

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KUPPETZ #3 Test No. 1 Date 8/5/91
Company WERTH EXPLORATION TRUST Zone Tested LKC "E"
Address 1308 SCHWALLER AVE HAYS KS 67601 Elevation 2270 KB
Co. Rep./Geo. CLIFF OTTAWAY Cont. WESTERN KS DRLG #2 Est. Ft. of Pay _____
Location: Sec. 4 Twp. 14S Rge. 21W Co. TREGO State KS

Interval Tested 3670-3685
Anchor Length 15
Top Packer Depth 3665
Bottom Packer Depth 3670
Total Depth 3685

Drill Pipe Size 4.5 PH
Wt. Pipe I.D. - 2.7 Ft. Run _____
Drill Collar - 2.25 Ft. Run _____

Mud Wt. 9 lb / gal. Viscosity 47 Filtrate _____

Tool Open @ 10:25 AM Initial Blow STRONG-OFF BOTTOM OF BUCKET

Final Blow STRONG-OFF BOTTOM OF BUCKET IN 10 MINUTES

Recovery — Total Feet 730 Flush Tool? NO

Rec. 730 Feet of WATER W/ SCUM OF OIL THROUGH OUT

Rec. _____ Feet of _____

Rec. _____ Feet of _____

Rec. _____ Feet of _____

Rec. _____ Feet of _____

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

RW 0.25 @ 87 °F Chlorides 26000 ppm Recovery Chlorides 8000 ppm System

(A) Initial Hydrostatic Mud 1865.3 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 61.2 PSI @ (depth) 3674 w/Clock No. 26191

(C) First Final Flow Pressure 194.5 PSI AK1 Recorder No. 13849 Range 4375

(D) Initial Shut-In Pressure 1487.5 PSI @ (depth) 3681 w/Clock No. 26199

(E) Second Initial Flow Pressure 215.6 PSI AK1 Recorder No. _____ Range _____

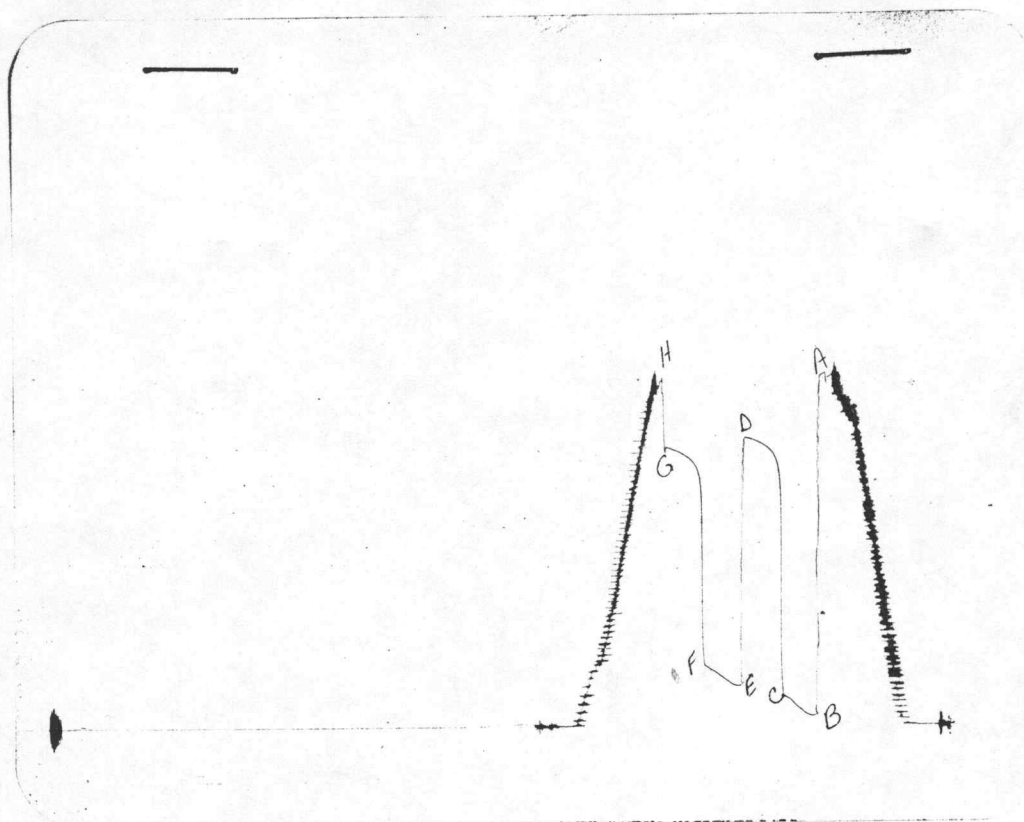
(F) Second Final Flow Pressure 335.9 PSI @ (depth) _____ w/Clock No. _____

