TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KOEHN #1-3 Test No. 1 Date 2/12/95

Company ENSIGN OPERATING COMPANY Zone MORROW

Address 621 17TH STREET, SUITE 1800, DENVER, CO 80293 Elevation 2770

Co. Rep./Geo. DUANE MOREDOCK Cont. DUKE #6 Est. Ft. of Pay

Location: Sec. 3 Twp. 32S Rge. 30W Co. MEADE State KS

Interval Tested 5562-5703 Drill Pipe Size 4.5" XH

Anchor Length 141 Wt. Pipe I.D. - 2.7 Ft. Run

Top Packer Depth 5557 Drill Collar – 2.25 Ft. Run 620

Bottom Packer Depth 5562 Mud Wt. 9 lb/Gal.

Total Depth 5703 Viscosity 53 Filtrate 8.8

Tool Open @ 12:07PM Initial Blow SURFACE BLOW - STEADY THROUGHOUT, NO BUILD.

INITIAL SHUT IN: NO RETURN BLOW.

Final Blow SURFACE BLOW - STEADY THROUGHOUT, NO BUILD.

FINAL SHUT IN - NO RETURN BLOW.

Recovery - Total Feet 15 Flush Tool? NO

Rec. 15 Feet of DRILLING MUD. 100% MUD.

Rec. Feet of

Rec. Feet of

Rec. Feet of

Rec. Feet of

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

RW @ °F Chlorides ppm Recovery Chlorides ppm System

(A) Initial Hydrostatic Mud 2668.22 PSI AK1 Recorder No. 11057 Range 4500

(B) First Initial Flow Pressure 26.60 PSI @ (depth) 5569 w / Clock No. 22347

(C) First Final Flow Pressure 45.98 PSI AK1 Recorder No. 11058 Range 4500

(D) Initial Shut-in Pressure 84.00 PSI @ (depth) 5698 w / Clock No. 21048

(E) Second Initial Flow Pressure 29.87 PSI AK1 Recorder No. ELECTRONIC Range

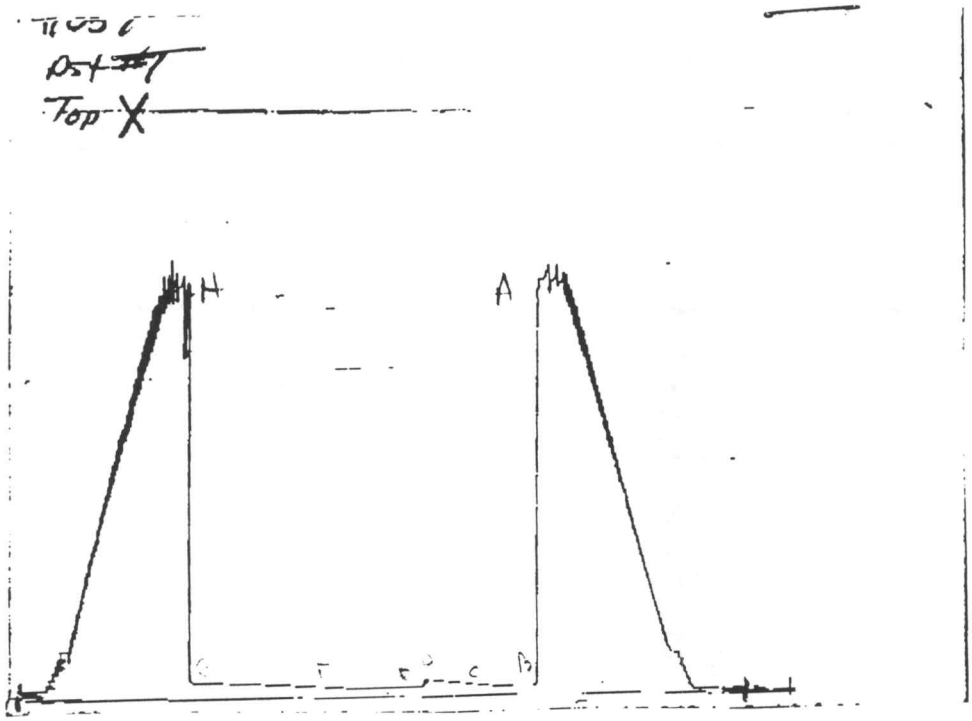
(F) Second Final Flow Pressure 41.79 PSI @ (depth) 5562 w / Clock No.

