M NO. 731
V. 2-70)

NORTHERN NATURAL GAS CO.

NATURAL GAS ANALYSIS REPORT FORM

MAR 31 1979

SAMPLE NO. # 0590

DATE RECEIVED _____ SECURED BY _____ TANK NUMBER 260 DATE ANALYZED MAR 7 1979

ANALYST WMA OPERATOR NAME Rupe Oil Co. OUTSIDE LAB _____

WELL NAME OR SOURCE Dunekack #1 Sec. 15 Twp. 19 Rge. 14 COUNTY Barton STATE Ks

RECORD IDENTIFIER	CARD NO.	DATE SAMPLE TAKEN MO.	DAY	YR.	LAB	GAS ANALYSIS DATA – MOLE FRACTION * HE	O_2	CO_2	N_2	H_2	H_2S	C_1	C_2	C_3	I-C_4	N-C_4	I-C_5	N-C_5	C_6	C_7
	60	03	01	79	L	032300	09	00	28	24	91	596505	95	02	89	00	65	01	08	00	34	00	46	00	47

RECORD IDENTIFIER	CARD NO.	DATE OF GRAVITY MO.	DAY	YR.	MEASURED SPECIFIC GRAVITY	DATE SAMPLE TAKEN MO.	DAY	YR.	CALORIMETER BTU (SAT'D)	SULFUR TEST TEST DATE MO.	DAY	YR.	TYPE	H_2S GRS/100 CF	RSH GRS/100 CF	RSH+ GRS/100 CF
	61															

RECORD IDENTIFIER	CARD NO.	DATE SAMPLE TAKEN MO.	DAY	YR.	LAB	LIQUID ANALYSIS DATA – MOLE FRACTION C_1	C_2	C_3	I-C_4	N-C_4	I-C_5	N-C_5	C_6	C_7	C_8	C_9
	62															

* MUST TOTAL 1.0000

\+ INCLUDES OTHER SULFUR (SEE ITEM DESCRIPTION)

CODES: CARD 60 & 62

COL. 18 (LAB) LAB CODE
- H = HOBBS
- L = LIBERAL
- B = B. OF MINES
- I = INDEPENDENT

CODES: CARD 61

COL. 52-53 (TYPE)
- 01 = SNIFFER TEST
- 02 = ELECTROLYTIC TITRATION
- 03 = ABSORPTION (TUTWILER OR CADMIUM SALT)

GPM BY CHROMATOGRAPH _____

CALC. BTU (SAT'D) 884

CALC. BTU (DRY) _____

CALC. SP. GR. 0.7607

DISTRIBUTION LIST:

Gas Supply, Liberal

Ray Shuck - LAO

C.C. John Cecil
1216 Roosevelt
Great Bend, KS - 67530

C.C. Rupe Wichita

REMARKS:

NWUC

MAR 6 1979

Form 79-478

INITIAL TEST INFORMATION

NNG TESTER C. Coleman DATE OF TEST 3/1/79

TYPE TEST CONDUCTED 4pt and 1pt CONDUCTED BY NNG

OPERATOR Rupe Oil Company WELL NAME Dunekack NO. 1

LOCATION: SEC. 15-19-14 COUNTY Barton STATE Kansas

FIELD PLOTTED WHOFP 1pt - 220 4pt - 300 MCF/D. POT. @ 80% S.I. 1pt - 120 4pt - 160 MCF/D.

NNG LINE PRESS. 50.0 PSIG. APPROX. DISTANCE ---- INITIAL SIP 507.0

LINE PRESS. & APPROX. DISTANCE OF OTHER COMPANIES:

TYPE OF CROSSINGS: none

TYPE OF TERRAIN: Flat farm land

STABILIZATION CHARACTERISTICS: fair

LIQUIDS PRODUCED: .25 Bbls Oil; .50 Bbls Water; 24 Hrs.; API GR. ---

BOTTOM HOLE PRESS. TEST CONDUCTED BY: none

TYPE OF COMPLETION: (XX) SINGLE-GAS, ( ) DUAL GAS-GAS, ( ) DUAL GAS-OIL

CASING SIZE: 4½ ", O.D. 9.5 #/FT., SET @ 3556 ', TD OR PBTD 3505 FT.

