

# TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

## Drill-Stem Test Data

Well Name MARY NATION #3 Test No. 1 Date 11/26/94  
Company QUINQUE OPERATING CO Zone MORROW  
Address PO BOX 2738 LIBERAL KS Elevation 2924  
Co. Rep./Geo. BOB POSEY Cont. BEREDCO #2 Est. Ft. of Pay 12  
Location: Sec. 34 Twp. 30S Rge. 33W Co. HASKELL State KS

Interval Tested 5234-5372 Drill Pipe Size 4.5" XH  
Anchor Length 138 Wt. Pipe I.D. - 2.7 Ft. Run \_\_\_\_\_  
Top Packer Depth 5229 Drill Collar - 2.25 Ft. Run 455  
Bottom Packer Depth 5234 Mud Wt. 9.1 lb/Gal.  
Total Depth 5372 Viscosity 55 Filtrate 9.8

Tool Open @ 9:35AM Initial Blow BOTTOM OF BUCKET IN 3 MINUTES  
GAS TO SURFACE IN 11 MINUTES  
Final Blow GAUGING GAS VOLUME - LAST READING 156 MCF/D

Recovery - Total Feet 515 Flush Tool? \_\_\_\_\_  
Rec. 515 Feet of DRILLING MUD  
Rec. \_\_\_\_\_ Feet of \_\_\_\_\_  
Rec. \_\_\_\_\_ Feet of \_\_\_\_\_  
Rec. \_\_\_\_\_ Feet of \_\_\_\_\_  
Rec. \_\_\_\_\_ Feet of \_\_\_\_\_

BHT 134 °F Gravity \_\_\_\_\_ °API @ \_\_\_\_\_ °F Corrected Gravity \_\_\_\_\_ °API  
RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm Recovery Chlorides 1900 ppm System

(A) Initial Hydrostatic Mud 2550.3 PSI AK1 Recorder No. 10332 Range 4050

(B) First Initial Flow Pressure 281.4 PSI @ (depth) 5352 w / Clock No. 25828

(C) First Final Flow Pressure 205.5 PSI AK1 Recorder No. 11086 Range 4350

(D) Initial Shut-in Pressure 1548.0 PSI @ (depth) 5366 w / Clock No. 25114

(E) Second Initial Flow Pressure 167.0 PSI AK1 Recorder No. \_\_\_\_\_ Range \_\_\_\_\_

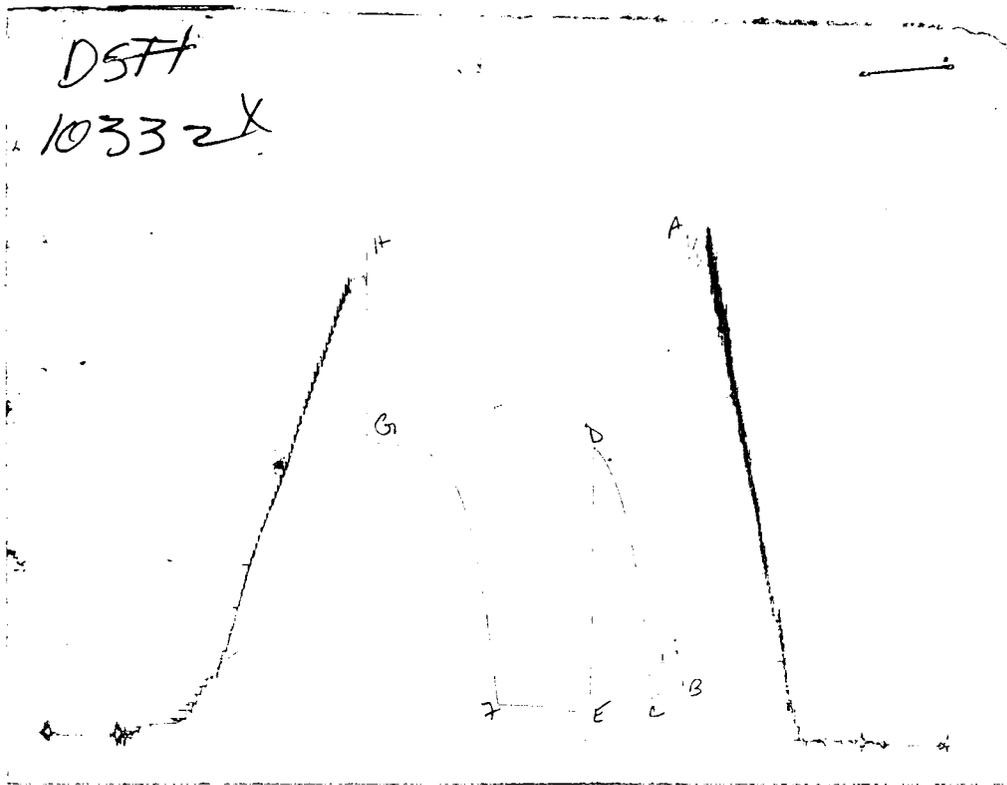
(F) Second Final Flow Pressure 177.1 PSI @ (depth) \_\_\_\_\_ w / Clock No. \_\_\_\_\_