(G) Final Shut-In Pressure 1466.7 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 1785.4 PSI Initial Shut-In 30 Final Shut-In 30

Our Representative DAN BANGLE

TOTAL PRICE \$ 550



POINT This is an actual photograph of recorder chart PRESSURE

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1852	1865.3
(B) FIRST INITIAL FLOW PRESSURE	55	61.2
(C) FIRST FINAL FLOW PRESSURE	188	194.5
(D) INITIAL CLOSED-IN PRESSURE	1482	1487.5
(E) SECOND INITIAL FLOW PRESSURE	211	215.6
(F) SECOND FINAL FLOW PRESSURE	333	335.9
(G) FINAL CLOSED-IN PRESSURE	1460	1466.7
(H) FINAL HYDROSTATIC MUD	1786	1785.4

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No. 4182

Well Name & No. <u>Kuppertz #3</u>	Test No. <u>1</u>	Date <u>8-5-91</u>
Company <u>WORTH Expl. Trust</u>	Zone Tested <u>'E'</u>	<u>L.K.C.</u>
Address <u>1308 Schwaller Ave, Hays, Ks 67601</u>	Elevation <u>2270 K.B.</u>	
Co. Rep./Geo. <u>CLIFF OTTAWAY</u>	Cont. <u>WKD #2</u>	Est. Ft. of Pay _____
Location: Sec. <u>4</u>	Twp. <u>14</u>	Rge. <u>21</u>
	Co. <u>Trego</u>	State <u>Ks.</u>
No. of Copies <u>4</u>	Distribution Sheet _____	Yes <u>X</u> No _____
	Turnkey <u>X</u>	Yes _____ No _____
		Evaluation _____

Interval Tested <u>3670 - 3685</u>	Drill Pipe Size <u>4.5 F.H.</u>
Anchor Length <u>15</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>3665</u>	Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
Bottom Packer Depth <u>3670</u>	Wt. Pipe I.D. — 2.7 Ft. Run _____
Total Depth <u>3685</u>	Drill Collar — 2.25 Ft. Run _____
Mud Wt. <u>9</u> lb/gal.	Viscosity <u>47</u> Filtrate _____
Tool Open @ <u>10:25 A.M.</u> Initial Blow <u>Strong - off bottom of bucket in 11 min.</u>	
Final Blow <u>Strong - off bottom of bucket in 10 min.</u>	

Recovery — Total Feet <u>730</u>	Feet of Gas in Pipe _____	Flush Tool? _____
Rec. <u>730</u> Feet Of <u>WTR. w/scum oil top</u>	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	

BHT <u>118</u> °F Gravity _____	°API @ _____	°F Corrected Gravity _____	°API _____
RW <u>125</u> @ <u>87</u> °F	Chlorides <u>26,000</u> ppm	Recovery Chlorides <u>8,000</u> ppm	System _____

(A) Initial Hydrostatic Mud <u>1852</u>	PSI	AK1 Recorder No. <u>13754</u>	Range <u>4000</u>
(B) First Initial Flow Pressure <u>55</u>	PSI	@ (depth) <u>3674</u>	w/Clock No. <u>26191</u>
(C) First Final Flow Pressure <u>188</u>	PSI	AK1 Recorder No. <u>13849</u>	Range <u>4375</u>
(D) Initial Shut-In Pressure <u>1482</u>	PSI	@ (depth) <u>3681</u>	w/Clock No. <u>26199</u>
(E) Second Initial Flow Pressure <u>211</u>	PSI	AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>333</u>	PSI	@ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>1460</u>	PSI	Initial Opening <u>30</u>	Test _____
(H) Final Hydrostatic Mud <u>1786</u>	PSI	Initial Shut-In <u>30</u>	Jars _____

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Final Flow <u>30</u>	Safety Joint _____
Final Shut-In <u>30</u>	Straddle _____
	Circ. Sub _____
	Sampler _____
	Extra Packer _____
	Other _____
	TOTAL PRICE \$ _____

Approved By _____

Our Representative Don Bangs

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name KUPPETZ #3 Test No. 2 Date 8/6/91
Company WERTH EXPLORATION TRUST Zone Tested MARMATON
Address 1308 SCHWALLER AVE HAYS KS 67601 Elevation 2270 KB
Co. Rep./Geo. CLIFF OTTAWAY Cont. WESTERN KS DRLG #2 Est. Ft. of Pay 4
Location: Sec. 4 Twp. 14S Rge. 21W Co. TREGO State KS