(G) Final Shut-in Pressure 81.74 PSI Initial Opening 30 Final Flow 60

(H) Final Hydrostatic Mud 2602.09 PSI Initial Shut-in 60 Final Shut-in 120

Our Representative SHANE MCBRIDE

CHART PAGE



This is an actual photograph of an AK1 recorder chart

READINGS ARE FROM ALPINE ELECTRONIC RECORDER

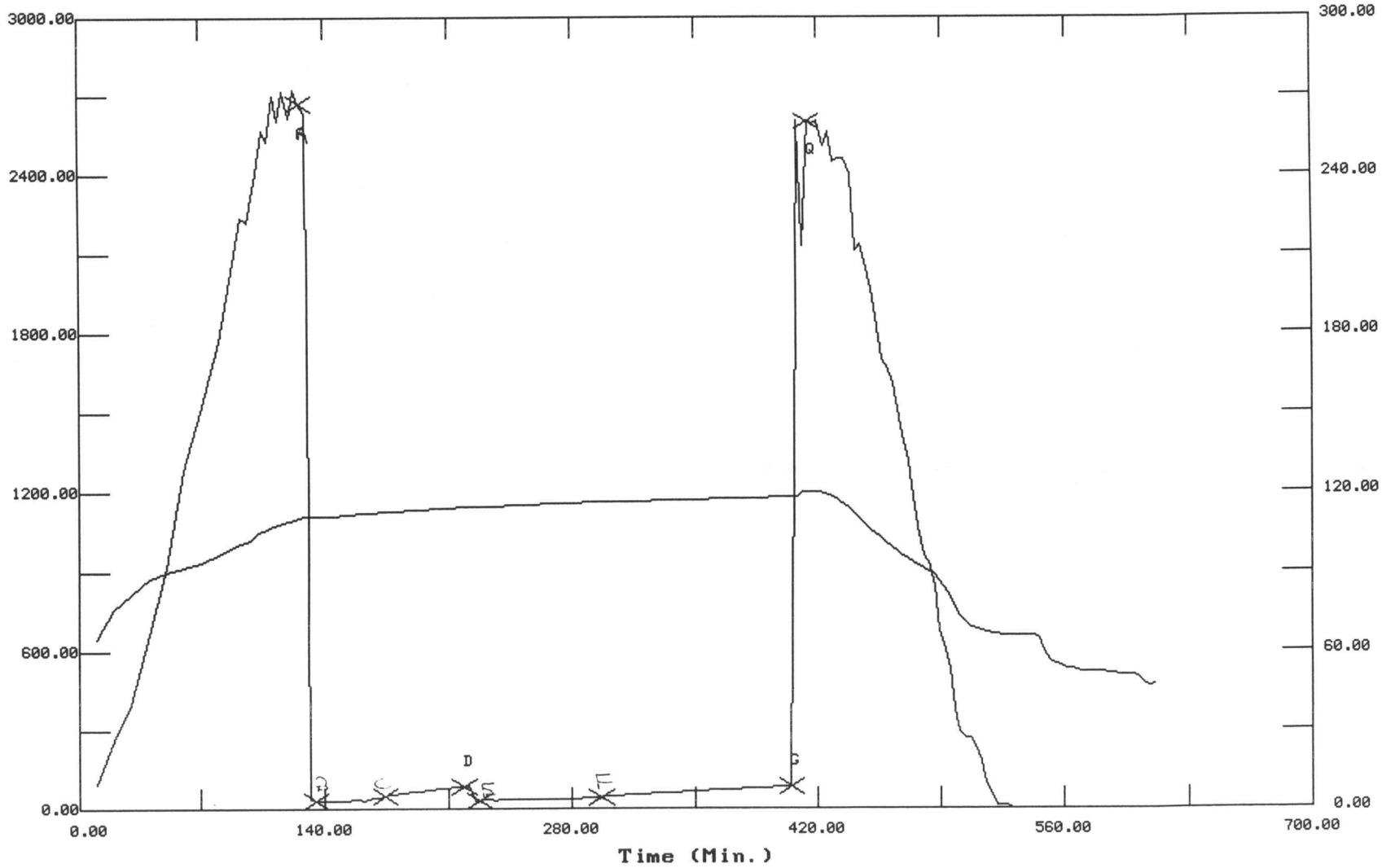
	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD		2668.22
(B) FIRST INITIAL FLOW PRESSURE		26.60
(C) FIRST FINAL FLOW PRESSURE		45.98
(D) INITIAL CLOSED-IN PRESSURE		84.00
(E) SECOND INITIAL FLOW PRESSURE		29.87
(F) SECOND FINAL FLOW PRESSURE		41.79
(G) FINAL CLOSED-IN PRESSURE		81.74
(H) FINAL HYDROSTATIC MUD		2602.09