(G) Final Shut-in Pressure 1553.1 PSI Initial Opening 20 Final Flow 60

(H) Final Hydrostatic Mud 2430.6 PSI Initial Shut-in 40 Final Shut-in 90

Our Representative GARY SPEER

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2548	2550
(B) FIRST INITIAL FLOW PRESSURE	303	281.4
(C) FIRST FINAL FLOW PRESSURE	202	205.5
(D) INITIAL CLOSED-IN PRESSURE	1548	1548
(E) SECOND INITIAL FLOW PRESSURE	202	167
(F) SECOND FINAL FLOW PRESSURE	202	177.1
(G) FINAL CLOSED-IN PRESSURE	1559	1553
(H) FINAL HYDROSTATIC MUD	2428	2431

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

QUINQUE OPERATING CO

MARY NATION #3

DST 1

34 30S 33W

HASKELL KS

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ELEVATION:	2924 KB	EST. PAY:	12 FT.
DATUM:	-2429	ZONE TESTED:	MORROW
TEST INTERVAL:	5234-5372	TIME INTERVALS:	20-40-60-90
RECORDER DEPTH:	5352	VISCOSITY:	0.01538 CP
BOTTOM HOLE TEMP:	134	HOLE SIZE:	7.875 IN
COMPRESSIBILITY:	0.9971	GAS GRAVITY:	0.7293

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TEMPERATURE RANKINE:	594.00	&
TRANSMISSIBILITY:	99.98	Kh/%
THEORITICAL FLOW CAPICITY:	1.54	Kh
AVERAGE EFFECTIVE PERMEABILITY:	0.13	K(md.)
RADIUS OF INVESTIGATION:	3.20	FT.
DAMAGE RATIO:	0.56	
ABSOLUTE OPEN FLOW(MAX)	156.38	MCFD
ABSOLUTE OPEN FLOW(MIN)	156.19	MCFD
THEORITICAL OPEN FLOW(MAX)	88.02	MCFD
THEORITICAL OPEN FLOW(MIN)	87.91	MCFD
POTENTIOMETRIC SURFACE	1154.82	(FT.)

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INITIAL SHUT-IN VALUES:	
SLOPE	1512748.2
THEORETICAL STATIC PRESSURE	1977.1

FINAL SHUT-IN VALUES:	
SLOPE	1512748.2
THEORETICAL STATIC PRESSURE	1614.6

DRAWDOWN FACTOR:	18.33 (%)
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# FINAL FLOW

DST # 1  
RECORDER 10332

TIME(MIN)	PRESSURE	<> PRESSURE
0	167.0	167.0
3	461.6	294.6
6	155.9	-305.7
9	153.8	-2.0
12	153.8	0.0
15	153.8	0.0
18	157.9	4.0
21	164.0	6.1
24	170.0	6.1
27	174.1	4.0
30	177.1	3.0
33	177.1	0.0
36	177.1	0.0
39	177.1	-0.0
42	177.1	0.0
45	177.1	0.0
48	177.1	0.0
51	177.1	0.0
54	177.1	0.0
57	177.1	0.0
60	177.1	0.0

INITIAL SHUT-IN

MARY NATION #3

DST # 1

INITIAL FLOW TIME 20

-----  
 SLOPE 1512748.2 PSI/CYCLE  
 P\* 1977.09 PSI  
 -----

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	-----	-----	-----	-----	-----
	3	499.0	0.885	499.0	8
	6	634.1	0.637	135.1	4
	9	756.1	0.508	122.0	3
	12	854.7	0.426	98.6	3
	15	962.3	0.368	107.7	2
X	18	1056.5	0.325	94.1	2
	21	1153.2	0.291	96.8	2
	24	1230.7	0.263	77.4	2
	27	1296.4	0.241	65.7	2
	30	1350.8	0.222	54.4	2
	33	1387.1	0.206	36.3	2
	36	1425.4	0.192	38.3	2
	39	1458.8	0.180	33.3	2
	42	1493.1	0.169	34.3	1
	45	1520.4	0.160	27.3	1
X	48	1548.0	0.151	27.5	1