Interval Tested 3927-3950
Anchor Length 23
Top Packer Depth 3922
Bottom Packer Depth 3927
Total Depth 3950

Drill Pipe Size 4.5 FH
Wt. Pipe I.D. - 2.7 Ft. Run
Drill Collar - 2.25 Ft. Run

Mud Wt. 9.2 lb / gal. Viscosity 47 Filtrate 10.4

Tool Open @ 4:40PM Initial Blow WEAK BUILDING TO 6"

Final Blow STRONG OFF BOTTOM OF BUCKET IN 7 MINUTES

Recovery — Total Feet 360 Flush Tool? NO

Rec. 405 Feet of GAS IN PIPE

Rec. 260 Feet of CLEAN OIL

Rec. 100 Feet of OIL CUT MUD 40%OIL/60%MUD

Rec. Feet of

Rec. Feet of
BHT 118 °F Gravity °API @ °F Corrected Gravity 36 °API

RW @ °F Chlorides ppm Recovery Chlorides 8000 ppm System

(A) Initial Hydrostatic Mud 2009.9 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 48.9 PSI @ (depth) 3931 w/Clock No. 26191

(C) First Final Flow Pressure 88.9 PSI AK1 Recorder No. 13849 Range 4375

(D) Initial Shut-In Pressure 723.6 PSI @ (depth) 3946 w/Clock No. 26199

(E) Second Initial Flow Pressure 117.8 PSI AK1 Recorder No. Range

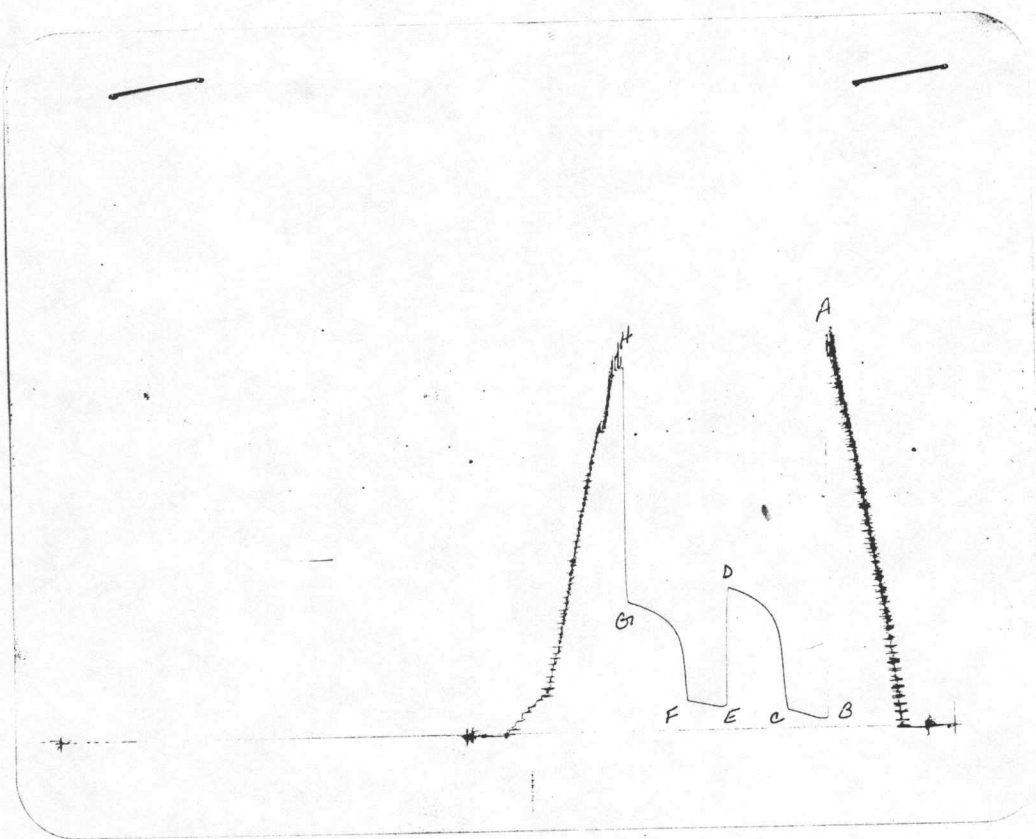
(F) Second Final Flow Pressure 150 PSI @ (depth) w/Clock No.

