

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name BRANDT FARMS #1 Test No. 1 Date 12/30/92
Company HESS OIL CO., INC. Zone TOPEKA/LKC
Address 412 EAST DOUGLAS #1 WICHITA KS 67201 Elevation 2635
Co. Rep./Geo. JAMES C. HESS Cont. MALLARD RIG #2 Est. Ft. of Pay _____
Location: Sec. 22 Twp. 6S Rge. 26W Co. SHERIDAN State KS

Interval Tested <u>3760-3790</u>	Drill Pipe Size <u>4.5" FH</u>
Anchor Length <u>30</u>	Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth <u>3755</u>	Drill Collar - 2.25 Ft. Run <u>303</u>
Bottom Packer Depth <u>3760</u>	Mud Wt. <u>8.9</u> lb/Gal.
Total Depth <u>3790</u>	Viscosity <u>47</u> Filtrate <u>6.2</u>

Tool Open @ 1:10 PM Initial Blow STRONG-BOTTOM OF BUCKET IN 6 MINUTES

Final Blow WEAK-BUILDING TO 6" FAIR BLOW

Recovery - Total Feet 960 Flush Tool? NO

Rec. <u>2</u>	Feet of <u>CLEAN OIL</u>
Rec. <u>45</u>	Feet of <u>SLTLY OIL CUT MUD-3%OIL/97%MUD</u>
Rec. <u>248</u>	Feet of <u>SLTLY OIL CUT MUDDY WTR-3%OIL/77%WTR/20%MUD</u>
Rec. <u>665</u>	Feet of <u>WATER</u>
Rec. _____	Feet of _____

BHT 119 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.22 @ 63.4 °F Chlorides 42000 ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud 1944.3 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 45.6 PSI @ (depth) 3764 w / Clock No. 27567

(C) First Final Flow Pressure 332.7 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 805.6 PSI @ (depth) 3786 w / Clock No. 8376

(E) Second Initial Flow Pressure 376.9 PSI AK1 Recorder No. _____ Range _____

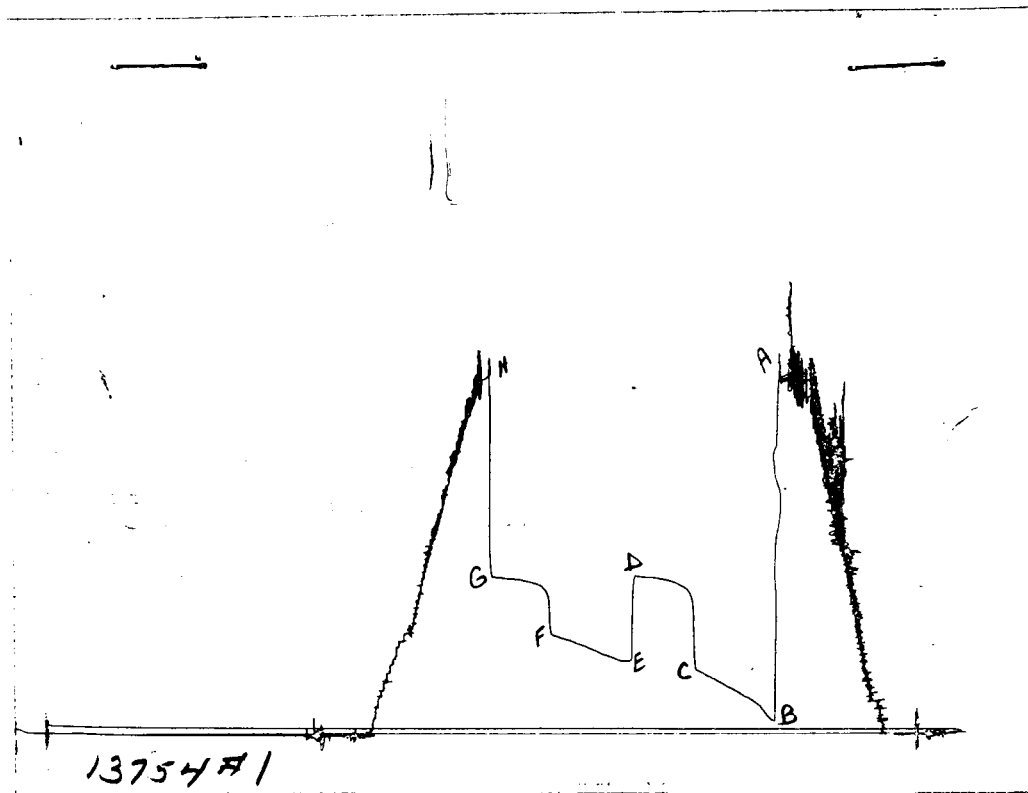
(F) Second Final Flow Pressure 530.4 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 804.5 PSI Initial Opening 60 Final Flow 60

(H) Final Hydrostatic Mud 1840.9 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative DAN BANGLE

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1936	1944.3
(B) FIRST INITIAL FLOW PRESSURE	44	45.6
(C) FIRST FINAL FLOW PRESSURE	330	332.7
(D) INITIAL CLOSED-IN PRESSURE	799	805.6
(E) SECOND INITIAL FLOW PRESSURE	374	376.9
(F) SECOND FINAL FLOW PRESSURE	527	530.4
(G) FINAL CLOSED-IN PRESSURE	799	804.5
(H) FINAL HYDROSTATIC MUD	1841	1840.9

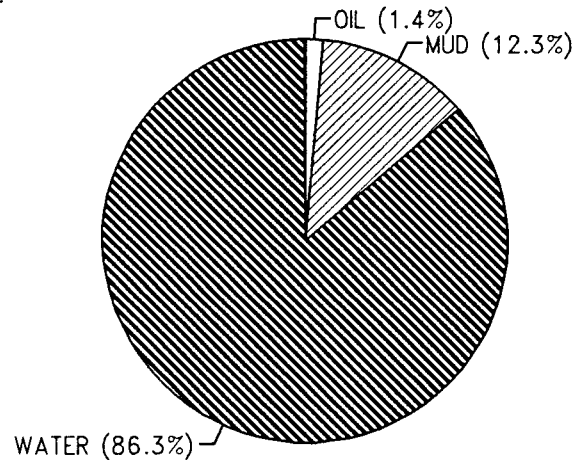
CALCULATED RECOVERY ANALYSIS

DST # 1 TICKET # 5854

SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	%	WATER FEET	%	MUD FEET
DRILL 1	2	0	0	100	2	0	0	0	0
PIPE 2	45	0	0	3	1.35	0	0	97	43.65
3	248	0	0	3	7.44	77	190.96	20	49.6
4	362	0	0	0	0	100	362	0	0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1			0		0		0		0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
DRILL 1	303	0	0	0	0	100	303	0	0
COLLAR 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	960		0		10.79		855.96		93.25

BBL OIL= 0.1534338 *
 BBL WATER= 9.3447612 *
 BBL MUD= 1.326015
 BBL GAS = 0

HRS OPEN 2 BBL/DAY 1.8412056
 112.13713



TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5854

Well Name & No. <u>Brandt Farms #1</u>	Test No. <u>1</u>	Date <u>12-30-92</u>
Company <u>Hess Oil Co.</u>	Zone Tested <u>Top - L.K.C.</u>	
Address <u>Box 1009, McPherson, Ks. 67460</u>	Elevation <u>2635 K.D.</u>	
Co. Rep./Geo. <u>Jamie Hess</u>	Cont. <u>Mallard #2</u>	Est. Ft. of Pay _____
Location: Sec. <u>22</u>	Twp. <u>6</u>	Rge. <u>26</u>
	Co. <u>Shenandoah</u>	State <u>Ks.</u>
No. of Copies <u>1</u>	Distribution Sheet _____	Yes <u>X</u> No <u>X</u> Turnkey _____
		Yes <u>X</u> No <u>No</u> Evaluation

Interval Tested <u>3760 - 3790</u>	Drill Pipe Size <u>4.5 F.H.</u>
Anchor Length <u>30</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>3755</u>	Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
Bottom Packer Depth <u>3760</u>	Wt. Pipe I.D. — 2.7 Ft. Run _____
Total Depth <u>3790</u>	Drill Collar — 2.25 Ft. Run <u>30.3</u>
Mud Wt. <u>8.9</u> lb/gal.	Viscosity <u>47</u> Filtrate <u>6.2</u>
Tool Open @ <u>1:10 p.m.</u> Initial Blow <u>Strong - B.O.B. in 6 min.</u>	

Final Blow Weak - building to 6" fair blow.