TEST HISTORY

Ensign Operating Co #1-3 Koehn DST #1

Flag Points

	t(Min.)	P(PSIg)
A:	0.00	2668.22
B:	0.00	26.60
C:	39.00	45.98
D:	45.00	84.00
E:	0.00	29.87
F:	69.00	41.79
G:	108.00	81.74
Q:	0.00	2602.09



ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Ensign Operating Co #1-3 Koehn DST #1

DATE: 02/12/95 TIME: 09:48:29

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
****** Initial Hydro.	126.00	2668.2	0.0	110.12		
****** Start Flow 1	0.00	26.6	0.0	110.84		
	3.00	26.9	0.3	110.84		
	6.00	29.5	2.9	110.84		
	9.00	29.9	3.3	111.02		
	12.00	30.2	3.6	111.20		
	15.00	29.4	2.8	111.38		
	18.00	30.5	3.9	111.56		
	21.00	30.7	4.1	111.74		
	24.00	31.2	4.6	111.92		
	27.00	30.5	3.9	112.10		
	30.00	34.2	7.6	112.28		
	33.00	38.8	12.2	112.28		
	36.00	42.5	15.9	112.46		
****** End Flow 1	39.00	46.0	19.4	112.64		
****** Start Shutin 1	0.00	46.0	0.0	112.64	0.0000	0.002
	3.00	49.3	3.3	112.82	14.0000	0.002
	6.00	52.4	6.5	113.00	7.5000	0.003
	9.00	55.5	9.5	113.00	5.3333	0.003
	12.00	58.2	12.3	113.18	4.2500	0.003
	15.00	60.9	14.9	113.36	3.6000	0.004
	18.00	63.5	17.5	113.36	3.1667	0.004
	21.00	66.1	20.1	113.54	2.8571	0.004
	24.00	68.6	22.7	113.54	2.6250	0.005
	27.00	71.0	25.0	113.72	2.4444	0.005
	30.00	73.3	27.3	113.90	2.3000	0.005
	33.00	75.5	29.5	113.90	2.1818	0.006
	36.00	77.6	31.6	114.08	2.0833	0.006
	39.00	79.9	33.9	114.08	2.0000	0.006
	42.00	82.0	36.0	114.26	1.9286	0.007
****** End Shut-in 1	45.00	84.0	38.0	114.26	1.8667	0.007
****** Start Flow 2	0.00	29.9	0.0	114.44		
	3.00	32.0	2.1	114.62		
	6.00	31.4	1.5	114.62		
	9.00	30.3	0.4	114.80		
	12.00	31.0	1.1	114.80		
	15.00	31.0	1.2	114.98		
	18.00	31.3	1.4	114.98		
	21.00	31.2	1.3	115.16		
	24.00	31.4	1.5	115.16		
	27.00	31.7	1.8	115.16		
	30.00	32.6	2.8	115.34		
	33.00	32.4	2.5	115.34		
	36.00	31.7	1.8	115.52		
	39.00	32.1	2.3	115.52		
	42.00	32.5	2.6	115.52		
	45.00	32.9	3.0	115.70		
	48.00	33.1	3.3	115.70		
	51.00	33.4	3.5	115.70		
	54.00	33.6	3.7	115.88		
	57.00	34.9	5.0	115.88		

