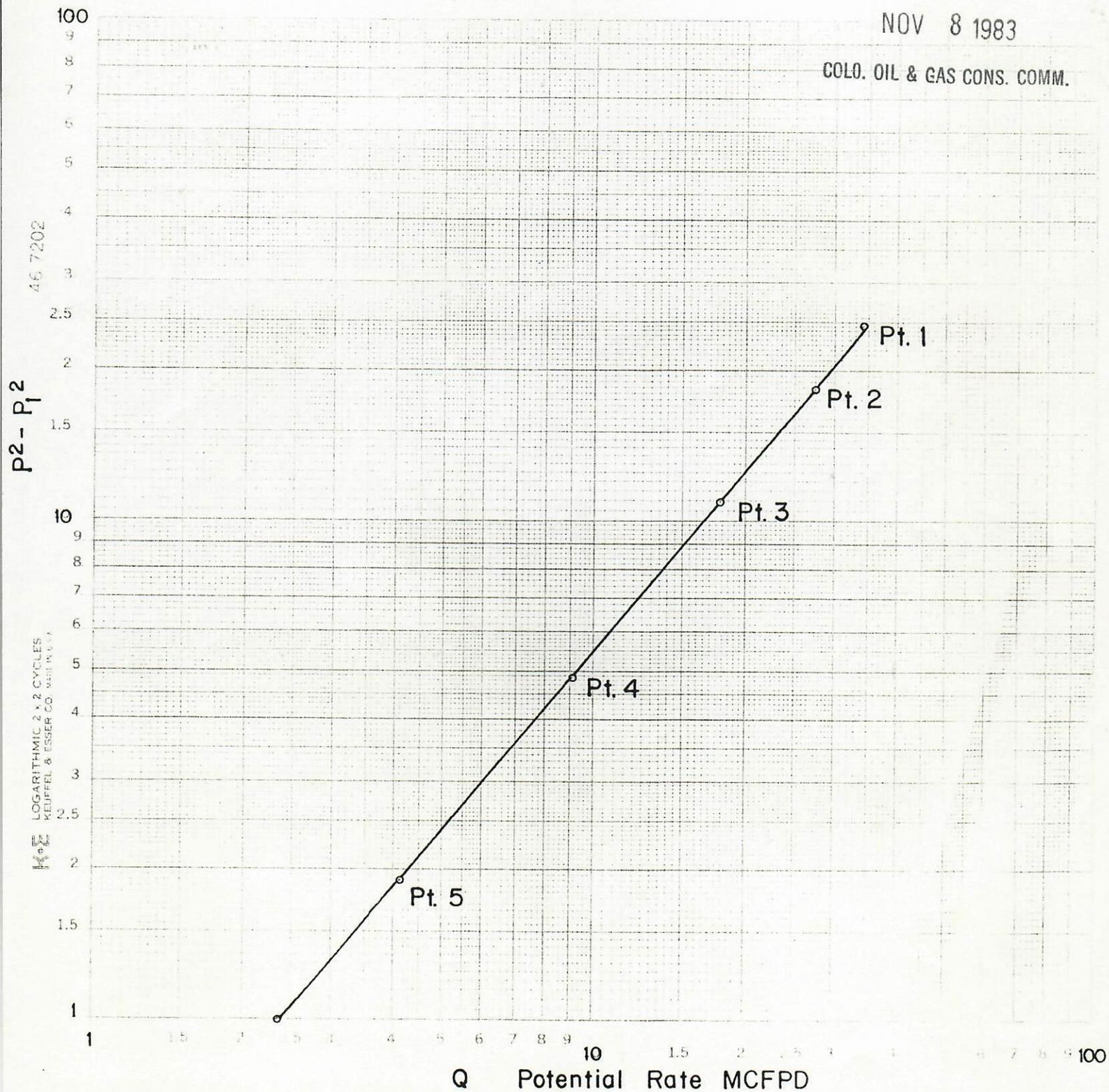
Note: This well will never payout.