Recovery — Total Feet <u>960</u>	Feet of Gas in Pipe _____	Flush Tool? _____
Rec. <u>2</u> Feet Of <u>C.O.</u>	%gas <u>100</u> %oil _____	%water _____ %mud _____
Rec. <u>45</u> Feet Of <u>SITLY O.C.M.</u>	%gas <u>3</u> %oil _____	%water <u>97</u> %mud _____
Rec. <u>248</u> Feet Of <u>SITLY O.C.M. dy WTR.</u>	%gas <u>3</u> %oil <u>77</u>	%water <u>20</u> %mud _____
Rec. <u>665</u> Feet Of <u>WTR.</u>	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____

BHT <u>119</u> °F Gravity _____	°API @ _____	°F Corrected Gravity _____	°API _____
RW <u>122</u> @ <u>63.4</u> °F	Chlorides <u>42,000</u> ppm Recovery	Chlorides <u>2,000</u> ppm System	
(A) Initial Hydrostatic Mud <u>1936</u>	PSI AK1 Recorder No. <u>13754</u>	Range <u>4000</u>	
(B) First Initial Flow Pressure <u>44</u>	PSI @ (depth) <u>3764</u>	w/Clock No. <u>27567</u>	
(C) First Final Flow Pressure <u>330</u>	PSI AK1 Recorder No. <u>7437</u>	Range <u>4200</u>	
(D) Initial Shut-In Pressure <u>799</u>	PSI @ (depth) <u>3786</u>	w/Clock No. <u>8376</u>	
(E) Second Initial Flow Pressure <u>374</u>	PSI AK1 Recorder No. _____	Range _____	
(F) Second Final Flow Pressure <u>527</u>	PSI @ (depth) _____	w/Clock No. _____	
(G) Final Shut-In Pressure <u>799</u>	PSI Initial Opening <u>60</u>	Test <u>600</u> °°	
(H) Final Hydrostatic Mud <u>1841</u>	PSI Initial Shut-In <u>45</u>	Jars _____	

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Final Flow <u>60</u>	Safety Joint <u>X</u> <u>50</u> °°
Final Shut-In <u>45</u>	Straddle _____
	Circ. Sub _____
	Sampler _____
	Extra Packer _____
	Other _____
	TOTAL PRICE \$ <u>650</u> °°

Approved By [Signature]

Our Representative [Signature]

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name BRANDT FARMS #1 Test No. 2 Date 12/31/92
Company HESS OIL CO., INC. Zone LKC
Address 412 EAST DOUGLAS #1 WICHITA KS 67201 Elevation 2635
Co. Rep./Geo. JAMES C. HESS Cont. MALLARD RIG #2 Est. Ft. of Pay 2
Location: Sec. 22 Twp. 6S Rge. 26W Co. SHERIDAN State KS

Interval Tested 3795-3850
Anchor Length 55
Top Packer Depth 3790
Bottom Packer Depth 3795
Total Depth 3850

Drill Pipe Size 4.5" FH
Wt. Pipe I.D. - 2.7 Ft. Run 303
Drill Collar - 2.25 Ft. Run 8.9 lb/Gal.
Mud Wt. 49 Viscosity 6 Filtrate 6

Tool Open @ 6:35 AM Initial Blow STRONG-BOTTOM OF BUCKET IN 6 MINUTES
BOTTOM OF BUCKET FOR 20 MINUTES-THEN DECREASING TO 8" BEFORE SHUT IN
Final Blow VERY WEAK SURFACE BLOW

Recovery - Total Feet 330 Flush Tool? NO

Rec. 248 Feet of GAS IN PIPE
Rec. 124 Feet of CLEAN GASSY OIL-10%GAS/90%OIL
Rec. 206 Feet of OIL CUT GASSY MUD-10%GAS/40%OIL/50%MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 108 °F Gravity _____ °API @ _____ °F Corrected Gravity 34 °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud 1910.2 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 106.8 PSI @ (depth) 3799 w / Clock No. 27501

(C) First Final Flow Pressure 163.5 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 209.7 PSI @ (depth) 3846 w / Clock No. 8376

(E) Second Initial Flow Pressure 163.2 PSI AK1 Recorder No. _____ Range _____

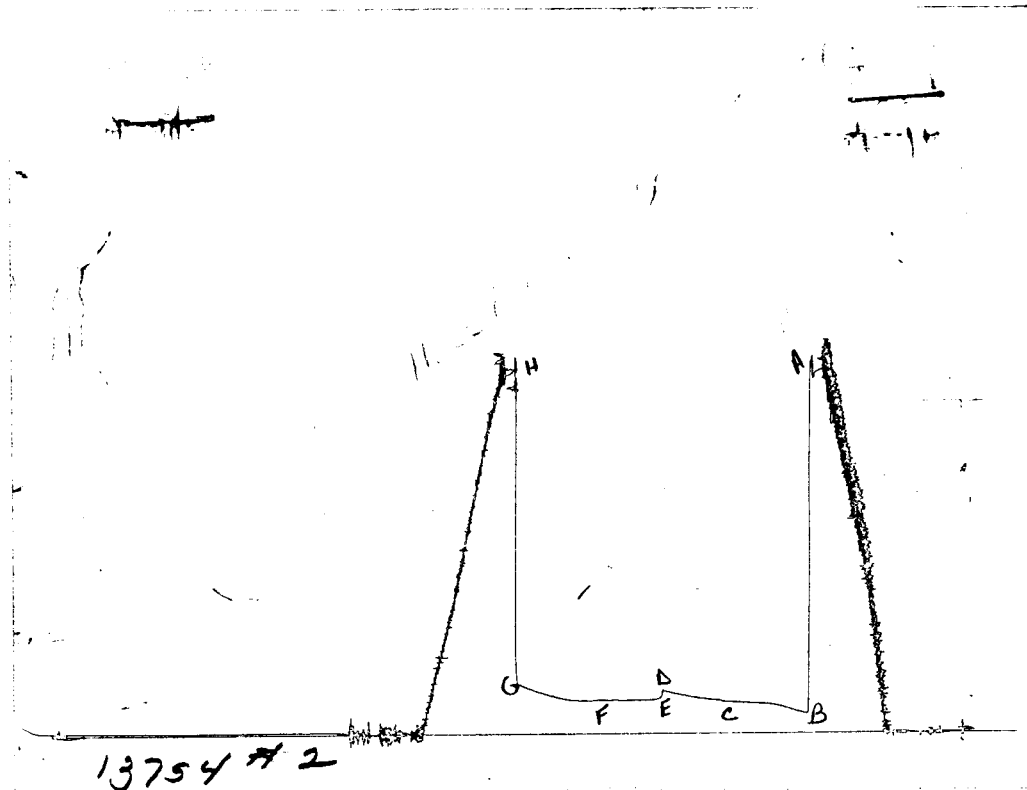
(F) Second Final Flow Pressure 163.2 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 239.9 PSI Initial Opening 60 Final Flow 60