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Ensign Operating Co #1-3 Koehn DST #1

DATE: 02/12/95 TIME: 09:48:29

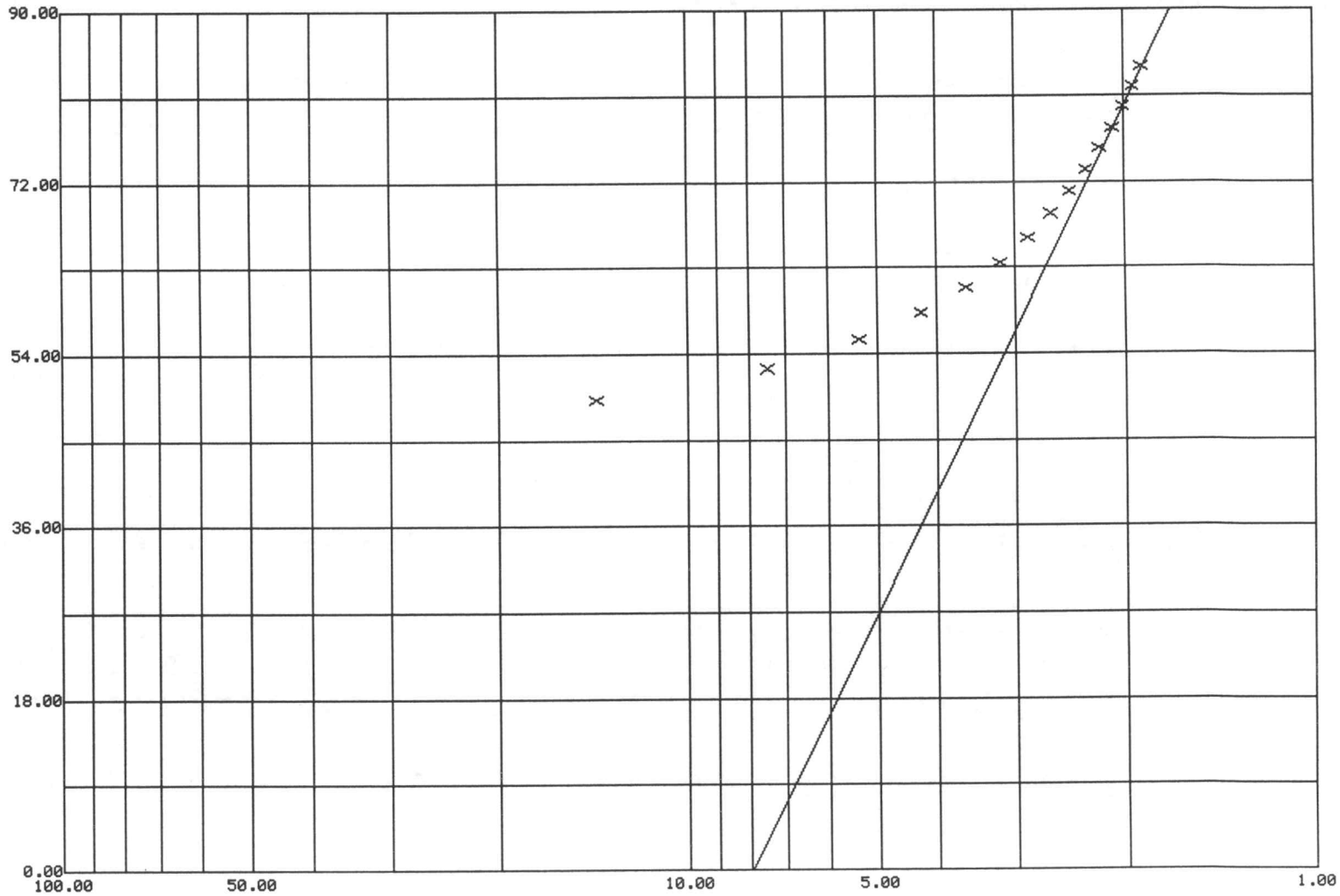
	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
	60.00	37.1	7.2	116.06		
	63.00	38.7	8.8	116.06		
	66.00	40.3	10.4	116.06		
****** End Flow 2	69.00	41.8	11.9	116.24		
****** Start Shutin 2	0.00	41.8	0.0	116.24	0.0000	0.002
	3.00	43.3	1.5	116.24	37.0000	0.002
	6.00	44.8	3.0	116.24	19.0000	0.002
	9.00	46.2	4.4	116.24	13.0000	0.002
	12.00	47.5	5.7	116.42	10.0000	0.002
	15.00	48.8	7.0	116.42	8.2000	0.002
	18.00	50.1	8.3	116.42	7.0000	0.003
	21.00	51.4	9.6	116.60	6.1429	0.003
	24.00	52.5	10.7	116.60	5.5000	0.003
	27.00	53.7	11.9	116.60	5.0000	0.003
	30.00	54.9	13.1	116.78	4.6000	0.003
	33.00	56.0	14.2	116.78	4.2727	0.003
	36.00	57.1	15.4	116.78	4.0000	0.003
	39.00	58.3	16.5	116.78	3.7692	0.003
	42.00	59.5	17.7	116.96	3.5714	0.004