MOORE 1-10
Sec. 10, T 1 N, R 93 W
Rio Blanco County, Colorado

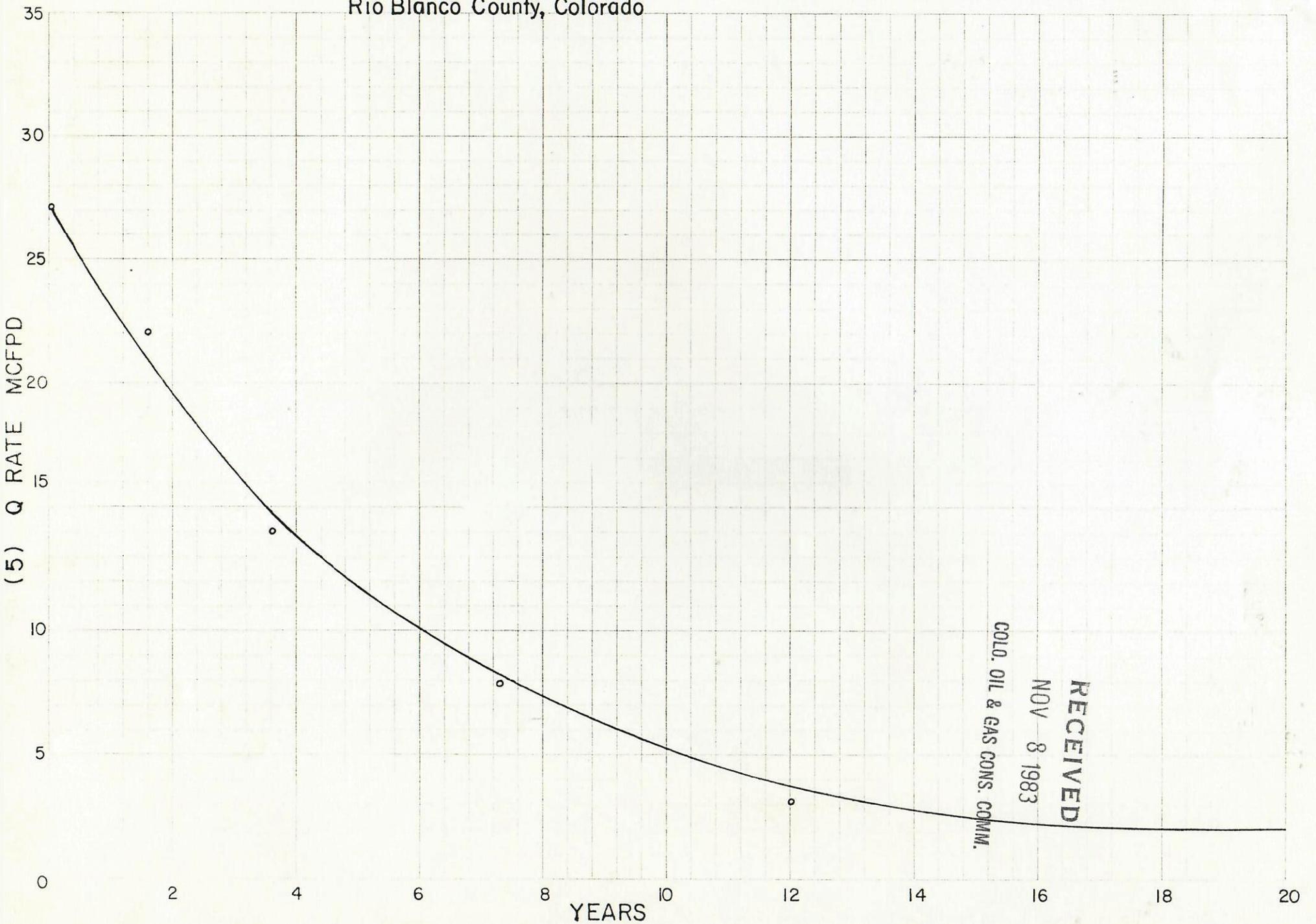
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