(G) Final Shut-In Pressure 651.9 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 1927.2 PSI Initial Shut-In 45 Final Shut-In 45

Our Representative DAN BANGLE

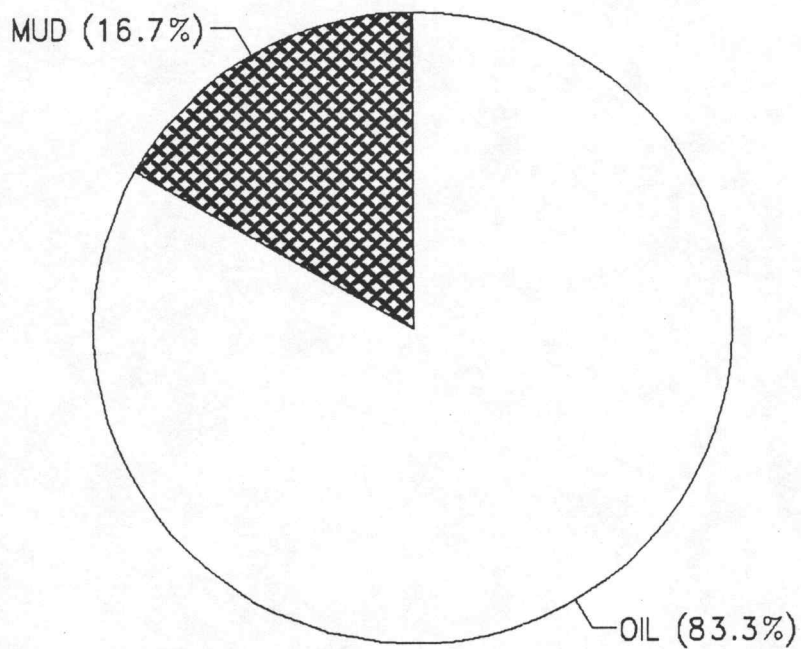
TOTAL PRICE \$ 550



POINT This is an actual photograph of recorder chart PRESSURE

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2015	2009.9
(B) FIRST INITIAL FLOW PRESSURE	55	48.9
(C) FIRST FINAL FLOW PRESSURE	100	88.9
(D) INITIAL CLOSED-IN PRESSURE	731	723.6
(E) SECOND INITIAL FLOW PRESSURE	133	117.8
(F) SECOND FINAL FLOW PRESSURE	166	150
(G) FINAL CLOSED-IN PRESSURE	676	651.9
(H) FINAL HYDROSTATIC MUD	1950	1927.2

CALCULATED RECOVERY ANALYSIS						DRILL	PIPE		
DST #	2		TICKET #			4183			
SAMPLE	TOTAL	GAS	OIL		WATER		MUD		
#	FEET	%	FEET	%	FEET	%	FEET	%	FEET
1	260		0	100	260		0		0
2	100		0	40	40		0	60	60
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	360	0	0	83.3333	300	0	0	16.6667	60
HRS OPEN BBL/DAY									
BBL OIL=	4.266	*	1		102.384				
BBL WATER	0	*	0						
BBL MUD=	0.8532								



COMPUTER EVALUATION BY TRILOBITE TESTING
WERTH EXPLORATION TRUST
REPORT FOR DST#2 FOR THE KUPPETZ #3
4 14S 21W TREGO KS

TEST PARAMETERS

ELEVATION:	2270 KB	EST. PAY:	4 FT
DATUM:	-1677	ZONE TESTED:	MARMATON
TEST INTERVAL:	3927-3950		
RECORDER DEPTH:	3946	TIME INTERVALS:	30-45-30-45
BOTTOM HOLE TEMP:	118	VISCOSITY:	4.991865 CP
		HOLE SIZE:	7.875 IN

CALCULATIONS

CUBIC FEET OF GAS IN PIPE: 32.33495

TOTAL FEET OF RECOVERY: 360
BARRELS IN DRILL PIPE: 5.1192
GAS OIL RATIO: 6.316407 CU.FT./BBL
BUBBLE POINT PRESSURE: ; .4311973
TOTAL BARRELS OF RECOVERY: 5.1192