	45.00	60.6	18.8	116.96	3.4000	0.004
	48.00	61.8	20.0	116.96	3.2500	0.004
	51.00	62.9	21.1	117.14	3.1176	0.004
	54.00	63.9	22.1	117.14	3.0000	0.004
	57.00	65.0	23.2	117.14	2.8947	0.004
	60.00	66.0	24.3	117.14	2.8000	0.004
	63.00	67.0	25.3	117.32	2.7143	0.004
	66.00	68.1	26.3	117.32	2.6364	0.005
	69.00	69.1	27.4	117.32	2.5652	0.005
	72.00	70.2	28.4	117.32	2.5000	0.005
	75.00	71.2	29.4	117.50	2.4400	0.005
	78.00	72.1	30.3	117.50	2.3846	0.005
	81.00	73.2	31.4	117.50	2.3333	0.005
	84.00	74.1	32.3	117.68	2.2857	0.005
	87.00	75.1	33.3	117.68	2.2414	0.006
	90.00	76.0	34.2	117.68	2.2000	0.006
	93.00	77.0	35.2	117.68	2.1613	0.006
	96.00	78.0	36.2	117.86	2.1250	0.006
	99.00	78.8	37.0	117.86	2.0909	0.006
	102.00	79.8	38.0	117.86	2.0588	0.006
	105.00	80.7	38.9	117.86	2.0286	0.007
****** End Shut-in 2	108.00	81.7	39.9	117.86	2.0000	0.007
****** Final Hydro.	414.00	2602.1	0.0	120.02		