(H) Final Hydrostatic Mud 1855.6 PSI Initial Shut-in 45 Final Shut-in 45

Our Representative DAN BANGLE

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1905	1910.2
(B) FIRST INITIAL FLOW PRESSURE	77	106.8
(C) FIRST FINAL FLOW PRESSURE	154	163.5
(D) INITIAL CLOSED-IN PRESSURE	209	209.7
(E) SECOND INITIAL FLOW PRESSURE	165	163.2
(F) SECOND FINAL FLOW PRESSURE	165	163.2
(G) FINAL CLOSED-IN PRESSURE	253	239.9
(H) FINAL HYDROSTATIC MUD	1852	1855.6

CALCULATED RECOVERY ANALYSIS

DST #

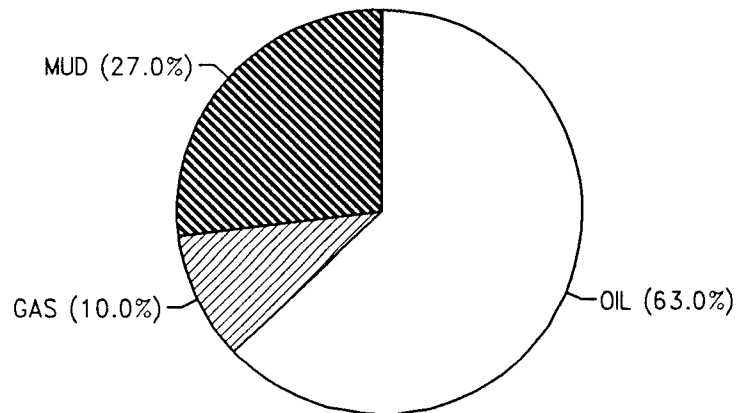
2

TICKET #

5855

SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	%	WATER FEET	%	MUD FEET
DRILL 1	27	10	2.7	90	24.3	0	0	0	0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1			0		0		0		0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
DRILL 1	97	10	9.7	90	87.3	0	0	0	0
COLLAR 2	206	10	20.6	40	82.4	0	0	50	103
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	330		33		194		0		103

			HRS OPEN	BBL/DAY
BBL OIL=	1.175379	*	1.5	18.806064
BBL WATER=	0	*		0
BBL MUD=	0.50367			
BBL GAS =	0.186561			



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

HESS OIL CO., INC.

BRANDT FARMS #1

DST 2

22

6S

26W

SHERIDAN KS

ELEVATION:	2635	KB	EST. PAY	2	FT
DATUM:	-1165		ZONE TESTED:	LKC	
TEST INTERVAL:	3795-3850		TIME INTERVALS:	60-45-60-45	
RECORDER DEPTH:	3799		VISCOSITY:	7.570	CP
BOTTOM HOLE TEMP:	108		HOLE SIZE:	7.875	IN

CUBIC FEET OF GAS IN PIPE:	19.80			
TOTAL FEET OF RECOVERY:	330.00	CORRECTED PIPE FILLUP:	441.081	
TOTAL BARRELS OF RECOVERY:	1.87	CORR. BARRELS OF RECOVERY:	3.444	BBL
BARRELS IN DRILL PIPE:	0.38	API GRAVITY:	34	
BARRELS IN WEIGHT PIPE:	0.00	FLUID GRADIENT:	0.370	
BARRELS IN DRILL COLLARS:	1.48			
GAS OIL RATIO:	10.6132	CU.FT/BBL		
BUBBLE POINT PRESSURE:	93.888			
UNCORRECTED INITIAL PRODUCTION:			22.39	BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:			41.33	BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:			17.930	

INITIAL SLOPE	352.52	PSI/CYCLE	FINAL SLOPE	277.18	PSI/CYCLE
INITIAL P*	339	PSI	FINAL P*	395	PSI

TRANSMISSIBILITY	24.24	(MD.-FT./CP.)
PERMEABILITY	91.77	(MD.)
INDICATED FLOW CAPACITY	183.54	)MD.FT)
PRODUCTIVITY INDEX	0.03	(BARRELS/DAY/PSI)
DAMAGE RATIO	0.15	
RADIUS OF INVESTIGATION	104.94	(FT,)
POTENTIOMETRIC SURFACE	-247.22	(FT.)
DRAWDOWN FACTOR	-16.541	(%)

INITIAL FLOW

RECORDER # 13754

DST # 2

TIME(MIN)	PRESSURE	<> PRESSURE
4.2	106.8	106.8
8.8	111.4	4.6
13.6	122.1	10.7
18.5	135.1	13
22.4	141	5.9
26.8	146	5
32.2	149.3	3.3
36.2	151.4	2.1
41.9	153.1	1.7
45.7	155.3	2.2
50.1	157.5	2.2
54.5	159.7	2.2
59.8	161.3	1.6
64.1	163.5	2.2

FINAL FLOW

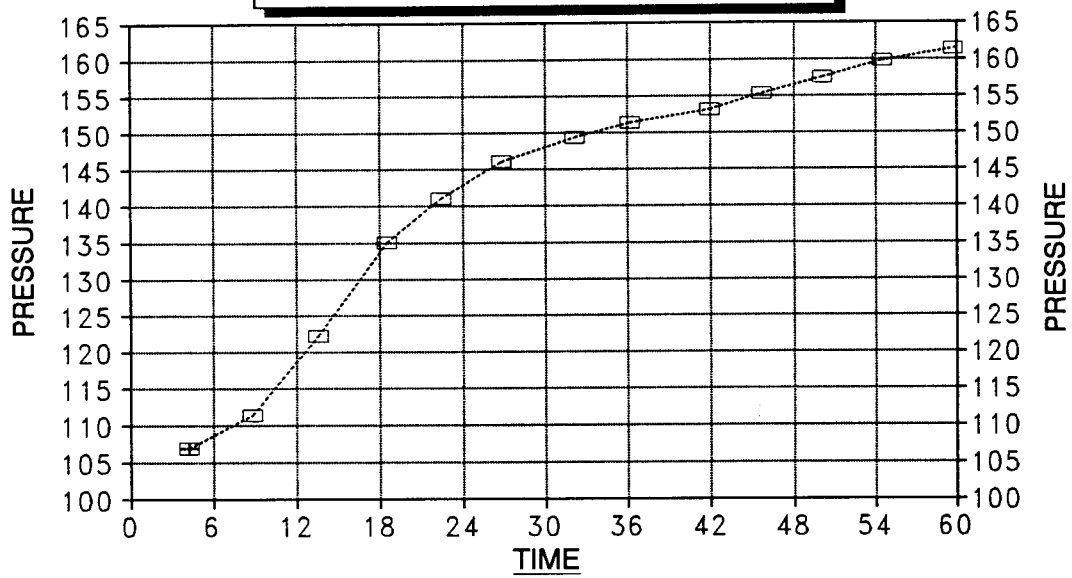
RECORDER # 13754

DST # 2

TIME(MIN)	PRESSURE	<> PRESSURE
2.3	163.2	163.2
6	163.2	0
10.8	163.2	0
15.9	163.2	0
21.4	163.2	0
25.9	163.2	0
30	163.2	0
34.7	163.2	0
39.3	163.2	0
45.3	163.2	0
49.3	163.2	0
54.2	163.2	0

