

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUTH KESTER #24-18 Test No. 1 Date 6/27/93
Company NORTH AMERICAN RESOURCES COMPANY Zone MORROW/MISS
Address 16 E GRANITE BUTTE MT 59701 Elevation 3046 KB
Co. Rep./Geo. WES HANSEN Cont. ABERCROMBIE RIG #8 Est. Ft. of Pay 15
Location: Sec. 18 Twp. 21S Rge. 34W Co. FINNEY State KS

Interval Tested	<u>4770-4872</u>	Drill Pipe Size	<u>4.5" XH</u>
Anchor Length	<u>102</u>	Wt. Pipe I.D. - 2.7 Ft. Run	<u>404</u>
Top Packer Depth	<u>4765</u>	Drill Collar - 2.25 Ft. Run	<u>9.1</u>
Bottom Packer Depth	<u>4770</u>	Mud Wt.	<u>53</u> lb/Gal.
Total Depth	<u>4872</u>	Viscosity	<u>10.4</u>

Tool Open @ 7:50 AM Initial Blow WEAK BLOW SLOWLY BUILT TO 3"
ISI: bled off blow - NO RETURN
Final Blow WEAK TO FAIR BLOW SLOWLY BUILT TO BOTTOM IN 30 MINUTES
FSI: bled off blow - NO RETURN

Recovery - Total Feet 390 Flush Tool? NO

Rec. <u>40</u>	Feet of	<u>GAS IN PIPE ABOVE FLUID</u>
Rec. <u>30</u>	Feet of	<u>GSY OIL CUT MUD-15%GAS/25%OIL/60%MUD</u>
Rec. <u>180</u>	Feet of	<u>GSY OIL CUT MUD-30%GAS/15%OIL/55%MUD</u>
Rec. <u>120</u>	Feet of	<u>GSY OIL & WTR CUT MUD-25%GAS/15%OIL/20%WTR/40%MUD</u>
Rec. <u>60</u>	Feet of	<u>OIL CUT MUDDY WTR-10%OIL/60%WTR/30%MUD</u>

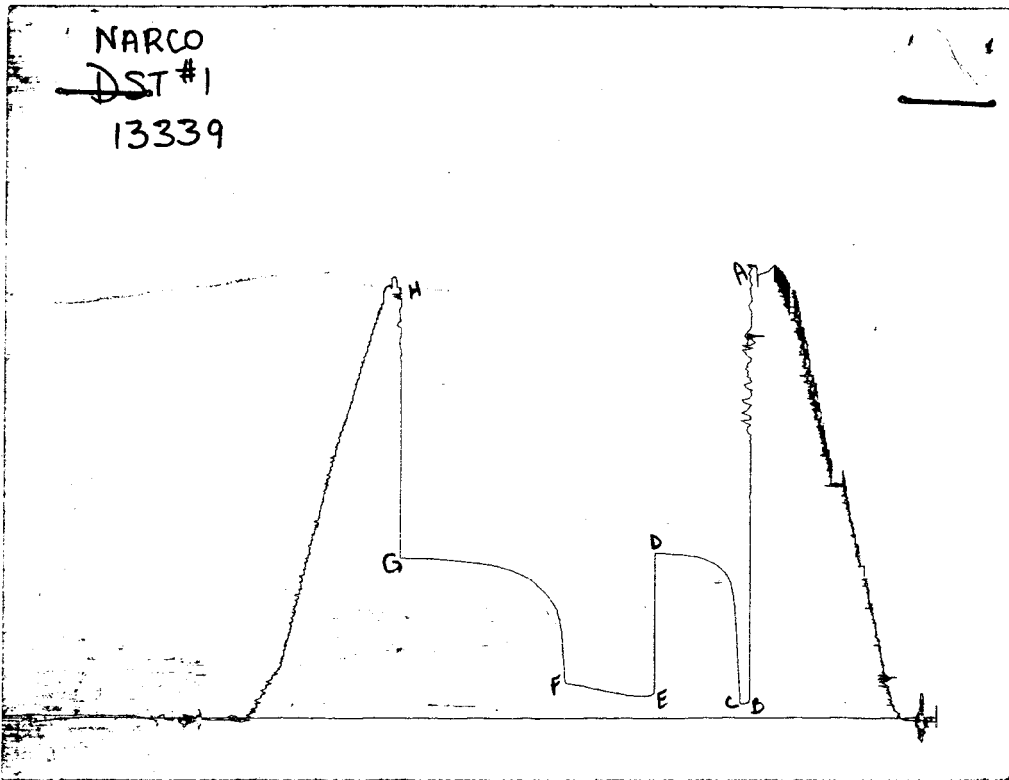
BHT 121 °F Gravity 39 °API 80 °F Corrected Gravity 37 °API
RW 0.22 Chlorides 22000 ppm Recovery Chlorides 1500 ppm System

