KCC

FEB 28 1994

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Computer Inverted

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

API#15-093-21295

Well Name CRIST 11-1 TWIN Test No. 1 Date 10/11/93

Company NORTH AMERICAN RESOURCES COMPANY Zone MORROW

Address 16 E GRANITE BUTTE MT 59701 Elevation 3108 KB

Co. Rep./Geo. WES HANSEN Cont. CHIEF DRLG CO RIG #1 Est. Ft. of Pay 4

Location: Sec. [redacted] Twp. 21S Rge. 35W Co. KEARNY State KS

Interval Tested 4835-4935 Drill Pipe Size 4.5" XH

Anchor Length 100 Wt. Pipe I.D. - 2.7 Ft. Run

Top Packer Depth 4830-4835 Drill Collar – 2.25 Ft. Run

Bottom Packer Depth 4935 Mud Wt. 9.4 lb/Gal.

Total Depth 5010 Viscosity 43 Filtrate 9.6

Tool Open @ 6:24 PM Initial Blow WEAK BLOW BUILDING TO 4"

ISI: BLED OFF BLOW-NO RETURN

Final Blow WEAK BLOW BUILDING TO 8"

FSI: BLED OFF BLOW - NO RETURN

Recovery - Total Feet 190 Flush Tool? NO

Rec. 190 Feet of SLIGHTLY OIL CUT MUD-5% OIL/ 95% MUD

Rec. Feet of

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 118 °F Gravity °API @ °F Corrected Gravity 30 °API