DELTA T DELTA P

INITIAL FLOW - DST #2



---[]--- BRANDT FARMS #1

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

17.930

BRANDT FARMS DST #2
INITIAL SHUTIN

60 TOTAL FLOW TIME

Slope 352.52 psi/cycle
P * 339 psi

TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
9.3	162.2	0.872	162.2	7
13.6	167.6	0.733	5.4	5
18	174.3	0.637	6.7	4
23.2	182.5	0.555	8.2	4
27.2	187.3	0.506	4.8	3
32	189.8	0.459	2.5	3
37.3	198.3	0.416	8.5	3
X 41.5	202.3	0.388	4.0	2
X 45.1	209.7	0.367	7.4	2

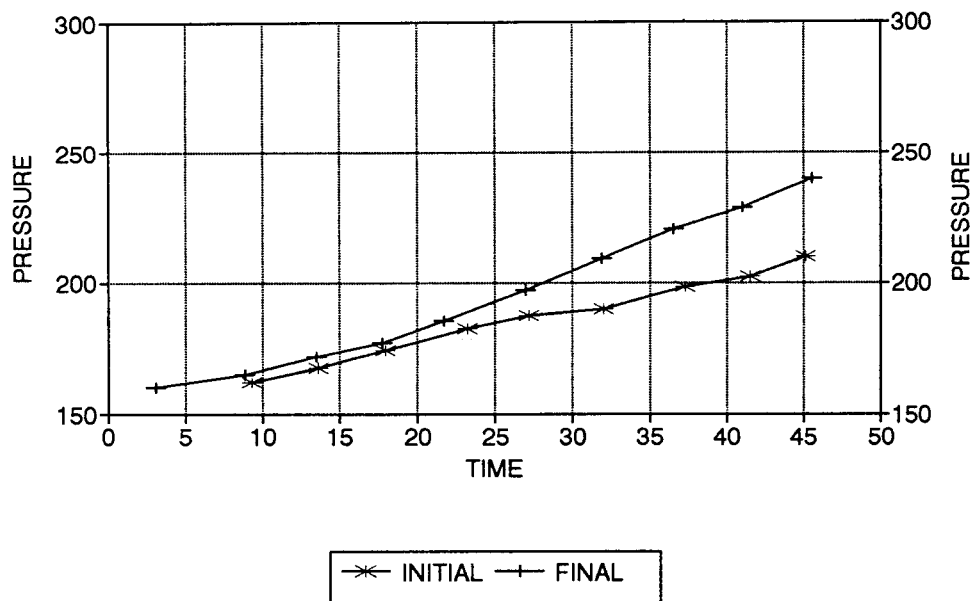
BRANDT FARMS DST #2
FINAL SHUTIN

120 TOTAL FLOW TIME

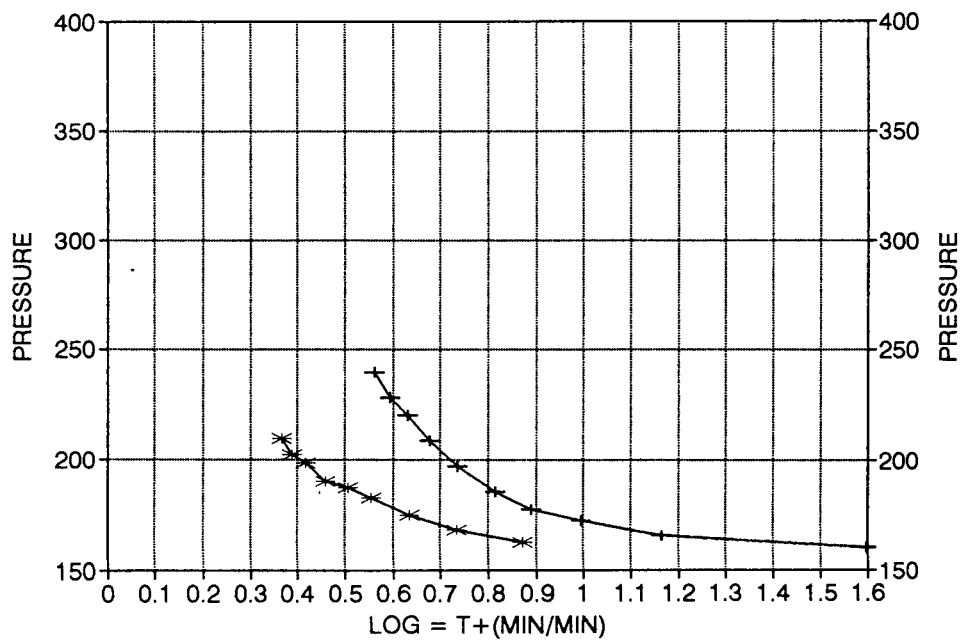
Slope 277.18 psi/cycle
P * 395 psi

Pws (psi)	Log Horn T	<> PRESSURE	Horn T
3.1	1.599	160.3	40
8.8	1.165	4.9	15
13.5	0.995	6.6	10
17.8	0.889	5.4	8
21.7	0.815	8.3	7
27	0.736	11.5	5
31.9	0.678	12.0	5
X 36.5	0.632	11.1	4
41	0.594	8.4	4
X 45.5	0.561	11.4	4

BRANDT FARMS #1 / DST #2 DELTA T DELTA P



HORNER PLOT



Hess Oil Co / Det #2

4.210325	BRANDT FARMS #1	1	2	12/31/92
8.861147	HESS OIL CO. INC.	1		LKC
13.651164	412 EAST DOUGLAS #1	1		2635
18.5062	JAMES C. HESS	1		2
22.42824	22 141.0089 6S	1	26W	SHERIDAN KS
26.8362	146.0362	1		
32.21574	149.3949	1		4.5" FH
36.25982	151.4866	1		
41.90161	150.0125 55	1		
45.78717	150.4595	1		303
50.17222	152.1028	1		8.9
54.58018	157.1304	1		
59.89463	158.1355	1	49	6
64.15777	163.5488	1		
69.30916	162.2322	2		
73.67027	167.6139	2		
78.04081	174.3494	2		
83.256	182.8322	2		
87.22022	187.3399	2		
92.05349	189.8566	2		
97.32021	198.339	2		
101.5741	202.3985	2		NO
105.113	209.7404	2		
2.3	107.2488	1		
6.0	111.124	1		
10.5	115.8523	1		
15.9	120.9147	1		
21.4	126.43	1		
25.9	130.9975	1		
30.0	135.0792	1		
34.7	139.7494	1		
39.3	144.3591	1		
43.3	150.3556	1		
47.3	154.386	1		
51.2	159.2854	1		
55.2	163.6943	1		
59.2	168.1775	1		
63.2	173.8137	1		
67.2	178.5762	1		
71.2	182.8393	1		
75.2	186.7283	1		
79.2	192.0646	1		
83.2	196.9618	1		
87.2	201.5089	1		
91.2	206.0378	1		
95.2	210.5381	1		
	163.2			
	239.9		60	60
	1855.6		45	45