TUBING SIZE: 2 ". O.D. ____ #/FT., SET @ 3496 ', PACKER SET @ --- '

FORMATION ~~Mississippi~~ Conglomerate SYSTEM Peoples FIELD N/A

PERFORATIONS: FROM 3488 FT. TO 3490 FT., FROM ____ FT. TO ____ FT.

FROM ____ FT. TO ____ FT., FROM ____ FT. TO ____ FT.

STIMULATION DATA:

TREATED WITH 500 GAL. OF 15 % Mud cleanout ACID.

____ GAL. OF ____ % ____ ACID.

FRAC'D WITH ____ GAL. OF ____ % ____ ACID.

____ GAL. OF ____ % ____ ACID.

____ # OF ____ SAND, ____ # OF GLASS BEADS, ____ # OF COTTON HULLS

REMARKS

Mailed copy to Johnson 3/6/79

FORM 983
(REV. 4-22-65)

NORTHERN NATURAL GAS COMPANY
OBSERVED SURFACE DATA WORKSHEET

SHEET 1

MAR 6 1979

TYPE TEST: 4pt/1pt [X] INITIAL [ ] ANNUAL [ ] RETEST [ ] SPECIAL TEST DATE: 3/1/79

OPERATOR Rupe Oil Company LEASE Dunekack WELL NO. 1

SEC. 15 TWP. BLK. 19 RNG. SUR. 14 COUNTY Barton STA. NO. _____ PIPELINE CONN. _____

GA SYSTEM _____ FIELD _____ RESERVOIR _____

CSG. _____ WT. _____ TBG. SIZE _____ WT. _____ PERFS. _____ TO _____

TYPE COMPLETION: SINGLE ( ) GAS-GAS( ) GAS-OIL( ) PACKER@ _____ ft. FLOW STRING@ _____ f

DATE ON PREFLOW _____ TIME _____ DATE SHUT IN _____ TIME _____ LENGTH OF PREFLOW _____ AVG. PREFLOW RATE _____

DATE SHUT IN PRESS. TAKEN _____ TIME _____ LENGTH OF SHUT IN _____ SHUT IN CSG. PRESS. _____ psig SHUT IN TBG. PRESS. _____ psig

GAS GRAVITY (Gm) _____ assumed (Gg) .650 API GRAVITY OF LIQUID @ 60°F _____ PROVER SIZE _____ METER RUN SIZE _____ ORIFICE SIZE _____ TYPE TAPS _____

DATE TIME OF READING	ELAP TIME HRS.	W.H. PRESSURE DATA				WELL	METER OR PROVER DATA			LIQUID HYDRO-CARBONS BBLS.	WATER PRODUCED BBLS.	REMARKS PERTINENT TO TEST DATA QUALITY
		CASING psig	Δ P CSG.	TUBING psig	Δ P TBG.	HEAD TEMP	PRESS psig	DIFF.	TEMP.			
2/28/79	WEDNESDAY											
1130		507		498								SIP
1130	STARTED FIRST RATE WITH 1/16" PLATE											
1140		502		475				475	40			
1150		497		471				471	40			
1200		497		470				470	41	T	0	
1200	ON SECOND RATE WITH 3/32" PLATE											
1210		485		459				459	44			
1220		477		450				450	45			
1230		474		447				447	45	T	0	
1230	ON THIRD RATE WITH 1/8" PLATE											
1240		455		429				429	46			Light mist blowing from prov
1250		442		414				414	46			
1300		433		405				405	47	T	0	
1300	ON FOURTH RATE WITH 5/32" PLATE											
1310		411		381				381	48			
1320		393		365				365	48			
1330		383		352				352	50	T	0	
1330	STARTED 1-PT WITH 7/32" PLATE											
3/1/79	THURSDAY											
0830	STARTED STABILIZATION READINGS											
0830		281		171				171				
0900		281		171				171	48			Took sample
0930		281		170				170	48			
1000	TOOK 1-PT TEST READINGS AND SHUT WELL IN FOR BUILDUP											
1000		281		169				169	48	.25	.30	Fluid estimated

TESTED BY: Coleman WITNESSED BY: _____

FORM 983
(REV. 4-22-65)