UNCORR. INIT. PROD.: 122.8608 BBL/DAY

API GRAVITY: 36

FLUID GRADIENT: .366

CORRECTED PIPE FILLUP: 409.8361

CORR. BARRELS OF RECOVERY: 5.81598 BBL

INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE: 139.5835 BBL/DAY

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE
28.15711

INITIAL SLOPE 610.83 PSI/CYCLE
INITIAL P* 852 PSI

FINAL SLOPE 352.74 PSI/CYCLE
FINAL P* 782 PSI

TRANSMISSIBILITY	64.34281 (MD.-FT./CP.)
PERMEABILITY	80.29764 (MD.)
INDICATED FLOW CAPACITY	321.1906 (MD.FT)
PRODUCTIVITY INDEX	7.270737E-02 (BARRELS/DAY/PSI)
DAMAGE RATIO	.2603836
RADIUS OF INVESTIGATION	69.4108 (FT.)
POTENTIOMETRIC SURFACE	-164.2439 (FT.)
DRAWDOWN FACTOR	8.215963 (%)

INITIAL FLOW

RECORDER # 13849
DST #2

DT(MIN)	PRESSURE	<> PRESSURE
0	58.9	58.9
3	48.9	-10
6	50	1.099999
9	52.2	2.200001
12	56.7	4.5
15	62.2	5.5
18	67.8	5.600003
21	73.3	5.5
24	78.9	5.599999
27	84.4	5.5
30	88.9	4.5

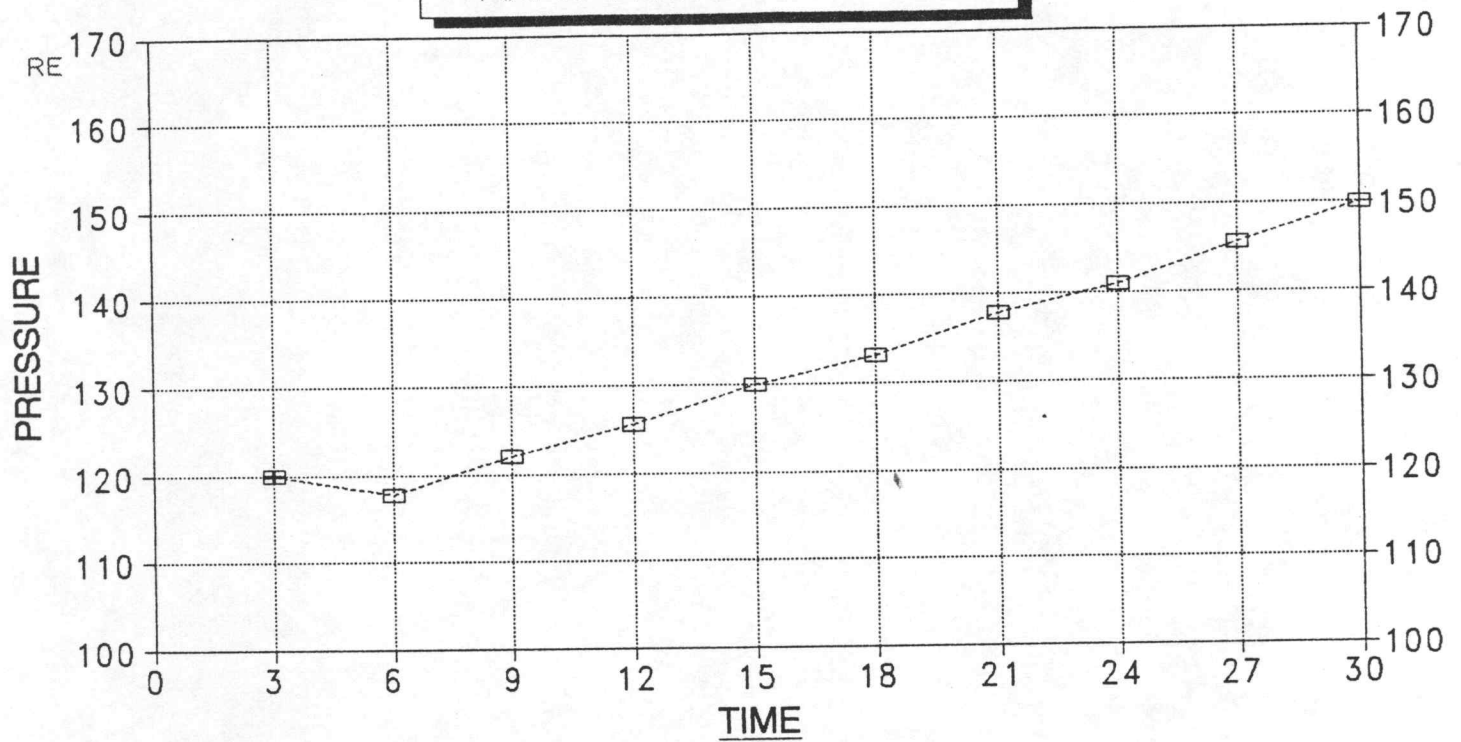
FINAL FLOW

RECORDER # 13849
DST #2

DT(MIN)	PRESSURE	<> PRESSURE
0	132.2	132.2
3	120	-12.2
6	117.8	-2.199997
9	122.2	4.399994
12	125.6	3.400002
15	130	4.400002
18	133.3	3.300003
21	137.8	4.5
24	141.1	3.300003
27	145.6	4.5
30	150	4.399994