RW 0.7 @ 78 °F Chlorides 8000 ppm Recovery Chlorides 7000 ppm System

(A) Initial Hydrostatic Mud 2550.1 PSI AK1 Recorder No. 13277 Range 4125

(B) First Initial Flow Pressure 126.5 PSI @ (depth) 4839 w / Clock No. 25828

(C) First Final Flow Pressure 129.2 PSI AK1 Recorder No. 10332 Range 4050

(D) Initial Shut-in Pressure 815.4 PSI @ (depth) 4928 w / Clock No. 14389

(E) Second Initial Flow Pressure 160.0 PSI AK1 Recorder No. 2023 Range 4000

(F) Second Final Flow Pressure 159.1 PSI @ (depth) 5007 w / Clock No. 7452

(G) Final Shut-in Pressure 700.9 PSI Initial Opening 5 Final Flow 60

(H) Final Hydrostatic Mud 2460.3 PSI Initial Shut-in 60 Final Shut-in 120

Our Representative PETE WAGGONER

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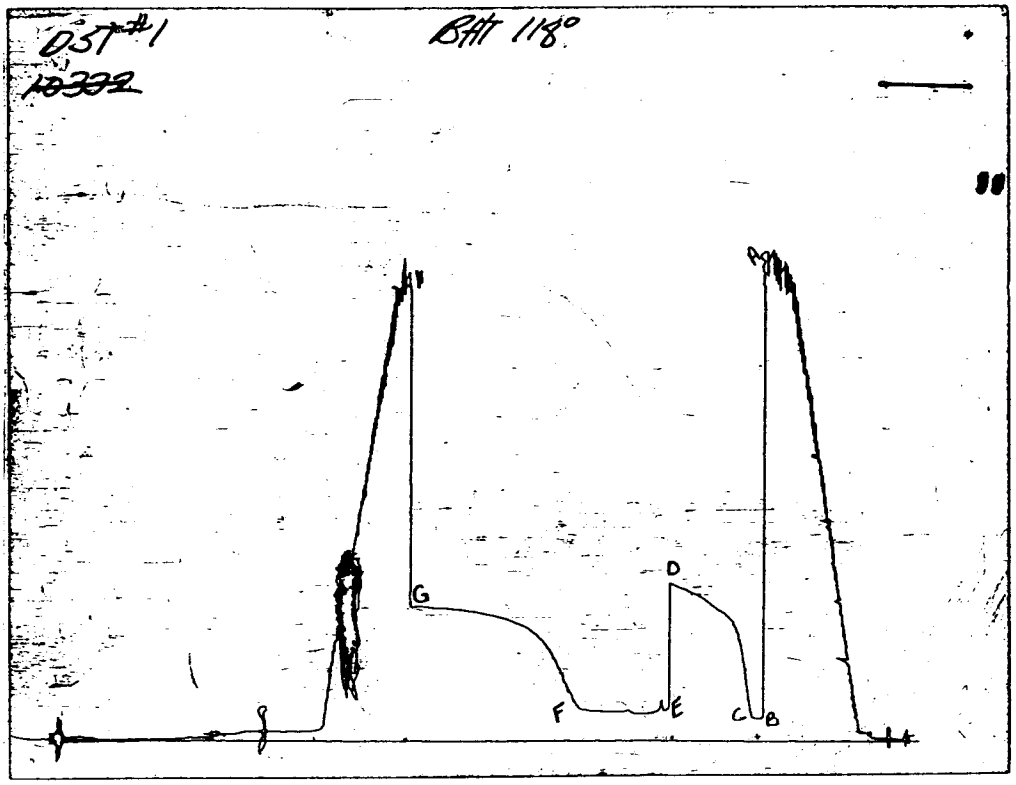
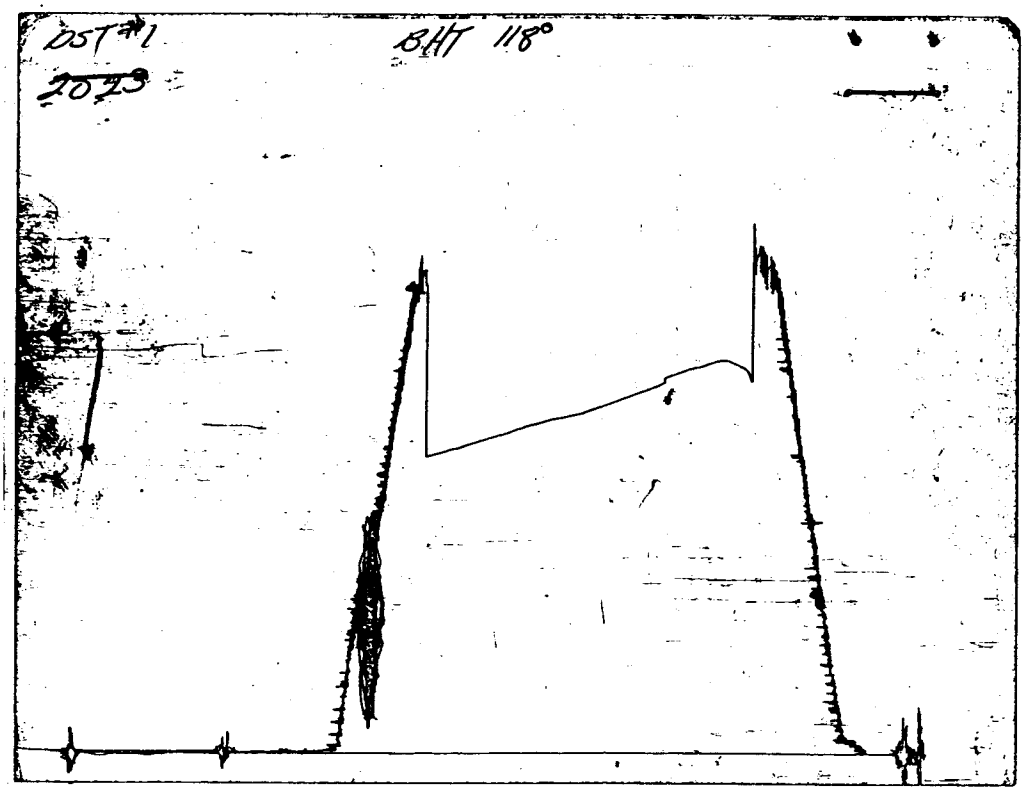
CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2548	2550.1
(B) FIRST INITIAL FLOW PRESSURE	101	126.5
(C) FIRST FINAL FLOW PRESSURE	101	129.2
(D) INITIAL CLOSED-IN PRESSURE	810	815.4
(E) SECOND INITIAL FLOW PRESSURE	151	160
(F) SECOND FINAL FLOW PRESSURE	151	159.1
(G) FINAL CLOSED-IN PRESSURE	699	700.9
(H) FINAL HYDROSTATIC MUD	2468	2460.3

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD		
(B) FIRST INITIAL FLOW PRESSURE		
(C) FIRST FINAL FLOW PRESSURE		
(D) INITIAL CLOSED-IN PRESSURE		
(E) SECOND INITIAL FLOW PRESSURE		
(F) SECOND FINAL FLOW PRESSURE		
(G) FINAL CLOSED-IN PRESSURE		
(H) FINAL HYDROSTATIC MUD		

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

NORTH AMERICAN RESOURCES COMPANY

CRIST 11-1 TWIN DST 1

35 21S 35W KEARNY KS

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ELEVATION:	3108	KB	EST. PAY	4	FT
DATUM:	-1821		ZONE TESTED:	MORROW	
TEST INTERVAL:	4835-4935		TIME INTERVALS:	5-60-60-120	
RECORDER DEPTH:	4928		VISCOSITY:	16.11	CP
BOTTOM HOLE TEMP:	118		HOLE SIZE:	7.875	IN