DAN BANGLE

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5855

Well Name & No. <u>Brandt Farms #1</u>	Test No. <u>2</u>	Date <u>12-31-92</u>
Company <u>Hess Oil Co.</u>	Zone Tested <u>70' L.K.C.</u>	
Address _____	Elevation <u>2635 K.B.</u>	
Co. Rep./Geo. <u>Jamie Hess</u>	Cont. <u>Mallard #2</u>	Est. Ft. of Pay <u>2</u>
Location: Sec. <u>22</u>	Twp. <u>6</u>	Rge. <u>26</u>
	Co. <u>Sheridan</u>	State <u>Ks.</u>
No. of Copies <u>1</u>	Distribution Sheet _____	Yes <u>X</u> No _____
	Turnkey _____	Yes <u>X</u> No <u>yes</u> Evaluation

Interval Tested 3795 - 3850 Drill Pipe Size 4.5 F.H
 Anchor Length 55 Top Choke — 1" Bottom Choke — 1/4"
 Top Packer Depth 3790 Hole Size — 77/8" Rubber Size — 63/4"
 Bottom Packer Depth 3795 Wt. Pipe I.D. — 2.7 Ft. Run _____
 Total Depth 3850 Drill Collar — 2.25 Ft. Run 303'
 Mud Wt. 8.9 lb/gal. Viscosity 49 Filtrate 6
 Tool Open @ 6:35 a.m. Initial Blow Strong - bottom of bucket in 6 min.
B.O.B. for 20 min then decreasing to 8" before shut in.
 Final Blow Very weak surface blow

Recovery — Total Feet <u>330</u>	Feet of Gas in Pipe <u>248</u>	Flush Tool? _____
Rec. <u>124</u> Feet Of <u>CGSyo</u>	<u>10% gas 90% oil</u>	%water _____ %mud _____
Rec. <u>206</u> Feet Of <u>O.C.G.s y m</u>	<u>10% gas 40% oil</u>	%water <u>50%</u> %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____

BHT 108 °F Gravity _____ °API @ _____ °F Corrected Gravity 34 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2,000 ppm System

(A) Initial Hydrostatic Mud <u>1805</u>	PSI	AK1 Recorder No. <u>13754</u>	Range <u>4000</u>
(B) First Initial Flow Pressure <u>77</u>	PSI	@ (depth) <u>3799</u>	w/Clock No. <u>27501</u>
(C) First Final Flow Pressure <u>154</u>	PSI	AK1 Recorder No. <u>7437</u>	Range <u>4200</u>
(D) Initial Shut-In Pressure <u>209</u>	PSI	@ (depth) <u>3846</u>	w/Clock No. <u>8376</u>
(E) Second Initial Flow Pressure <u>165</u>	PSI	AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>165</u>	PSI	@ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>253</u>	PSI	Initial Opening <u>60</u>	Test <u>600⁰⁰</u>
(H) Final Hydrostatic Mud <u>1852</u>	PSI	Initial Shut-In <u>45</u>	Jars _____

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Approved By [Signature]

Our Representative [Signature]

Printcraft Printers - Hays, KS

Final Flow 60 Safety Joint X 50⁰⁰
 Final Shut-In 45 Straddle _____
 Circ. Sub _____
 Sampler _____
 Extra Packer _____
 Other Cool⁰⁰
 TOTAL PRICE \$ 650⁰⁰

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name BRANDT FARMS #1 Test No. 3 Date 12/31/92
Company HESS OIL CO., INC. Zone LKC
Address 412 EAST DOUGLAS #1 WICHITA KS 67201 Elevation 2635
Co. Rep./Geo. JAMES C. HESS Cont. MALLARD RIG #2 Est. Ft. of Pay _____
Location: Sec. 22 Twp. 6S Rge. 26W Co. SHERIDAN State KS

Interval Tested <u>3870-3900</u>	Drill Pipe Size <u>4.5" FH</u>
Anchor Length <u>30</u>	Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth <u>3865</u>	Drill Collar - 2.25 Ft. Run <u>303</u>
Bottom Packer Depth <u>3870</u>	Mud Wt. <u>8.9</u> lb/Gal.
Total Depth <u>3900</u>	Viscosity <u>47</u> Filtrate <u>6.2</u>

Tool Open @ 10:45 PM Initial Blow NO BLOW - FLUSHED TOOL - GOOD SURGE
WAITED 10 MINUTES - FLUSHED TOOL - GOOD SURGE

Final Blow _____

Recovery - Total Feet 60 Flush Tool? YES

Rec. <u>60</u>	Feet of <u>DRILLING MUD</u>
Rec. _____	Feet of _____
Rec. _____	Feet of _____
Rec. _____	Feet of _____
Rec. _____	Feet of _____

BHT 108 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud 1936.2 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 45.6 PSI @ (depth) 3874 w / Clock No. 27501

(C) First Final Flow Pressure 67.2 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure _____ PSI @ (depth) 3896 w / Clock No. 8376

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

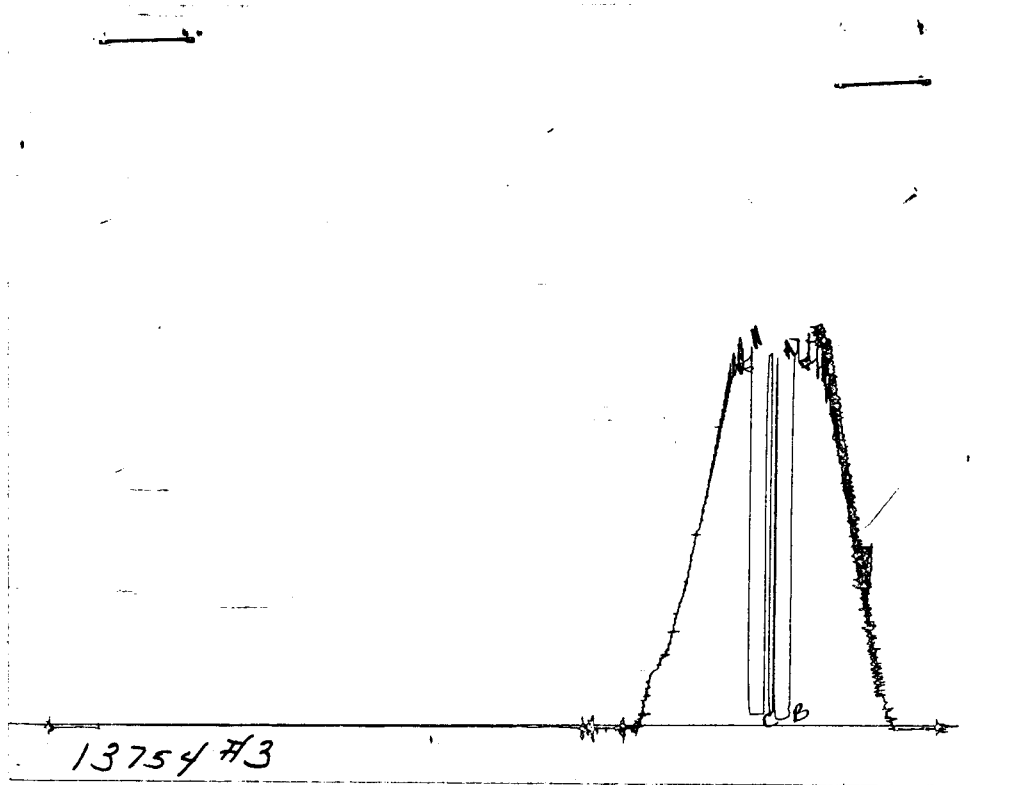
(F) Second Final Flow Pressure _____ PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure _____ PSI Initial Opening 17 Final Flow 0