DELTA T DELTA P

FINAL FLOW - DST #2



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE 28.15711 BBL/DAY

KUPPETZ #3
INITIAL

DST #2
SHUTIN
30 INITIAL FLOW TIME

Slope -610.83 psi/cycle
P * 852 psi

	TIME(MIN)	Pws (psi)	Horn T	Log Horn T	<> PRESSU
	3	148.9	11	1.041	148.9
	6	370.0	6	0.778	221.1
	9	485.6	4	0.637	115.6
	12	545.2	4	0.544	59.6
	15	581.5	3	0.477	36.3
	18	607.9	3	0.426	26.4
	21	629.9	2	0.385	22.0
	24	644.3	2	0.352	14.4
	27	659.7	2	0.325	15.4
	30	670.7	2	0.301	11.0
	33	681.7	2	0.281	11.0
X	36	691.6	2	0.263	9.9
	39	701.5	2	0.248	9.9
	42	710.4	2	0.234	8.9
	45	718.1	2	0.222	7.7
X	48	723.6	2	0.211	5.5

KUPPETZ #3
FINAL

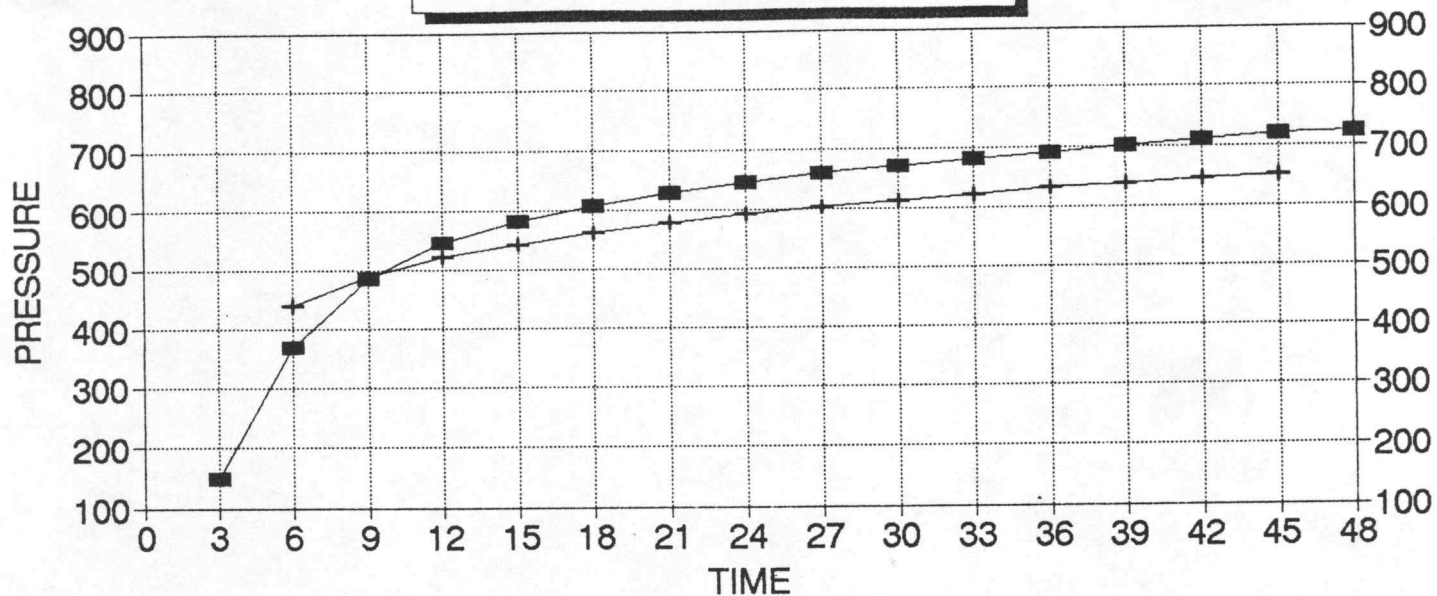
DST #2
SHUTIN
60 TOTAL FLOW TIME

Slope -352.74 psi/cycle
P * 782 psi

	TIME(MIN)	Pws (psi)	Horn T	Log Horn T	<> PRESSURE
	3	322.2	21	1.322	322.2
	6	440.0	11	1.041	117.8
	9	490.0	8	0.885	50.0
	12	522.0	6	0.778	32.0