(A) Initial Hydrostatic Mud	<u>2337.6</u> PSI	AK1 Recorder No.	<u>13309</u>	Range	<u>4700</u>
(B) First Initial Flow Pressure	<u>90.4</u> PSI	● (depth)	<u>4800</u>	w / Clock No.	<u>27573</u>
(C) First Final Flow Pressure	<u>83.2</u> PSI	AK1 Recorder No.	<u>13339</u>	Range	<u>4025</u>
(D) Initial Shut-in Pressure	<u>880.7</u> PSI	● (depth)	<u>4867</u>	w / Clock No.	<u>17640</u>
(E) Second Initial Flow Pressure	<u>134.1</u> PSI	AK1 Recorder No.		Range	
(F) Second Final Flow Pressure	<u>183.0</u> PSI	● (depth)		w / Clock No.	
(G) Final Shut-in Pressure	<u>853.7</u> PSI	Initial Opening	<u>60</u>	Final Flow	<u>60</u>
(H) Final Hydrostatic Mud	<u>2267.5</u> PSI	Initial Shut-in	<u>60</u>	Final Shut-in	<u>120</u>

Our Representative ROD STEINBRINK

RECEIVED
STATE CORPORATION COMMISSION
SEP 03 1993
CONSERVATION DIVISION
Wichita, Kansas

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
A) INITIAL HYDROSTATIC MUD	2323	2337.6
B) FIRST INITIAL FLOW PRESSURE	83	90.4
C) FIRST FINAL FLOW PRESSURE	83	83.2
D) INITIAL CLOSED-IN PRESSURE	879	880.7
E) SECOND INITIAL FLOW PRESSURE	124	134.1
F) SECOND FINAL FLOW PRESSURE	197	183
G) FINAL CLOSED-IN PRESSURE	859	853.9
H) FINAL HYDROSTATIC MUD	2363	2267.5

SE

COMPUTER OIL EVALUATION BY TRILOBITE TESTING, L.L.C.

NORTH AMERICAN RESOURCES COMPANY

RUTH KESTER #24-18

DST 1

18 21S 34W FINNEY KS

ELEVATION:	3046	KB	EST. PAY	15	FT
DATUM:	-1822		ZONE TESTED:	MORROW/MISS	
TEST INTERVAL:	4770-4872		TIME INTERVALS:	5-60-60-120	
RECORDER DEPTH:	4867		VISCOSITY:	5.97	CP
BOTTOM HOLE TEMP:	121		HOLE SIZE:	7.875	IN

CUBIC FEET OF GAS IN PIPE:	3				
TOTAL FEET OF RECOVERY:	390.00	CORRECTED PIPE FILLUP:	502.747		
TOTAL BARRELS OF RECOVERY:	2.73	CORR. BARRELS OF RECOVERY:	4.222	BBL	
BARRELS IN DRILL PIPE:	0.00	API GRAVITY:	37		
BARRELS IN WEIGHT PIPE:	2.73	FLUID GRADIENT:	0.364		
BARRELS IN DRILL COLLARS:	0.00				
GAS OIL RATIO:	0.96	CU.FT/BBL			
BUBBLE POINT PRESSURE:	11				
UNCORRECTED INITIAL PRODUCTION:			60.48	BBL	
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			93.52	BBL/DAY	
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			30.923		

INITIAL SLOPE	1024.63	PSI/CYCL	FINAL SLOPE	164.10	PSI/CYCLE
INITIAL P*	916.32	PSI	FINAL P*	884.55	PSI

TRANSMISSIBILITY	92.67	(MD.-FT./CP.)
PERMEABILITY	36.89	(MD.)
INDICATED FLOW CAPACITY	553.41	(MD.FT)
PRODUCTIVITY INDEX	0.10	(BARREL/DAY/PSI)
DAMAGE RATIO	0.78	
RADIUS OF INVESTIGATION	48.97	(FT.,)
POTENTIOMETRIC SURFACE	230.27	(FT.)
DRAWDOWN FACTOR	3.467	(%)