Horner Plot: shut-in #1

Ensign Operating Co #1-3 Koehn DST #1

Slope: 133.5011 PSIg/cycle

Ext. Pressure: 120.1293 PSIg

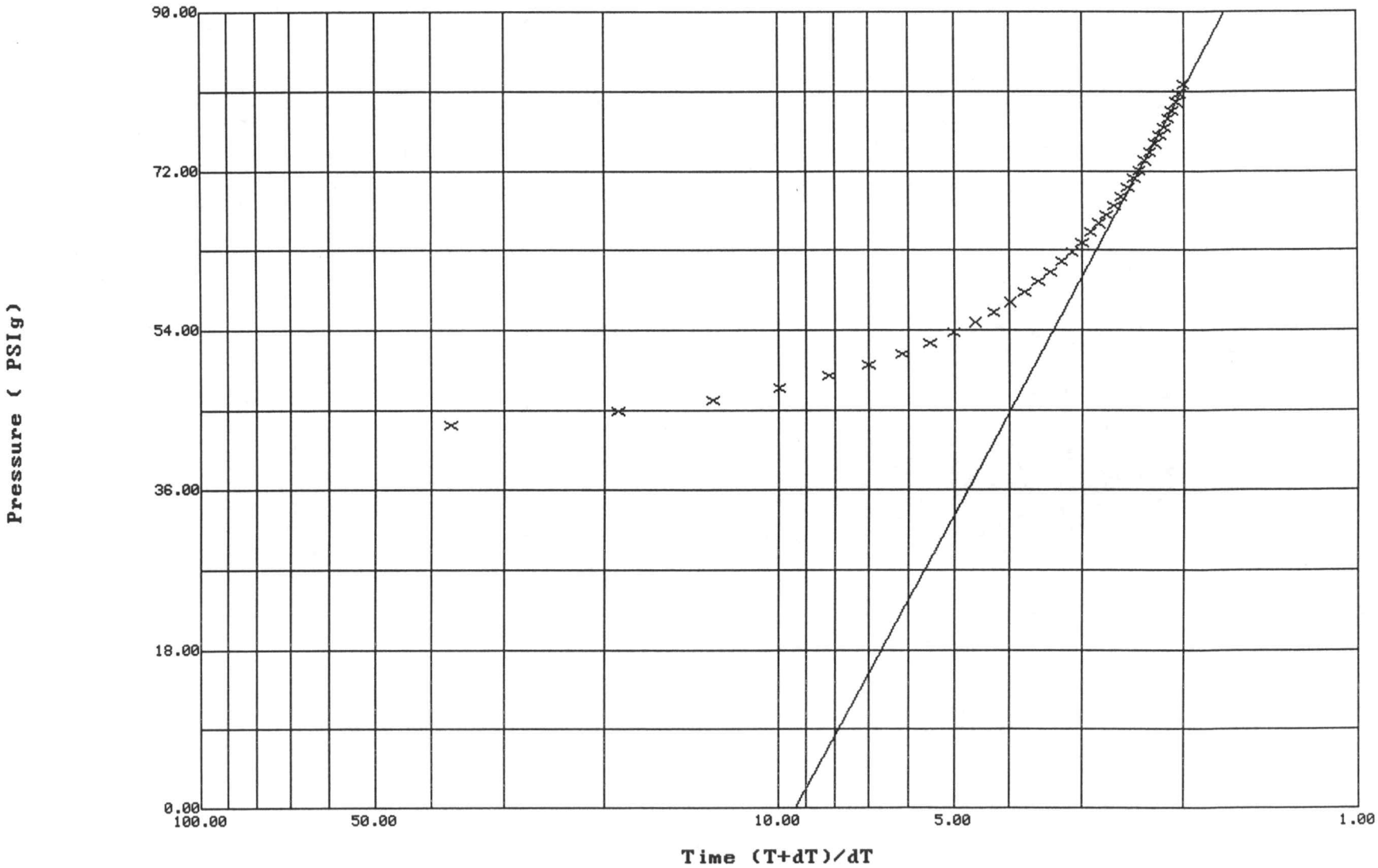


Horner Plot: shut-in #2

Ensign Operating Co #1-3 Koehn DST #1

Slope: 121.9095 PSIg/cycle

Ext. Pressure: 118.0112 PSIg



TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name #1-3 KOEHN Test No. 2 Date 2/16/95

Company ENSIGN OPERATING COMPANY Zone ST. GENEVIEVE

Address 621 17TH STREET, #1800, DENVER, CO 80293 Elevation 2770

Co. Rep./Geo. DUANE MOREDOCK Cont. DUKE #6 Est. Ft. of Pay

Location: Sec. 3 Twp. 32S Rge. 30W Co. MEADE State KS

Interval Tested 5886-5994 Drill Pipe Size 4.5" XH

Anchor Length 108 Wt. Pipe I.D. - 2.7 Ft. Run

Top Packer Depth 5891 Drill Collar – 2.25 Ft. Run

Bottom Packer Depth 5994 Mud Wt. 8.9 lb/Gal.