	15	544.1	5	0.699	22.1
	18	562.8	4	0.637	18.7
	21	577.1	4	0.586	14.3
	24	592.5	4	0.544	15.4
	27	603.5	3	0.508	11.0
X	30	613.4	3	0.477	9.9
	33	622.3	3	0.450	8.9
	36	632.2	3	0.426	9.9
	39	638.8	3	0.405	6.6
	42	645.4	2	0.385	6.6
X	45	651.9	2	0.368	6.5

DELTA T DELTA P

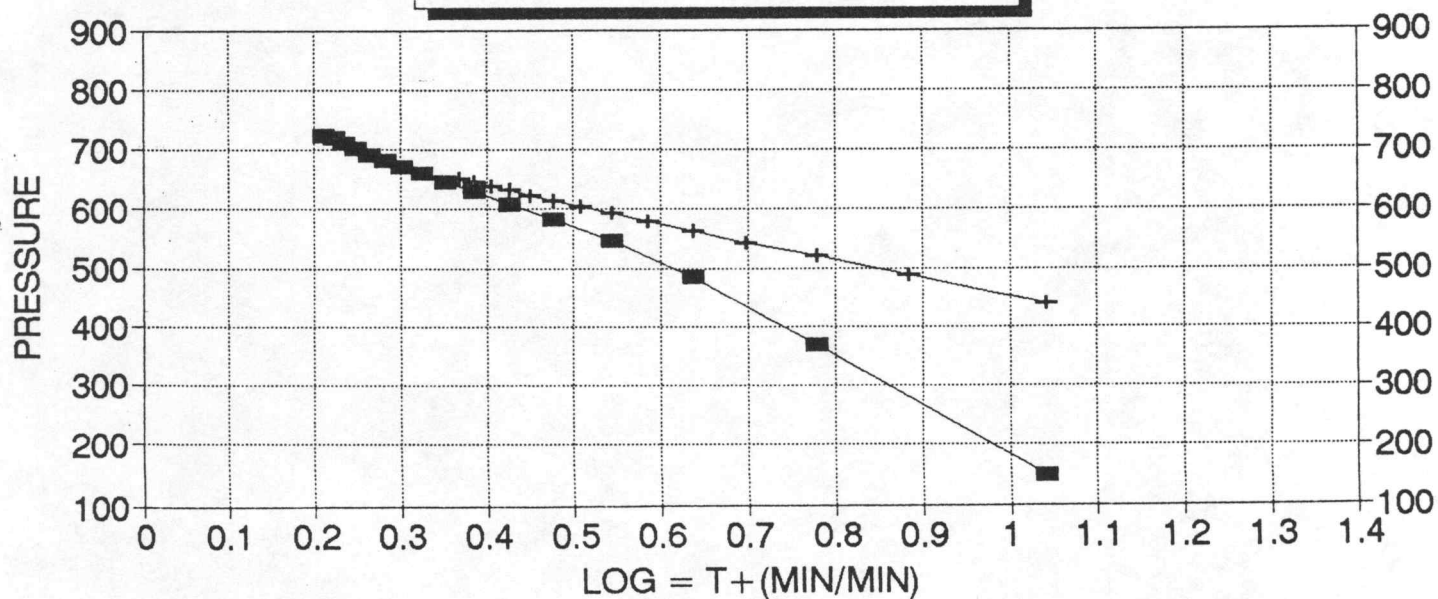
KUPPETZ #3 DST #2



—■— INITIAL —+— FINAL

DELTA T DELTA P

KUPPETZ #3 DST #2



—■— INITIAL —+— FINAL

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 4183

Well Name & No. <u>Kuppertz #3</u>	Test No. <u>2</u>	Date <u>8-6-91</u>
Company <u>Werth Expl. Trust</u>	Zone Tested <u>Marmaton</u>	
Address _____	Elevation <u>2270 K.B.</u>	
Co. Rep./Geo. <u>Cliff Ottaway</u>	Cont. <u>WKO #2</u>	Est. Ft. of Pay <u>4</u>
Location: Sec. <u>4</u>	Twp. <u>14</u>	Rge. <u>21</u>
	Co. <u>Trego</u>	State <u>Ks.</u>
No. of Copies <u>4</u>	Distribution Sheet _____	Yes ☒ No ☐ Turnkey ☒ Yes ☐ No ☒ Evaluation