CALCULATED RECOVERY ANALYSIS

WEIGHT PIPE

DST #

1

TICKET #

5946

SAMPLE #	TOTAL		GAS		OIL		WATER		MUD	
	FEET	%	FEET	%	FEET	%	FEET	%	FEET	%
1	30	15	4.5	25	7.5	0	0	60	18	
2	180	30	54	15	27	0	0	50	90	
3	120	25	30	15	18	20	24	40	48	
4	60	0	0	10	6	60	36	30	18	
5			0		0		0		0	
TOTAL	390	22.69	88.5	15	58.5	15.385	60	44.615	174	

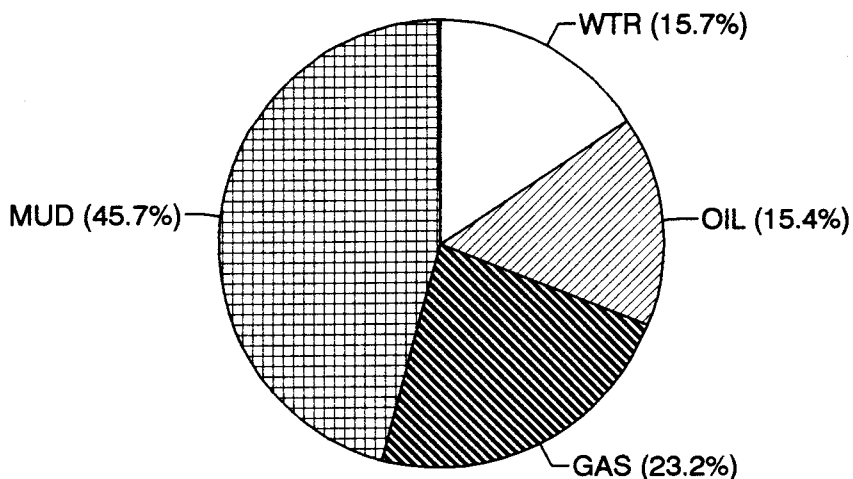
HRS OPEN BBL/DAY

BBL OIL= 0.4095 * 1.08 9.1

BBL WATER= 0.42 * 9.3333333

BBL MUD= 1.218

BBL GAS= 0.6195



INITIAL FLOW

RECORDER 13339

DST # 1

TIME(MIN)	PRESSURE	<> PRESSURE
0	90.4	90.4
3	83.2	-7.2
6	83.2	0.0

FINAL FLOW

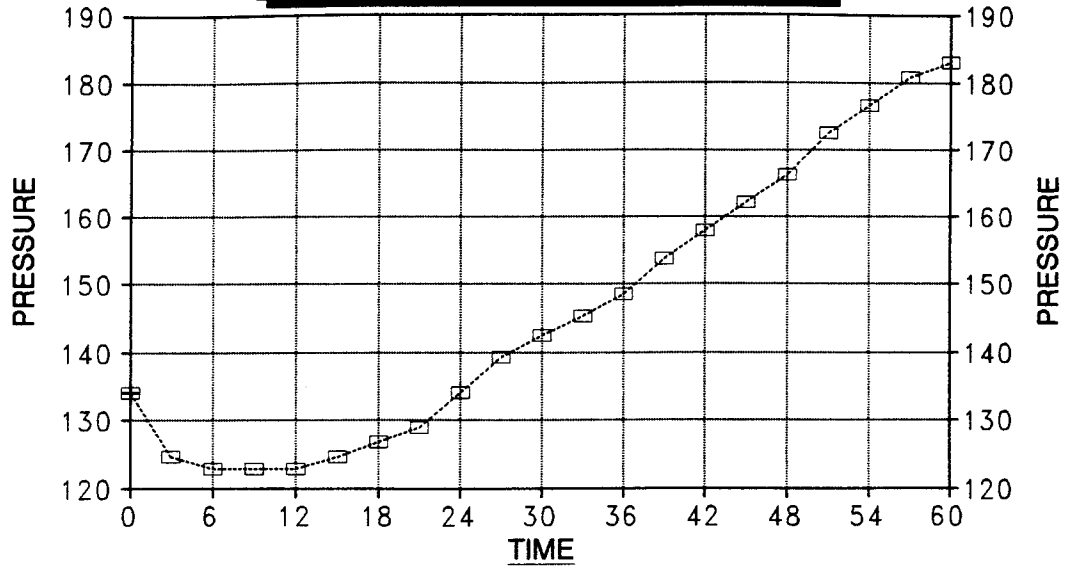
RECORDER 13339

DST # 1

TIME(MIN)	PRESSURE	<> PRESSURE
0	134.1	134.1
3	124.7	-9.4
6	122.7	-2.0
9	122.7	0.0
12	122.7	0.0
15	124.7	2.0
18	126.8	2.1
21	128.9	2.1
24	134.1	5.2
27	139.3	5.2
30	142.4	3.1
33	145.4	3.0
36	148.6	3.2
39	153.8	5.2
42	158.0	4.2
45	162.2	4.2
48	166.3	4.1
51	172.6	6.3
54	176.7	4.1
57	180.9	4.2
60	183.0	2.1

DELTA T DELTA P

FINAL FLOW / DST #1



---□--- RUTH KESTER #24-18

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

30.923

RUTH KESTER
INITIAL

DST #1
SHUTIN

5 INITIAL FLOW TIME SLOPE 1024.6 PSI/CYCLE
P* 916.32 PSI

Log <>
TIME(MIN) Pws (psi) Horn T PRESSURE Horn T

	3	376.3	0.426	376.3	3
	6	656.3	0.263	280.0	2
	9	743.4	0.192	87.1	2
	12	778.5	0.151	35.1	1
	15	799.6	0.125	21.1	1
	18	815.6	0.106	16.0	1
	21	829.6	0.093	14.0	1
	24	837.6	0.082	8.0	1
	27	848.7	0.074	11.1	1
	30	855.7	0.067	7.0	1
	33	861.7	0.061	6.0	1
	36	865.7	0.056	4.0	1
	39	867.7	0.052	2.0	1
	42	869.7	0.049	2.0	1
	45	871.7	0.046	2.0	1
	48	873.7	0.043	2.0	1
X	51	874.7	0.041	1.0	1
	54	876.7	0.038	2.0	1
	57	878.7	0.037	2.0	1
X	60	880.7	0.035	2.0	1