FINAL SHUT-IN  
 MARY NATION #3

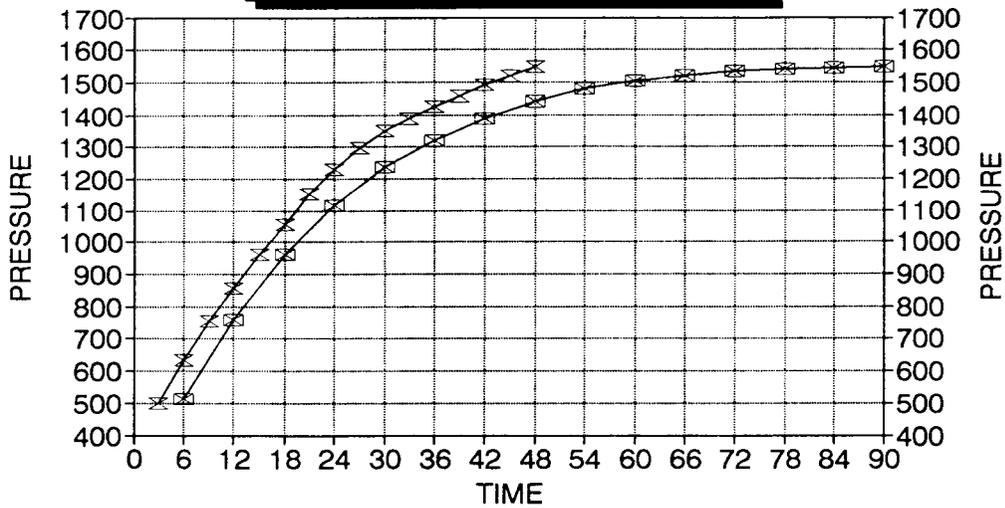
DST # 1  
 TOTAL FLOW TIME 80

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 SLOPE 1512748.2 PSI/CYCLE  
 P\* 1614.61 PSI  
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	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	-----	-----	-----	-----	-----
	6	514.2	1.156	514.2	14
	12	757.1	0.885	242.9	8
	18	959.3	0.736	202.2	5
	24	1116.9	0.637	157.6	4
	30	1235.9	0.564	119.0	4
	36	1322.6	0.508	86.7	3
	42	1390.1	0.463	67.5	3
	48	1443.6	0.426	53.5	3
	54	1480.0	0.395	36.4	2
	60	1502.2	0.368	22.2	2
	66	1520.4	0.345	18.2	2
X	72	1531.6	0.325	11.2	2
	78	1538.8	0.307	7.1	2
	84	1543.9	0.291	5.1	2
	90	1546.9	0.276	3.1	2
	96	1549.0	0.263	2.0	2
	102	1551.0	0.251	2.0	2
X	108	1553.1	0.241	2.0	2