Interval Tested <u>3927-3950</u>	Drill Pipe Size <u>4.5 F.H.</u>
Anchor Length <u>23</u>	Top Choke — 1" _____ Bottom Choke — 1/4" _____
Top Packer Depth <u>3922</u>	Hole Size — 77/8" _____ Rubber Size — 63/4" _____
Bottom Packer Depth <u>3927</u>	Wt. Pipe I.D. — 2.7 Ft. Run _____
Total Depth <u>3950</u>	Drill Collar — 2.25 Ft. Run _____
Mud Wt. <u>9.2</u> lb/gal.	Viscosity <u>47</u> Filtrate <u>10.4</u>
Tool Open @ <u>4:40 P.M.</u> Initial Blow <u>Weak - building to 6"</u>	
Final Blow <u>Strong - off bottom of bucket in 7 min.</u>	

Recovery — Total Feet <u>360</u>	Feet of Gas in Pipe <u>405</u>	Flush Tool? <u>No</u>
Rec. <u>260</u> Feet Of <u>C.O.</u>	%gas _____ %oil _____ %water _____ %mud _____	
Rec. <u>100</u> Feet Of <u>O.C.M.</u>	%gas <u>40</u> %oil _____ %water <u>60</u> %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
BHT <u>118</u> °F Gravity _____ °API @ _____ °F Corrected Gravity <u>36</u> °API		
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides <u>8,000</u> ppm System		
(A) Initial Hydrostatic Mud <u>2015</u> PSI	AK1 Recorder No. <u>13754</u> Range <u>4000</u>	
(B) First Initial Flow Pressure <u>55</u> PSI	@ (depth) <u>3931</u> w/Clock No. <u>26191</u>	
(C) First Final Flow Pressure <u>100</u> PSI	AK1 Recorder No. <u>13849</u> Range <u>4375</u>	
(D) Initial Shut-In Pressure <u>731</u> PSI	@ (depth) <u>3946</u> w/Clock No. <u>26199</u>	
(E) Second Initial Flow Pressure <u>133</u> PSI	AK1 Recorder No. _____ Range _____	
(F) Second Final Flow Pressure <u>166</u> PSI	@ (depth) _____ w/Clock No. _____	
(G) Final Shut-In Pressure <u>676</u> PSI	Initial Opening <u>30</u> Test _____	
(H) Final Hydrostatic Mud <u>1950</u> PSI	Initial Shut-In <u>45</u> Jars _____	

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Final Flow <u>30</u>	Safety Joint _____
Final Shut-In <u>45</u>	Straddle _____
	Circ. Sub _____
	Sampler _____
	Extra Packer _____
	Other _____
	TOTAL PRICE \$ _____

Approved By _____

Our Representative Dan Banerle

WELL NAME Kuppitz DST # 2 RECORDER # 13849
INIT. HYD. MUD. 1.825 2009.9 FINAL HYD. MUD 1.749 1927.2

INITIAL FLOW		INITIAL SHUTIN		FINAL FLOW		FINAL SHUTIN		
MINUTES	INTERVAL	MINUTES	INTERVAL	MINUTES	INTERVAL	MINUTES	INTERVAL	
30	3	45	3	30	3	45	3	
.053	58.9	.080	—	1	.119	132.2	.135	—
.044	48.9	.134	148.9	2	.108	120	.290	322.2
.045	50	.333	148.9 370	3	.106	117.8	.396	440
.047	52.2	.437	485.6	4	.110	122.2	.441	490
.051	56.7	.491	545.2	5	.113	125.6	.470	522
.056	62.2	.524	581.5	6	.117	130	.490	544.1
.061	67.8	.548	607.9	7	.120	133.3	.507	562.8
.066	73.3	.568	629.9	8	.124	137.8	.520	577.1
.071	78.9	.581	644.3	9	.127	141.1	.534	592.5
.076	84.4	.595	659.7	10	.131	145.6	.544	603.5
.080	88.9	.605	670.7	11	.135	150	.553	613.4
		.615	681.7	12			.561	622.3
		.624	691.6	13			.570	632.2
		.633	701.5	14			.576	638.8
		.641	710.4	15			.582	645.4
		.648	718.1	16			.588	651.9
		.653	723.6	17				
				18				
				19				
				20				
				21				
				22				
				23				
				24				
				25				
				26				
				27				