(H) Final Hydrostatic Mud 1879.6 PSI Initial Shut-in 0 Final Shut-in 0

Our Representative DAN BANGLE

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1926	1936.2
(B) FIRST INITIAL FLOW PRESSURE	44	45.6
(C) FIRST FINAL FLOW PRESSURE	66	67.2
(D) INITIAL CLOSED-IN PRESSURE	0	
(E) SECOND INITIAL FLOW PRESSURE	0	
(F) SECOND FINAL FLOW PRESSURE	0	
(G) FINAL CLOSED-IN PRESSURE	0	
(H) FINAL HYDROSTATIC MUD	1880	1879.6

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5856

Well Name & No. <u>Brandt Farms #1</u>	Test No. <u>3</u>	Date <u>12-31-92</u>
Company <u>Hess Oil Co.</u>	Zone Tested <u>H.C.</u>	
Address _____	Elevation <u>2635 K.B.</u>	
Co. Rep./Geo. <u>Jamie Hess</u>	Cont. <u>Mallard #2</u>	Est. Ft. of Pay _____
Location: Sec. <u>22</u>	Twp. <u>6</u>	Rge. <u>26</u> Co. <u>Sheridan</u> State <u>Ks.</u>
No. of Copies <u>1</u>	Distribution Sheet _____	Yes <u>X</u> No _____ Turnkey _____ Yes <u>X</u> No _____ Evaluation _____

Interval Tested <u>3870 - 3900</u>	Drill Pipe Size <u>4.5 F.H.</u>
Anchor Length <u>30</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>3865</u>	Hole Size — 77/8" _____ Rubber Size — 63/4" _____
Bottom Packer Depth <u>3870</u>	Wt. Pipe I.D. — 2.7 Ft. Run _____
Total Depth <u>3900</u>	Drill Collar — 2.25 Ft. Run <u>303'</u>
Mud Wt. <u>8.9</u> lb/gal.	Viscosity <u>47</u> Filtrate <u>6.2</u>
Tool Open @ <u>10:45 p.m.</u> Initial Blow <u>No blow - flushed tool - good surge</u> <u>waited 10 min flushed tool - good surge</u>	
Final Blow _____	

Recovery — Total Feet <u>60</u>	Feet of Gas in Pipe _____	Flush Tool? ☒
Rec. <u>60</u> Feet Of <u>D.M.</u>	%gas _____ %oil _____ %water <u>100</u> %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 108 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud <u>1926</u>	PSI	AK1 Recorder No. <u>13754</u>	Range <u>4000</u>
(B) First Initial Flow Pressure <u>44</u>	PSI	@ (depth) <u>3874</u>	w/Clock No. <u>27501</u>
(C) First Final Flow Pressure <u>66</u>	PSI	AK1 Recorder No. <u>7437</u>	Range <u>4200</u>
(D) Initial Shut-In Pressure <u>0</u>	PSI	@ (depth) <u>3896</u>	w/Clock No. <u>8376</u>
(E) Second Initial Flow Pressure <u>0</u>	PSI	AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>0</u>	PSI	@ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>0</u>	PSI	Initial Opening <u>17</u>	Test _____
(H) Final Hydrostatic Mud <u>1880</u>	PSI	Initial Shut-In <u>0</u>	Jars _____

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Approved By Jamie Hess

Our Representative Don Ransfe

Final Flow <u>0</u>	Safety Joint <u>X</u>
Final Shut-In <u>0</u>	Straddle _____
	Circ. Sub _____
	Sampler _____
	Extra Packer _____
	Other _____

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name BRANDT FARMS #1 Test No. 4 Date 1/1/93
Company HESS OIL CO., INC. Zone LKC
Address 412 EAST DOUGLAS #1 WICHITA KS 67201 Elevation 2635
Co. Rep./Geo. JAMES C. HESS Cont. MALLARD RIG #2 Est. Ft. of Pay 4
Location: Sec. 22 Twp. 6S Rge. 26W Co. SHERIDAN State KS

Interval Tested 3870-3950 Drill Pipe Size 4.5" FH
Anchor Length 80 Wt. Pipe I.D. - 2.7 Ft. Run 303
Top Packer Depth 3865 Drill Collar - 2.25 Ft. Run 303
Bottom Packer Depth 3870 Mud Wt. 9.1 lb/Gal.
Total Depth 3950 Viscosity 50 Filtrate 5

Tool Open @ 12:20 PM Initial Blow 1.25" DECREASING TO VERY WEAK SURFACE BLOW AFTER 60 MINUTES

Final Blow NO BLOW - FLUSHED TOOL

Recovery - Total Feet 360 Flush Tool? YES

Rec. 248 Feet of HVY OIL CUT GASSY MUD-10%GAS/30%OIL/60%MUD
Rec. 112 Feet of HVY OIL CUT GASSY MUD-20%GAS/30%OIL/50%MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 111 °F Gravity _____ °API @ _____ °F Corrected Gravity 32 °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud 1966.5 PSI AK1 Recorder No. 13754 Range 4000

(B) First Initial Flow Pressure 78.6 PSI @ (depth) 3874 w / Clock No. 27501

(C) First Final Flow Pressure 199.1 PSI AK1 Recorder No. 7437 Range 4200

(D) Initial Shut-in Pressure 1160.5 PSI @ (depth) 3946 w / Clock No. 8376

(E) Second Initial Flow Pressure 228.3 PSI AK1 Recorder No. _____ Range _____

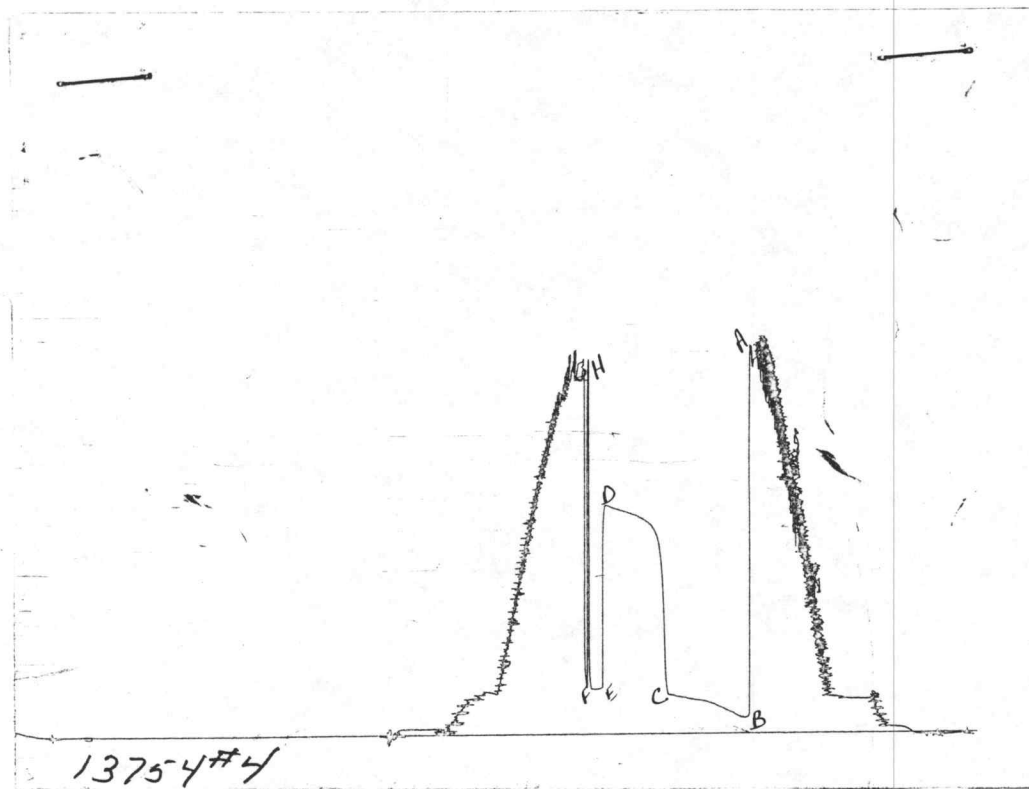
(F) Second Final Flow Pressure 236.0 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure ----- PSI Initial Opening 60 Final Flow 14