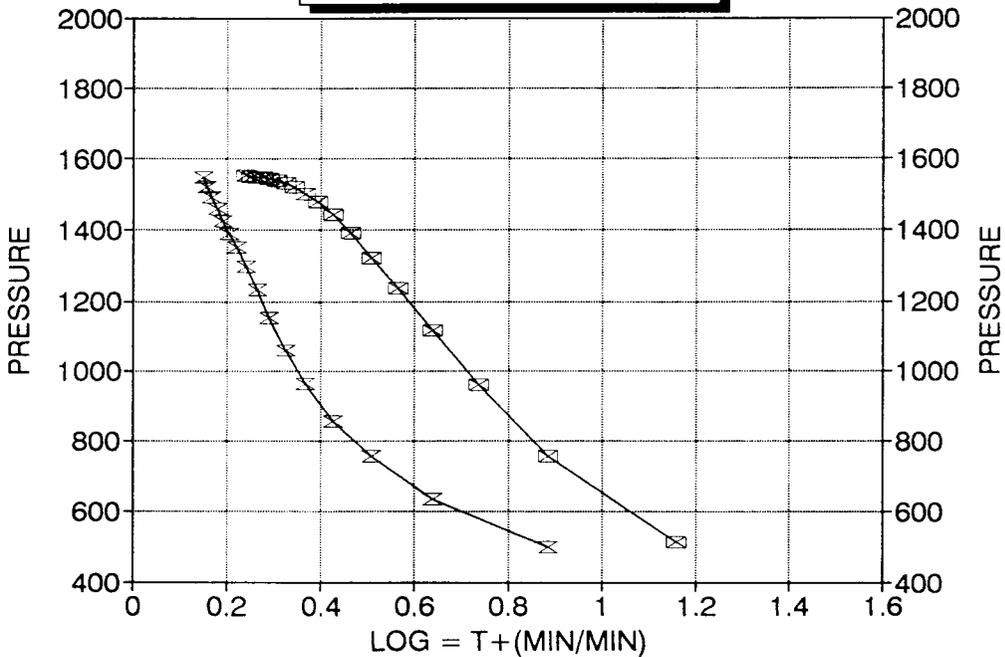
# DELTA T DELTA P

## MARY NATION #3 / DST #1



—x— INITIAL
—□— FINAL

# HORNER PLOT



# GAS VOLUME REPORT

QUINQUE OPERATING CO

MARY NATION #3

DST # 1

MIN	PSIG	ORIFICE	MCF/D	MIN	PSIG	ORIFICE	MCF/D
15	16	0.375	86	5	50	0.5	337
20	21	0.375	104	10	38	0.5	275
				15	32	0.5	243
				20	23	0.5	193
				25	20	0.5	177
				30	18.5	0.5	168
				35	17.5	0.5	162
				40	17	0.5	159
				45	17	0.5	159
				50	16.5	0.5	156
				55	16.5	0.5	156
				60	16.5	0.5	156

Remarks:



WELL NAME \_\_\_\_\_ DST # \_\_\_\_\_ RECORDER # \_\_\_\_\_

INIT. HYD. MUD. \_\_\_\_\_ FINAL HYD. MUD \_\_\_\_\_

INITIAL FLOW MINUTES INTERVAL	INITIAL SHUTIN MINUTES INTERVAL		FINAL FLOW MINUTES INTERVAL	FINAL SHUTIN MINUTES INTERVAL
.278	281.4	1	.145	167
	.493	2	.156	.508
	499	3	.154	514
	.626	4	.152	.747
	.746	5	.152	.946
	.843	6	.152	1.102
	.949	7	.152	1.220
	1.042	8	.156	1.306
.203	205.5	9	.162	1.373
	1.138	10	.168	1.426
	1.218	11	.172	1.462
	1.280	12	.175	1.484
	1.334	13	.175	1.502
	1.370	14	.175	1.513
	1.408	15	.175	1.520
	1.441	16	.175	1.525
	1.475	17	.175	1.528
	1.502	18		1.530
	1.529	19		1.532
	1548	20	.175	1.534
		21		1553
		22		
		23		
		24		
		25		
		26		
		27		

# TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

## Drill-Stem Test Data

Well Name MARY NATION #3 Test No. 2 Date 11/27/94  
Company QUINQUE OPERATING CO Zone LOW CHESTER  
Address PO BOX 2738 LIBERAL KS Elevation 2935  
Co. Rep./Geo. BOB POSEY Cont. BEREDCO #2 Est. Ft. of Pay 5  
Location: Sec. 34 Twp. 30S Rge. 33W Co. HASKELL State KS

Interval Tested 5424-5480 Drill Pipe Size 4.5" XH  
Anchor Length 56 Wt. Pipe I.D. - 2.7 Ft. Run \_\_\_\_\_  
Top Packer Depth 5419 Drill Collar - 2.25 Ft. Run 610  
Bottom Packer Depth 5424 Mud Wt. 9.0 lb/Gal.  
Total Depth 5480 Viscosity 56 Filtrate 9.6

Tool Open @ 8:35PM Initial Blow GAS TO SURFACE IN 2 MINUTES. (4588 MCF)  
0

Final Blow TOO DANGEROUS TO CATCH. OIL TO SURFACE IN 5 MINUTES.

Recovery - Total Feet 620 Flush Tool? NO

Rec. 620 Feet of HEAVY GAS CUT OIL. 50% GAS, 50% OIL.