NORTHERN NATURAL GAS COMPANY

OBSERVED SURFACE DATA WORKSHEET

SHEET 2

MAR 6 1979

TYPE TEST: ☐ INITIAL ☐ ANNUAL ☐ RETEST ☐ SPECIAL TEST DATE _____

OPERATOR Rupe Oil Co. LEASE Dunekack WELL NO. 1

STA. NO. _____

DATE	ELAP.	W.H. PRESSURE DATA				WELL	METER OR PROVER DATA			LIQUID HYDRO-	WATER	REMARKS PERTINENT TO
TIME OF READING	TIME HRS.	CASING psig	Δ P CSG.	TUBING psig	Δ P TBG.	HEAD TEMP.	PRESS psig	DIFF.	TEMP	CARBONS BBLS	PRODUCED BBLS.	TEST DATA QUALITY
1005		320		205								
1010		337		229								
1015		363		244								
1030		406		291								
1045		434		316								
1100		444		326								

NORTHERN NATURAL GAS COMPANY
MULTI-POINT BACK PRESSURE TEST

MAR 6 1979

TESTED BY-CC
INPUT BY-RLN

TEST DATE- 2/28/79
STATION NO-8000002
SYST- 0 POOL- 0

INPUT DATA

GAS GRAVITY-	0.6500	METER DEV-CR FLW		OPERATOR	RUPE OIL CO.
API GRAVITY-	60.000	SIZE	2	WELL NAME	DUNEKACK #1
N2 -(MOL.%)	0.0000	TYPE TAPS-		LOCATION	15 19 14
CO2-(MOL.%)	0.0000	BARO PRESS	14.40	COUNTY/STATE	BARTON /KANSAS
H2S-(MOL.%)	0.0000	BH TEMP	99	FIELD	N/A
				RESERVOIR	MISSISSIPPI
				NNG SYSTEM	PRODUCTS

TUBING ID 1.995 IN.SET @ 3489 FT. SINGLE-GAS COMPLETION PACKER @ 0 FT.
PERFS 3488 FT.THRU 3490 FT. PRODUCTION THRU TUBING AVG DEP 3489 FT.
STIMULATION: 500 GAL 15% MCA

CALCULATIONS

RATE NO	ORIFICE SIZE	METER PSIA	DIFFER-ENTIAL	TEMP F	BHP PSIA	STATIC PSIA	FLOWING PSIA	DURATION HOURS
1	0.063	484.4	0.0	41	556.6	511.4	484.4	0.5
2	0.094	461.4	0.0	45	531.4	488.4	461.4	0.5
3	0.125	419.4	0.0	47	486.5	447.4	419.4	0.5
4	0.156	366.4	0.0	50	431.8	397.4	366.4	0.5
5	0.219	183.4	0.0	48	320.5	295.4	183.4	22.5

RATE NO	H2O PROD BBLS	LIQUID PETR BBLS	GOR MCF/BBL	ABSOLUTE PC2-PW2	FLOW RATE MCFD	WELLHEAD PC2-PT2	PF2-PS2
1	0.0	0.00	0	10.3	42	37.2	12.3
2	0.0	0.00	0	33.3	88	59.0	39.8
3	0.0	0.00	0	71.7	149	96.0	85.5
4	0.0	0.00	0	113.9	194	137.6	135.7
5	0.5	0.25	756	184.6	202	238.2	0.0

72.0 HR SHUT-IN PRESSURE
SURFACE 521.4 PSIA
BHP 567.6 PSIA
BHP/Z 615.6 PSIA
Z 0.922

Preliminary Field Calculations Have Not Been Evaluated By Reservoir Engineering

TEST RESULTS

	WELLHEAD	ABS.
EXPONENT N OF BACK PRESSURE CURVE (1)	0.641	0.641
STABILIZED C FACTOR	0.032784	0.038606
0.5 HOUR 4-POINT FLOW POTENTIAL	301 MCFD	343 MCFD
22.5 HOUR 1-POINT FLOW POTENTIAL	219 MCFD	258 MCFD
72 HOUR FLOW POTENTIAL	154 MCFD	
STABILIZED FLOW POTENTIAL	100 MCFD	
72 HOUR DELIVERABILITY @ 0.8 PC (2)	80 MCFD	
STABILIZED DELIVERABILITY @ 64 PSIA	99 MCFD	
STABILIZATION FACTOR (3) 22.5 HOURS TO 72 HOURS	0.700	
(3) 72 HOURS TO STABILIZATION	0.650	

EVALUATIVE COMMENTS:
(1) WELLHEAD CURVE-FIRST POINT OUT OF ALIGNMENT