Total Depth 6150 Viscosity 55 Filtrate 8.6

Tool Open @ 1:46AM Initial Blow SURFAC3E BLOW, BUILT TO 1-1/4 INCHES.

INITIAL SHUT IN: BLED OFF BLOW, NO RETURN BLOW.

Final Blow NO BLOW, FINAL SHUT IN: NO RETURN BLOW.

Recovery - Total Feet 92 Flush Tool? NO

Rec. 92 Feet of HEAVY MUD. 100% MUD.

Rec. Feet of

Rec. Feet of

Rec. Feet of

Rec. Feet of

BHT 124 °F Gravity °API @ °F Corrected Gravity °API

RW @ °F Chlorides ppm Recovery Chlorides ppm System

(A) Initial Hydrostatic Mud 2889.82 PSI AK1 Recorder No. 11086 Range 4350

(B) First Initial Flow Pressure 68.96 PSI @ (depth) 5886 w / Clock No. 25114

(C) First Final Flow Pressure 91.59 PSI AK1 Recorder No. 6730 Range 4200

(D) Initial Shut-in Pressure 1563.30 PSI @ (depth) 5987 w / Clock No. 26119

(E) Second Initial Flow Pressure 226.29 PSI AK1 Recorder No. 10332 Range 4025

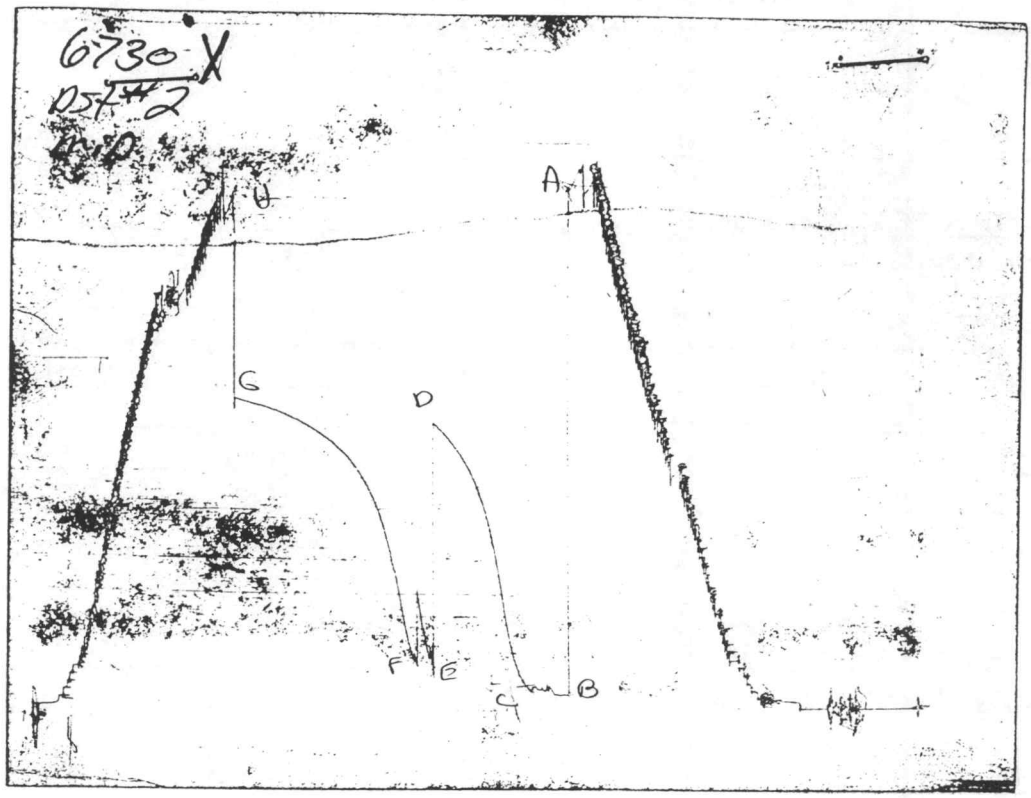
(F) Second Final Flow Pressure 226.29 PSI @ (depth) 6147 w / Clock No. 25828