Rec. \_\_\_\_\_ Feet of \_\_\_\_\_

BHT 130 °F Gravity 33 °API @ 70 °F Corrected Gravity 32 °API

RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm Recovery Chlorides 2900 ppm System

(A) Initial Hydrostatic Mud 2814.3 PSI AK1 Recorder No. 10333 Range 4050

(B) First Initial Flow Pressure 905.5 PSI @ (depth) 5427 w / Clock No. 26192

(C) First Final Flow Pressure 905.5 PSI AK1 Recorder No. 13255 Range 6300

(D) Initial Shut-in Pressure 1478.5 PSI @ (depth) 5477 w / Clock No. 16067

(E) Second Initial Flow Pressure 899.4 PSI AK1 Recorder No. \_\_\_\_\_ Range \_\_\_\_\_

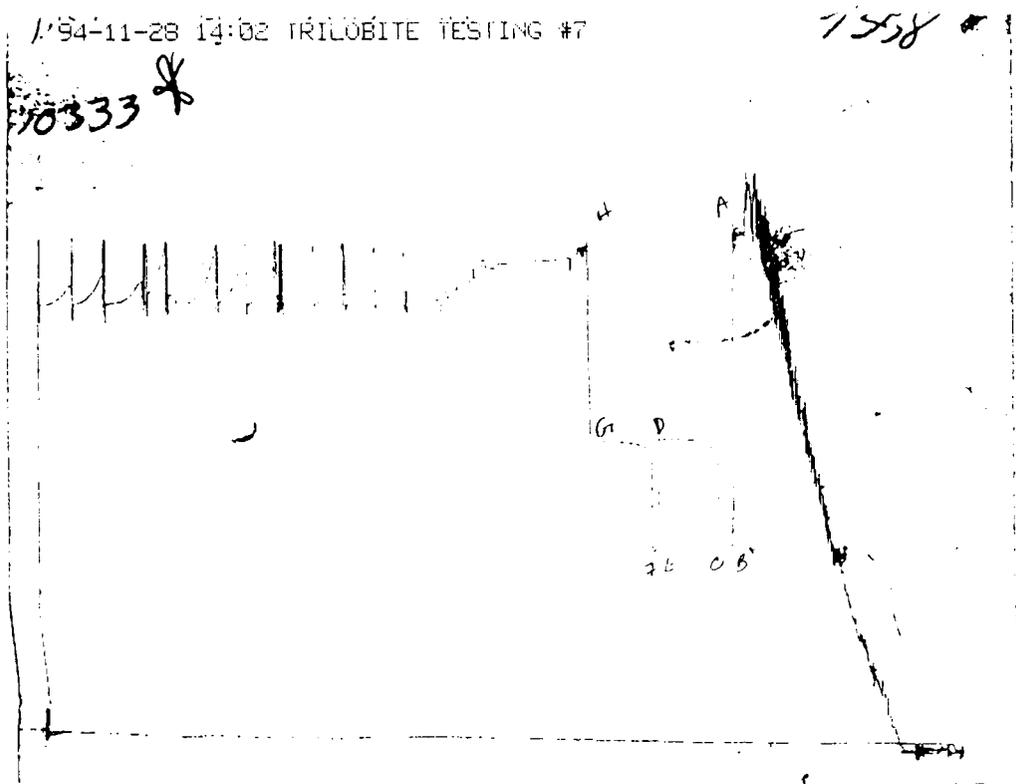
(F) Second Final Flow Pressure 899.4 PSI @ (depth) \_\_\_\_\_ w / Clock No. \_\_\_\_\_

(G) Final Shut-in Pressure 1467.5 PSI Initial Opening 15 Final Flow 5

(H) Final Hydrostatic Mud 2493.1 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative ROBERT COLLINS

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2640	2814
(B) FIRST INITIAL FLOW PRESSURE	914	905.5
(C) FIRST FINAL FLOW PRESSURE	914	905.5
(D) INITIAL CLOSED-IN PRESSURE	1477	1479
(E) SECOND INITIAL FLOW PRESSURE	945	899.4
(F) SECOND FINAL FLOW PRESSURE	894	899.4
(G) FINAL CLOSED-IN PRESSURE	1467	1468
(H) FINAL HYDROSTATIC MUD	2518	2493