(H) Final Hydrostatic Mud 1904.7 PSI Initial Shut-in 45 Final Shut-in 0

Our Representative DAN BANGLE

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1957	1966.5
(B) FIRST INITIAL FLOW PRESSURE	55	78.6
(C) FIRST FINAL FLOW PRESSURE	165	199.1
(D) INITIAL CLOSED-IN PRESSURE	1156	1160.5
(E) SECOND INITIAL FLOW PRESSURE	220	228.3
(F) SECOND FINAL FLOW PRESSURE	220	236
(G) FINAL CLOSED-IN PRESSURE	-----	-----
(H) FINAL HYDROSTATIC MUD	1894	1904.7

CALCULATED RECOVERY ANALYSIS

DST #

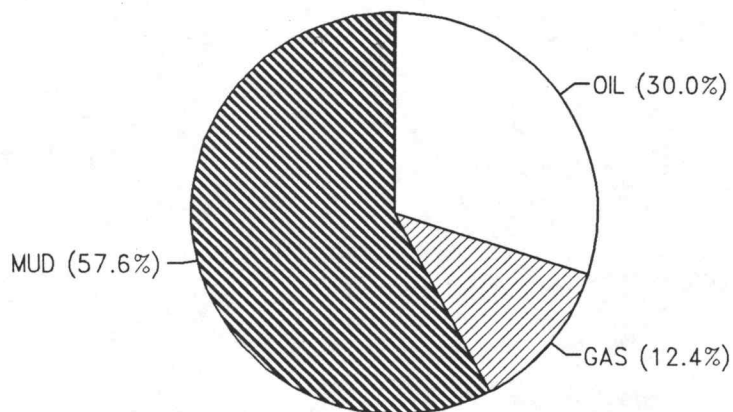
4

TICKET #

5857

SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	WATER %	FEET	MUD %	FEET
DRILL 1	57	10	5.7	30	17.1	0	0	60	34.2
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1			0		0		0		0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
DRILL 1	191	10	19.1	30	57.3	0	0	60	114.6
COLLAR 2	112	20	22.4	30	33.6	0	0	50	56
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	360		47.2		108		0		204.8

			HRS OPEN	BBL/DAY
BBL OIL=	0.687663	*	1.25	13.20313
BBL WATER=	0	*		0
BBL MUD=	1.320558			
BBL GAS =	0.283989			



INITIAL FLOW

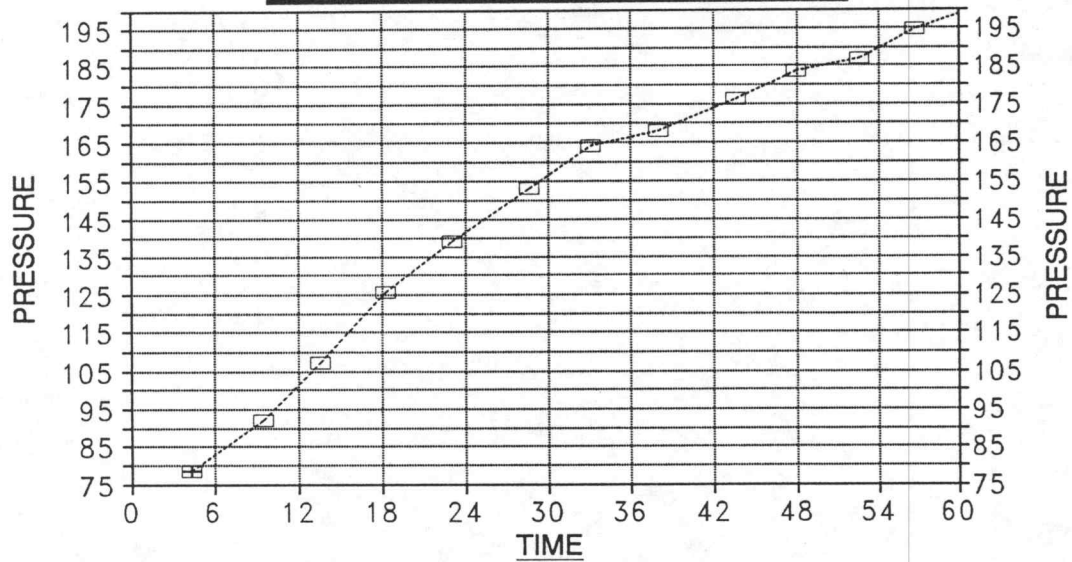
RECORDER # 13754

DST # 4

TIME(MIN)	PRESSURE	<> PRESSURE
-----	-----	-----
4.3	78.6	78.6
9.5	92.1	13.5
13.6	107.3	15.2
18.2	125.6	18.3
23	139.3	13.7
28.6	153.4	14.1
33.1	164.1	10.7
38	168.1	4
43.6	176.4	8.3
47.9	183.6	7.2
52.6	187	3.4