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CUBIC FEET OF GAS IN PIPE:	0			
TOTAL FEET OF RECOVERY:	190.00	CORRECTED PIPE FILLUP:	419.789	
TOTAL BARRELS OF RECOVERY:	2.70	CORR. BARRELS OF RECOVERY:	5.958	BBL
BARRELS IN DRILL PIPE:	2.70	API GRAVITY:	30	
BARRELS IN WEIGHT PIPE:	0.00	FLUID GRADIENT:	0.379	
BARRELS IN DRILL COLLARS:	0.00			
GAS OIL RATIO:	0.15	CU.FT/BBL		
BUBBLE POINT PRESSURE:	2			
UNCORRECTED INITIAL PRODUCTION:			59.86	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			132.00	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			27.187	

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INITIAL SLOPE	4870.71	PSI/CYCL	FINAL SLOPE	1081.97	PSI/CYCLE
INITIAL P*	980.49	PSI	FINAL P*	900.00	PSI

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TRANSMISSIBILITY	19.84	(MD.-FT./CP.)
PERMEABILITY	79.89	(MD.)
INDICATED FLOW CAPACITY	319.55	(MD.FT)
PRODUCTIVITY INDEX	0.02	(BARREL/DAY/PSI)
DAMAGE RATIO	0.13	
RADIUS OF INVESTIGATION	72.06	(FT,)
POTENTIOMETRIC SURFACE	267.10	(FT.)
DRAWDOWN FACTOR	8.209	(%)
THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE	0.00	
THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE	0.00	

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FLUID SAMPLER DATA

Ticket No.: 6310 **Date:** 10/11/93

Company: NORTH AMERICAN RESOURCES COMPANY

Lease: CRIST 11-1 TWIN **Test No.:** 1

County: KEARNY **Sec.:** 35 **Twp.:** 21S **Rng.:** 35W

SAMPLER RECOVERY

Gas		ML
Oil	500	
Mud	2500	
Water	1000	
Other		
Pressure	225	
TOTAL	4000	

SAMPLER ANALYSIS

Resistivity 0.7 ohms@ 78 F

Chlorides 8000 ppm.

Gravity corrected @60F

PIT MUD ANALYSIS

Chlorides 7000

Resistivity 1 ohms@ 60 F

Viscosity 43

Mud Wt. 9.4

Filtrate 9.6

Other

PIPE RECOVERY

TOP

Resistivity ohms@ F

Chlorides ppm

MIDDLE

Resistivity ohms@ F

Chlorides ppm

BOTTOM

Resistivity ohms@ F

Chlorides ppm

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INITIAL FLOW

RECORDER 10332 DST # 1

TIME(MIN)	PRESSURE	<> PRESSURE
1.8	126.5	126.5
3.5	128.3	1.8
7.8	129.2	0.9

FINAL FLOW

RECORDER 10332 DST # 1

TIME(MIN)	PRESSURE	<> PRESSURE
3.4	160.0	160.0
7.6	165.4	5.4
13.4	147.5	-17.9
19.9	141.0	-6.5
24.9	139.4	-1.6
31	148.0	8.6
37.7	144.3	-3.7
43.8	145.6	1.3
49.5	150.0	4.4
54.9	154.8	4.8
60.5	157.0	2.2
64.6	159.1	2.1

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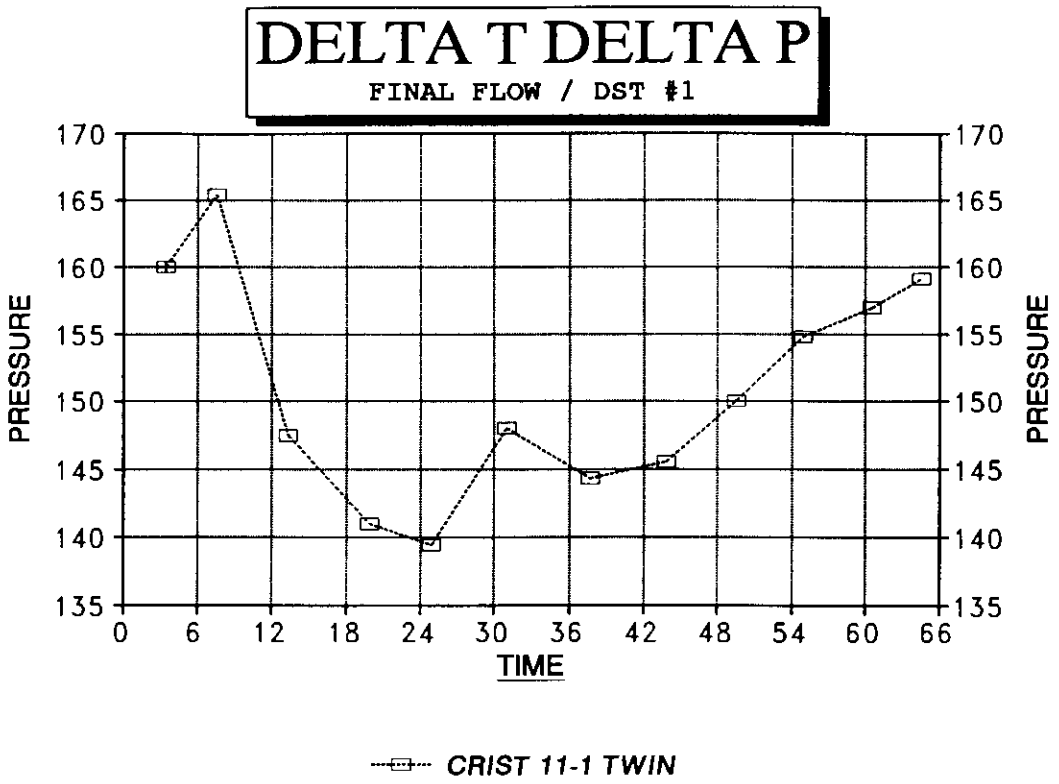