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

QUINQUE OPERATING CO

MARY NATION #3

DST 2

34 30S 33W

HASKELL KS

\*\*\*\*\*  
ELEVATION: 2935 KB EST. PAY: 5 FT.  
DATUM: -2493 ZONE TESTED: LOW CHESTER  
TEST INTERVAL: 5424-5480 TIME INTERVALS: 15-45-5-45  
RECORDER DEPTH: 5427 VISCOSITY: 0.01497 CP  
BOTTOM HOLE TEMP: 130 HOLE SIZE: 7.875 IN  
COMPRESSIBILITY: 0.9979 GAS GRAVITY: 0.7502  
\*\*\*\*\*

TEMPERATURE RANKINE: 590.00 &  
TRANSMISSIBILITY: 129651.81 Kh/%  
THEORITICAL FLOW CAPICITY: 1941.40 Kh  
AVERAGE EFFECTIVE PERMEABILITY: 388.28 K(md.)  
RADIUS OF INVESTIGATION: 88.12 FT.  
DAMAGE RATIO: 4.20  
ABSOLUTE OPEN FLOW(MAX) 4588.84 MCFD  
ABSOLUTE OPEN FLOW(MIN) 4588.42 MCFD  
THEORITICAL OPEN FLOW(MAX) 19286.33 MCFD  
THEORITICAL OPEN FLOW(MIN) 19284.57 MCFD  
POTENTIOMETRIC SURFACE 794.01 (FT.)  
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INITIAL SHUT-IN VALUES:  
SLOPE 34106.1  
THEORETICAL STATIC PRESSURE 1490.0

FINAL SHUT-IN VALUES:  
SLOPE 34106.1  
THEORETICAL STATIC PRESSURE 1480.9

DRAWDOWN FACTOR: 0.62 (%)

