

NORTHERN NATURAL GAS COMPANY
MULTI-POINT BACK PRESSURE TEST

TESTED BY-HC
INPUT BY-RLN

TEST DATE- 5/23/77
STATION NO-8000010
SYST- 0 POOL- 0

REC'D JUN 29 1977

----- I N P U T D A T A -----
GAS GRAVITY- 0.6280 METER DEV-CR FLW OPERATOR RUPE OIL CO
API GRAVITY- 0.000 SIZE 2 WELL NAME BRITTON
N2 -(MOL.%) 0.0000 TYPE TAPS- LOCATION 8 26 18
CO2-(MOL.%) 0.0000 BARO PRESS 14.40 COUNTY/STATE EDWARDS /KANSAS
H2S-(MOL.%) 0.0000 BH TEMP 115 FIELD N/A

RESERVOIR MISSISSIPPI
NNG SYSTEM MCCLANAHAN E

TUBING ID 1.750 IN.SET @ 4691 FT. SINGLE GAS COMPLETION PACKER @ 0 FT.
PERFS 4684 FT.THRO 4698 FT. PRODUCTION THRU TUBING AVG DEP 4691 FT.
STIMULATION: 11000 GAL 2% GELLED KCL WATER 6500# 20/50 SAND 182000SCF N2

----- C A L C U L A T I O N S -----

RATE NO	ORIFICE SIZE	METER PSIA	DIFFERENTIAL	TEMP F	BHP PSIA	STATIC PSIA	FLOWING PSIA	DURATION HOURS
1	0.250	1307.4	0.0	71	1534.0	1359.4	1307.4	1.0
2	0.313	1201.4	0.0	75	1512.2	1340.4	1201.4	1.0
3	0.375	1091.4	0.0	79	1489.2	1320.4	1091.4	1.0
4	0.438	1002.4	0.0	81	1461.7	1296.4	1002.4	1.0
5	0.125	1263.4	0.0	69	1521.4	1348.4	1263.4	24.0

RATE NO	H2O PROD BBLs	LIQUID PETR BBLs	GOR MCF/BBL	ABSOLUTE PC2-PW2	FLOW RATE MCFD	WELLHEAD PC2-PT2	72.0 HR SHUT-IN PRESSURE PF2-PS2 SURFACE
1	0.0	0.00	0	57.5	2023	196.2	1380.4 PSIA
2	0.0	0.00	0	108.8	2816	462.1	1558.2 PSIA
3	0.0	0.00	0	162.0	3587	714.4	1845.1 PSIA
4	0.0	0.00	0	224.9	4676	900.7	0.844
5	0.0	0.00	0	87.3	476	309.3	0.0

----- T E S T R E S U L T S -----

	WELLHEAD	ABS.
EXPONENT N OF BACK PRESSURE CURVE (1)	0.551	0.551
STABILIZED C FACTOR	0.251936	0.505731
1.0 HOUR 4-POINT FLOW POTENTIAL	7065 MCFD	13830 MCFD
24.0 HOUR 1-POINT FLOW POTENTIAL	1297 MCFD	2604 MCFD
72 HOUR FLOW POTENTIAL	1038 MCFD	
STABILIZED FLOW POTENTIAL	726 MCFD	
72 HOUR DELIVERABILITY @ 0.8 PC (2)	591 MCFD	
STABILIZED DELIVERABILITY @ 264 PSIA	712 MCFD	
STABILIZATION FACTOR (3) 24.0 HOURS TO 72 HOURS	0.800	
(3) 72 HOURS TO STABILIZATION	0.700	

EVALUATIVE COMMENTS:

- (1) WELLHEAD CURVE-WHN ASSUMED EQUAL TO ABN
ABSOLUTE CURVE-FOURTHPOINT OUT OF ALIGNMENT
(2) ASSUMED QUALIFICATION PROVISIONS OF GAS PURCHASE CONTRACT
(3) STAB FACTOR

Preliminary Field Calculations
Have Not Been Evaluated By
Reservoir Engineering

19 STABILIZED DELIVERABILITY @ 264 PSIA 712 MCFD
18 STABILIZATION FACTOR (3) 24.0 HOURS TO 72 HOURS 0.800
17 (3) 72 HOURS TO STABILIZATION 0.700

16 EVALUATIVE COMMENTS:

- 15 (1) WELLHEAD CURVE-WHN ASSUMED EQUAL TO ABN
14 ABSOLUTE CURVE-FOURTHPOINT OUT OF ALIGNMENT
13 (2) ASSUMED QUALIFICATION PROVISIONS OF GAS PURCHASE CONTRACT
12 (3) STAB.FACTOR ESTIMATE BY RLN

APPROVED BY _____ GSD

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