(G) Final Shut-in Pressure 1691.98 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 2754.57 PSI Initial Shut-in 60 Final Shut-in 120

Our Representative SHANE MCBRIDE

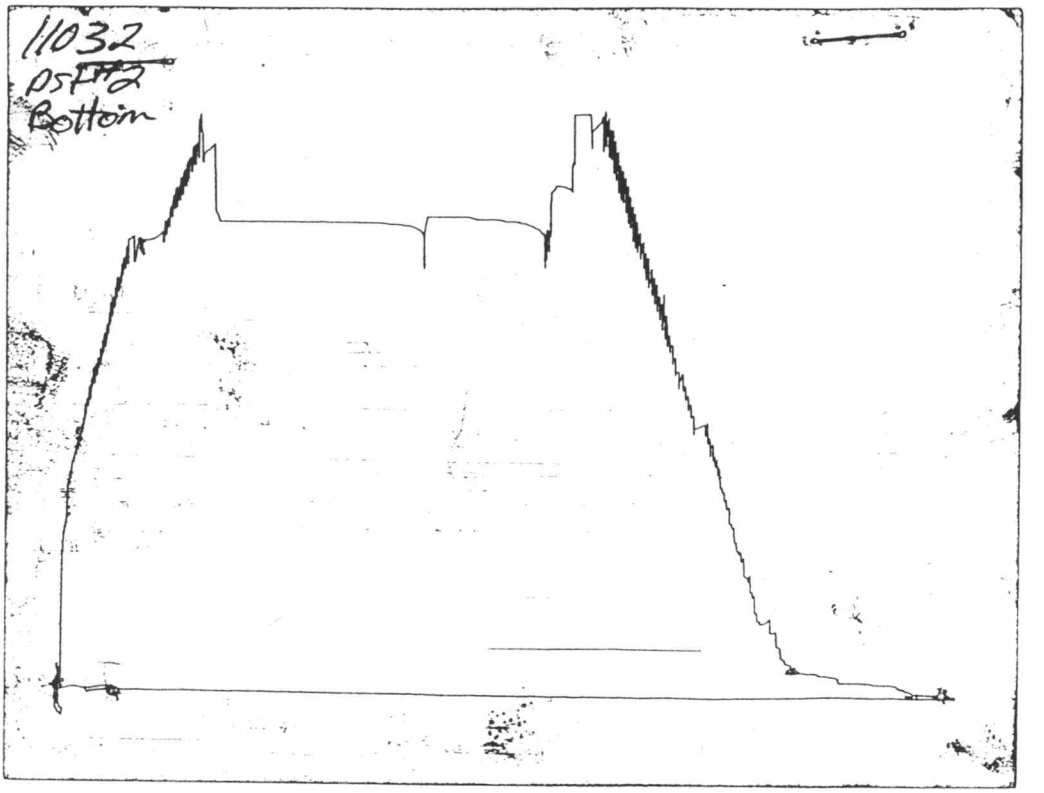
CHART PAGE



This is an actual photograph of an AK1 recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2883	2889.82
(B) FIRST INITIAL FLOW PRESSURE	86	68.96
(C) FIRST FINAL FLOW PRESSURE	107	91.59
(D) INITIAL CLOSED-IN PRESSURE	1594	1563.30
(E) SECOND INITIAL FLOW PRESSURE	269	226.29
(F) SECOND FINAL FLOW PRESSURE	269	226.29
(G) FINAL CLOSED-IN PRESSURE	1721	1691.98
(H) FINAL HYDROSTATIC MUD	2756	2754.57

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		