INITIAL FLOW

DST # 2  
RECORDER 10333

TIME(MIN)	PRESSURE	<> PRESSURE
0	905.5	905.5
3	905.5	0.0
6	905.5	0.0
9	905.5	0.0
12	905.5	0.0

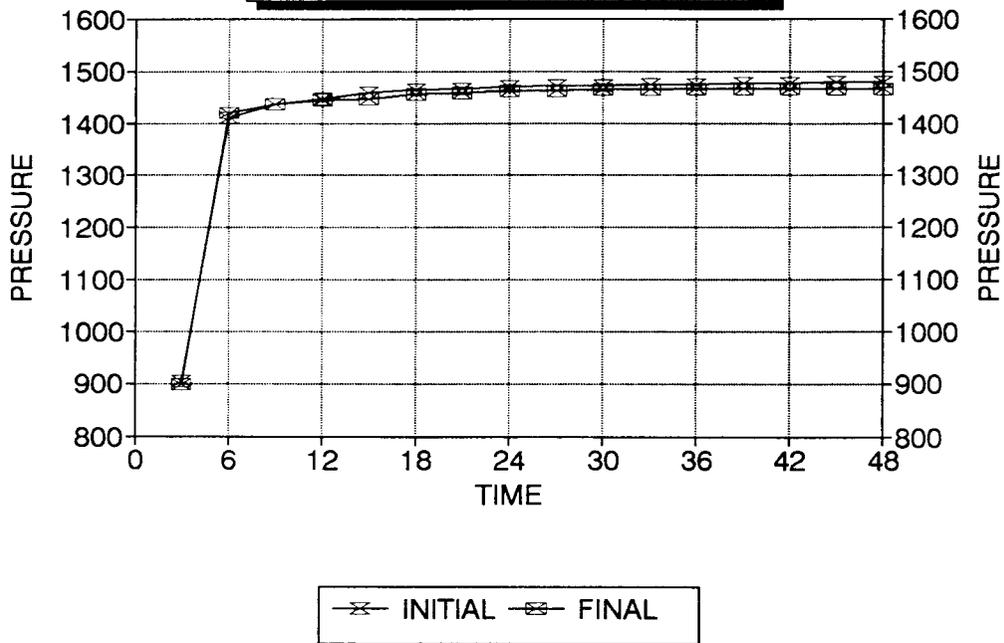
FINAL FLOW

DST # 2  
RECORDER 10332

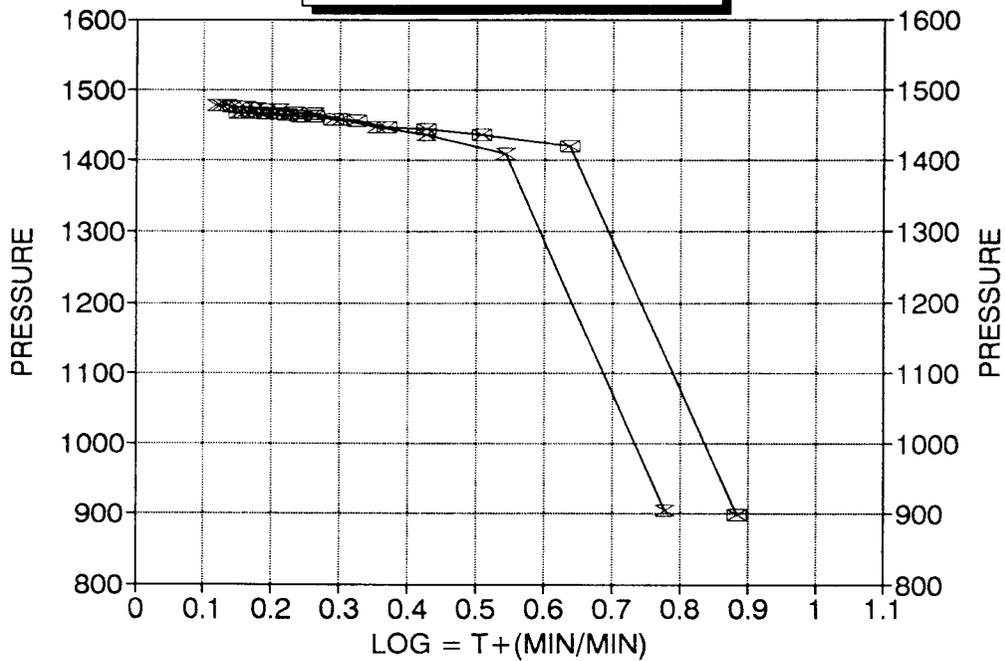
TIME(MIN)	PRESSURE	<> PRESSURE
0	899.4	899.4
3	899.4	0.0

# DELTA T DELTA P

## MARY NATION #3 / DST #2



# HORNER PLOT



INITIAL SHUT-IN

MARY NATION #3

DST # 2

INITIAL FLOW TIME 15

-----  
 SLOPE 34106.1 PSI/CYCLE  
 P\* 1490.02 PSI  
 -----

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	-----	-----	-----	-----	-----
	3	905.5	0.778	905.5	6
	6	1409.8	0.544	504.3	4
	9	1436.5	0.426	26.7	3
	12	1447.8	0.352	11.3	2
	15	1458.0	0.301	10.3	2
	18	1465.2	0.263	7.2	2
X	21	1467.3	0.234	2.1	2
	24	1471.4	0.211	4.1	2
	27	1472.4	0.192	1.0	2
	30	1473.4	0.176	1.0	2
	33	1474.4	0.163	1.0	1
	36	1475.5	0.151	1.0	1
	39	1476.5	0.141	1.0	1
	42	1477.5	0.133	1.0	1
	45	1478.5	0.125	1.0	1
X	48	1478.5	0.118	0.0	1

FINAL SHUT-IN

MARY NATION #3

DST # 2

TOTAL FLOW TIME 20

-----  
 SLOPE 34106.1 PSI/CYCLE  
 P\* 1480.85 PSI  
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	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	-----	-----	-----	-----	-----
	3	899.4	0.885	899.4	8
	6	1420.1	0.637	520.7	4
	9	1437.5	0.508	17.4	3
	12	1444.7	0.426	7.2	3
X	15	1447.8	0.368	3.1	2
	18	1457.0	0.325	9.2	2
	21	1459.0	0.291	2.0	2
	24	1462.1	0.263	3.1	2
	27	1463.1	0.241	1.0	2
	30	1464.2	0.222	1.0	2
	33	1465.2	0.206	1.0	2
	36	1466.2	0.192	1.0	2
	39	1467.3	0.180	1.0	2
	42	1467.3	0.169	0.0	1
	45	1467.3	0.160	0.0	1
X	48	1467.3	0.151	0.0	1

# GAS VOLUME REPORT

QUINQUE OPERATING CO

MARY NATION #3

DST # 2

MIN	<del>IN-WATER</del> /PSIG	ORIFICE	MCF/D	MIN	IN WATER/PSIG	ORIFICE	MCF/D
5	46	1.5	3,513				
10	58	1.5	4,289				
15	64	1.5	4,588				

Remarks: GAS TO SURFACE IN 2 MINUTES - GAS WILL BURN.