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE: 27.187

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CRIST 11-1 TWIN DST #1
INITIAL SHUTIN

5 INITIAL FLOW TIME

SLOPE 4870.7 PSI/CYCLE
P* 980.49 PSI

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	12.3	476.2	0.148	476.2	1
	17.7	610.5	0.108	134.3	1
	24.3	660.8	0.081	50.3	1
	29.1	685.9	0.069	25.1	1
	36.1	723.1	0.056	37.2	1
	41.9	752.9	0.049	29.8	1
X	47.6	769.2	0.043	16.3	1
	54.1	788.0	0.038	18.8	1
	59.3	802.8	0.035	14.8	1
X	61.6	815.4	0.034	12.6	1

CRIST 11-1 TWIN DST #1
FINAL SHUTIN

65 TOTAL FLOW TIME

SLOPE 1082.0 PSI/CYCLE
P* 900.0 PSI

		Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	7.2	185.1	1.001	185.1	10
	13.3	264.6	0.770	79.5	6
	20.6	373.2	0.619	108.6	4
	27.3	474.3	0.529	101.1	3
	32.8	517.1	0.474	42.8	3
	38.6	560.6	0.429	43.5	3
	45.7	587.9	0.384	27.3	2
	51.6	604.8	0.354	16.9	2
	57.6	622.3	0.328	17.5	2
	63	631.2	0.308	8.9	2
	69.6	647.6	0.286	16.4	2
	74.3	650.6	0.273	3.0	2
	80.4	664.2	0.257	13.6	2
	86.4	670.2	0.244	6.0	2
	93.1	673.8	0.230	3.6	2
	99.1	677.6	0.219	3.8	2
	103.7	678.7	0.211	1.1	2
X	109.8	681.5	0.202	2.8	2
	115	690.6	0.195	9.1	2
	121	696.2	0.187	5.6	2
X	123.2	700.9	0.184	4.7	2

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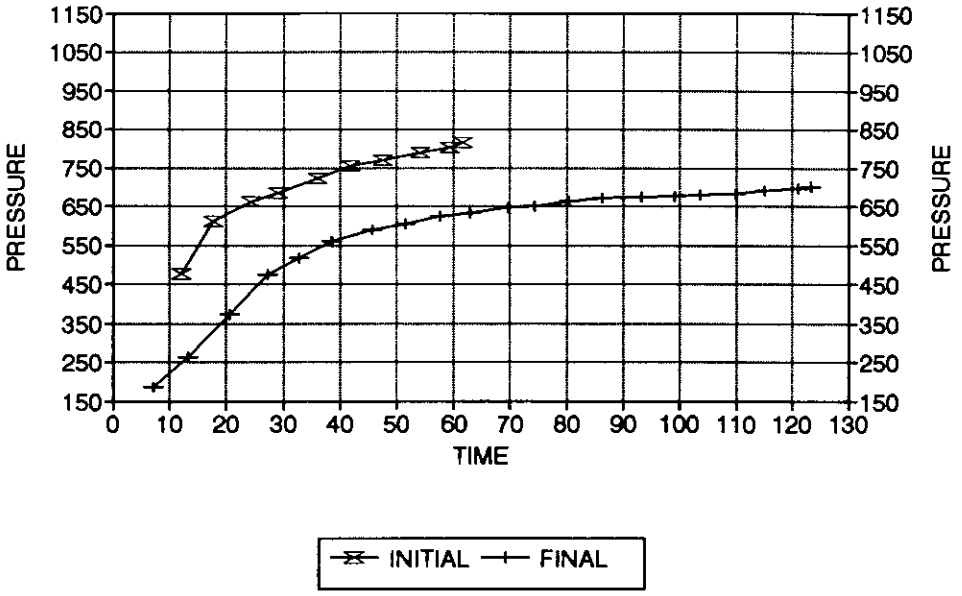
CRIST 11-1 TWIN / DST #1
DELTA T DELTA P



HORNER PLOT