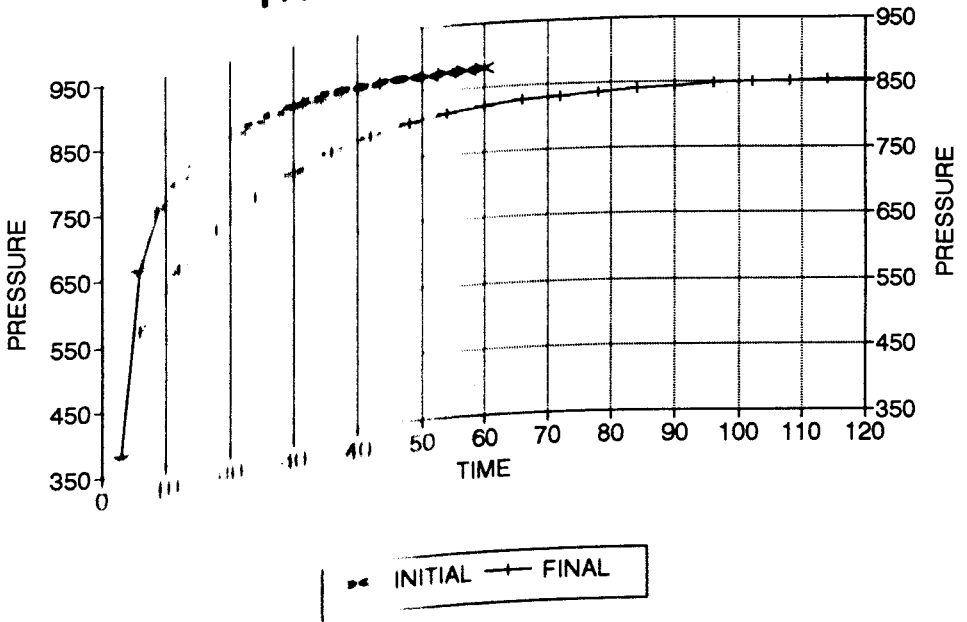
RUTH KESTER
FINAL

		DST #1	-----		
		SHUTIN			
65	TOTAL FLOW TIME	SLOPE	164.1	PSI/CYCLE	
		P*	884.5	PSI	

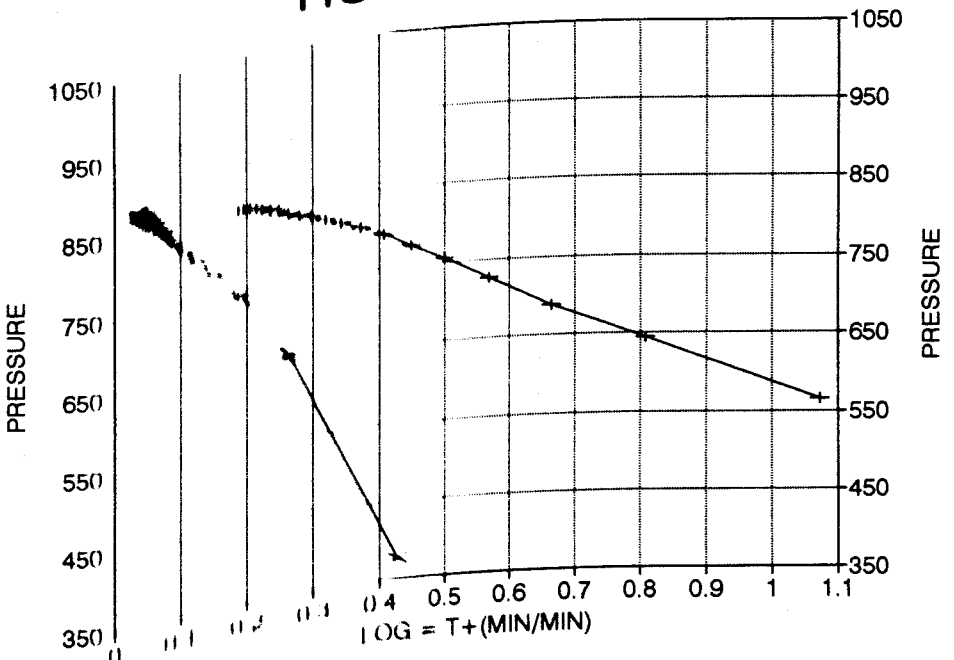
		Log	<>		
		Pws (psi)	Horn T	PRESSURE	Horn T
		-----	-----	-----	-----
	6	565.1	1.073	565.1	12
	12	645.3	0.807	80.2	6
	18	689.3	0.664	44.0	5
	24	727.4	0.569	38.1	4
	30	754.5	0.501	27.1	3
	36	774.5	0.448	20.0	3
	42	791.5	0.406	17.0	3
	48	803.6	0.372	12.1	2
	54	813.6	0.343	10.0	2
	60	821.6	0.319	8.0	2
	66	827.6	0.298	6.0	2
	72	831.6	0.279	4.0	2
	78	835.6	0.263	4.0	2
	84	840.6	0.249	5.0	2
	90	843.7	0.236	3.1	2
X	96	847.7	0.225	4.0	2
	102	850.7	0.214	3.0	2
	108	851.7	0.205	1.0	2
	114	852.7	0.196	1.0	2
X	120	853.7	0.188	1.0	2

RUIII KI-STER #24-18 / DST #1

DELTA T DELTA P



HORNER PLOT



FLUID SAMPLER DATA

Ticket No.: 5946 Date: 6/27/93
Company: NORTH AMERICAN RESOURCES COMPANY
Lease: RUTH KESTER #24-18 Test No.: 1
County: FINNEY Sec.: 18 Twp.: 21S Rng.: 34W

SAMPLER RECOVERY

Gas 300
Oil 700
Mud 3000
Water
Other
Pressure 150
TOTAL 4000

PIT MUD ANALYSIS

Chlorides 1500
Resistivity ohms@ F
Viscosity 53
Mud Wt. 9.1
Filtrate 10.4
Other

SAMPLER ANALYSIS

Resistivity ohms@ F
Chlorides ppm.
Gravity 37 corrected @60F

PIPE RECOVERY

TOP

Resistivity ohms@ F
Chlorides ppm

MIDDLE

Resistivity ohms@ F
Chlorides ppm

BOTTOM

Resistivity 0.22 ohms@ 96 F
Chlorides 22000 ppm