DELTA T DELTA P

INITIAL FLOW - DST #4



--- BRANDT FARMS #1

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

21.997

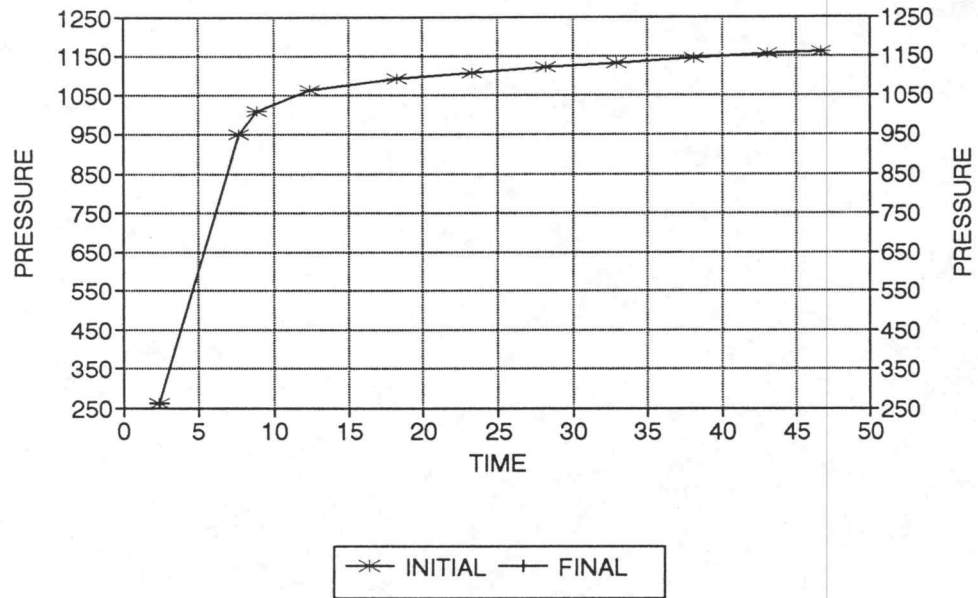
BRANDT FARMS DST #4
INITIAL SHUTIN

60 TOTAL FLOW TIME

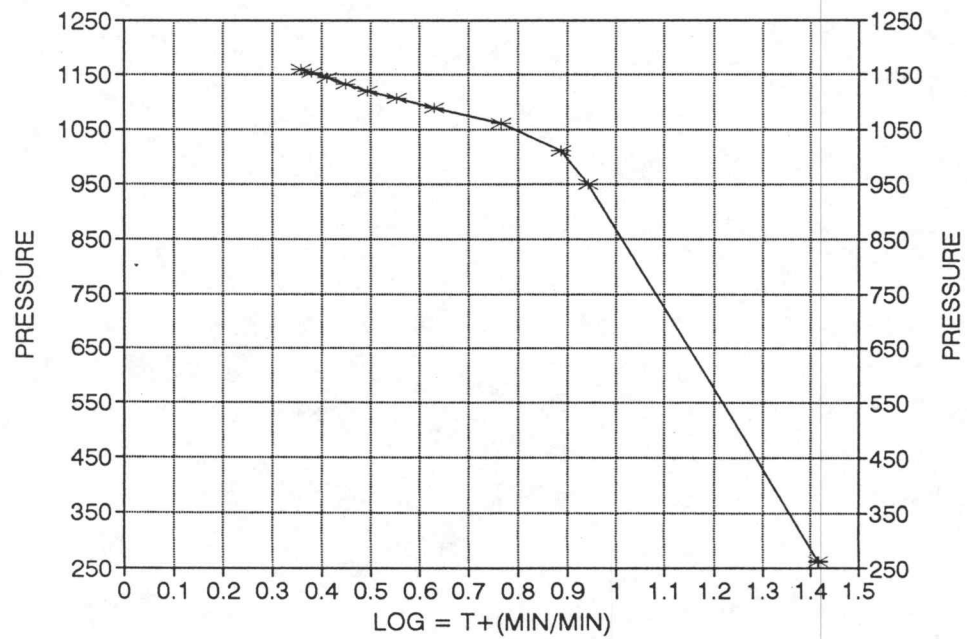
Slope 310.23 psi/cycle
P * 1272 psi

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	2.4	263.1	1.415	263.1	26
	7.7	950.3	0.944	687.2	9
	8.9	1009.6	0.889	59.3	8
	12.4	1061.9	0.766	52.3	6
	18.3	1090.3	0.631	28.4	4
	23.3	1106.5	0.553	16.2	4
	28.2	1119.9	0.495	13.4	3
	32.9	1132.6	0.451	12.7	3
X	38.1	1144.4	0.411	11.8	3
	43	1155.2	0.379	10.8	2
X	46.7	1160.5	0.359	5.3	2

BRANDT FARMS #1 / DST #4 DELTA T DELTA P



HORNER PLOT



Hess Oil Company

DST#4

	4.335184	78.60637	1
	9.588319	92.15195	1
	13.67178	107.3796	1
	18.25115	125.6008	1
	23.09356	139.357	1
	28.66235	153.4627	1
	33.11131	164.1728	1
	38.00605	168.1597	1
	43.61729	176.47	1
	47.92595	183.644	1
	52.60779	187.018	1
	56.7662	194.6298	1
	60.63391	199.143	1
2.4	62.44137	263.1675	2
7.7	67.78197	860.8651	2
8.9	68.92989	1009.664	2
12.4	72.47298	1061.974	2
18.3	78.39774	1090.331	2
23.3	83.3178	1106.573	2
28.2	88.20771	1119.944	2
32.9	92.9874	1132.65	2
38.1	98.17043	1144.427	2
43.0	103.0854	1155.26	2
46.7	106.7552	1160.596	2
8.3	113.3937	228.3968	3
12.1	117.1061	227.9378	3
13.8	118.8948	236.0421	3

105

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

No 5857

Well Name & No. <u>Brandt Farms #1</u>	Test No. <u>4</u>	Date <u>1-1-93</u>
Company <u>Hess Oil Co.</u>	Zone Tested <u>(LKC)</u>	
Address _____	Elevation <u>2635 H.B.</u>	
Co. Rep./Geo. <u>Jamie Hess</u>	Cont. <u>Mallard #2</u>	Est. Ft. of Pay <u>4</u>
Location: Sec. <u>22</u> Twp. <u>6</u> Rge. <u>24</u>	Co. <u>Sheridan</u>	State <u>Ks.</u>
No. of Copies <u>1</u>	Distribution Sheet _____	Yes <u>X</u> No <u>X</u> Turnkey _____
		Yes <u>X</u> No <u>X</u> Evaluation _____

Interval Tested <u>3870 - 3950</u>	Drill Pipe Size <u>4.5 F.H.</u>
Anchor Length <u>80</u>	Top Choke — 1" _____ Bottom Choke — 3/4" _____
Top Packer Depth <u>3865</u>	Hole Size — 77/8" _____ Rubber Size — 63/4" _____
Bottom Packer Depth <u>3870</u>	Wt. Pipe I.D. — 2.7 Ft. Run _____
Total Depth <u>3950</u>	Drill Collar — 2.25 Ft. Run <u>303'</u>
Mud Wt. <u>9.1</u> lb/gal.	Viscosity <u>50</u> Filtrate <u>5</u>
Tool Open @ <u>12:20 p.m.</u> Initial Blow <u>114" decreasing to very weak surface blow after 60 min.</u>	
Final Blow <u>No blow - flushed tool</u>	

Recovery — Total Feet <u>360</u>	Feet of Gas in Pipe _____	Flush Tool? ☒
Rec. <u>248</u> Feet Of <u>HOC GYM</u>	<u>10</u> %gas <u>30</u> %oil	%water <u>60</u> %mud
Rec. <u>112</u> Feet Of <u>HOC GYM</u>	<u>20</u> %gas <u>30</u> %oil	%water <u>50</u> %mud
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____
Rec. _____ Feet Of _____	%gas _____ %oil _____	%water _____ %mud _____

BHT 111 °F Gravity _____ °API @ _____ °F Corrected Gravity 32 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 2000 ppm System

(A) Initial Hydrostatic Mud <u>1957</u>	PSI	AK1 Recorder No. <u>13754</u>	Range <u>4000</u>
(B) First Initial Flow Pressure <u>55</u>	PSI	@ (depth) <u>3874</u>	w/Clock No. <u>27501</u>
(C) First Final Flow Pressure <u>165</u>	PSI	AK1 Recorder No. <u>7437</u>	Range <u>4200</u>
(D) Initial Shut-In Pressure <u>1156</u>	PSI	@ (depth) <u>3946</u>	w/Clock No. <u>8376</u>
(E) Second Initial Flow Pressure <u>220</u>	PSI	AK1 Recorder No. _____	Range _____
(F) Second Final Flow Pressure <u>220</u>	PSI	@ (depth) _____	w/Clock No. _____
(G) Final Shut-In Pressure <u>- - -</u>	PSI	Initial Opening <u>60</u>	Test _____
(H) Final Hydrostatic Mud <u>1894</u>	PSI	Initial Shut-In <u>45</u>	Jars _____

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Approved By Jamie Hess

Our Representative Don Bonafe

Printcraft Printers - Hays, KS

Final Flow <u>14</u>	Safety Joint <u>X</u>
Final Shut-In <u>0</u>	Straddle _____
	Circ. Sub _____
	Sampler _____
	Extra Packer _____
	Other <u>(partial eval)</u>
	TOTAL PRICE \$ _____