



WESTERN TESTING CO., INC.
FORMATION TESTING

TICKET NO 15749

P. O. BOX 1599 PHONE (316) 262-5861
WICHITA, KANSAS 67201

Elevation 1805 KB Formation Lansing Eff. Pay Ft.

District G.T. Bend Date 3-24-90 Customer Order No.

COMPANY NAME H140 F. G. Hobb Company Estate

ADDRESS P.O. Box 780167 Wichita, Ks. 67278-0167

LEASE AND WELL NO. Drach #1-18 COUNTY Stafford STATE Ks Sec. 18 Twp. 21 S Rge. 11 W

Mail Invoice To Co. Name SAME Address DRACH #1-18 No. Copies Requested Reg

Mail Charts To Co. Name SAME Address DRACH #1-18 No. Copies Requested Reg

Formation Test No. 1 Interval Tested From 3182 ft. to 3273 ft. Total Depth 3273 ft.

Packer Depth 3177 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.

Packer Depth 3182 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.

Depth of Selective Zone Set -

Top Recorder Depth (Inside) 3265 ft. Recorder Number 10270 Cap. 4150

Bottom Recorder Depth (Outside) 3268 ft. Recorder Number 13268 Cap. 4225

Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Sterling rig 4 Drill Collar Length 365 I. D. 2.2 in.

Mud Type Chemical Viscosity 46 Weight Pipe Length - I. D. - in.

Weight 9.4 Water Loss 10.4 cc. Drill Pipe Length 2795 I. D. 3.8 in.

Chlorides 3,500 P.P.M. Test Tool Length 22 ft. Tool Size 5 1/2 in.

Jars: Make - Serial Number - Anchor Length 91 ft. Size 5 1/2 in.

Did Well Flow? - Reversed Out - Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.

Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 XH in.

Blow: IF - STRONG Blow in 2 min.

FF - WEAK building to a STRONG Blow in 5 min

Recovered 375 ft. of Muddy WATER 35% mud 65% WATER

Recovered 990 ft. of WATER

Recovered - ft. of -

Recovered - ft. of -

Recovered - ft. of -

Chlorides 59000 P.P.M. Sample Jars used 2 Remarks:

Time On Location 6:45 A.M. Time Pick Up Tool 9:15 P.M. Time Off Location 5:30 A.M. P.M.

Time Set Packer(s) 10:50 P.M. Time Started Off Bottom 2:50 P.M. Maximum Temperature 106

Initial Hydrostatic Pressure (A) 1568 P.S.I.

Initial Flow Period Minutes 30 (B) 93 P.S.I. to (C) 364 P.S.I.

Initial Closed In Period Minutes 60 (D) 1018 P.S.I.

Final Flow Period Minutes 60 (E) 437 P.S.I. to (F) 655 P.S.I.

Final Closed In Period Minutes 90 (G) 1018 P.S.I.

Final Hydrostatic Pressure (H) 1537 P.S.I.

COMPANY TERMS

Western Testing Co., Inc. shall not be liable for damages of any kind to 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, of its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid at cost by the party for whom the test is made.

All charges subject to 12% interest after 60 days from date of invoice. Any expense incurred for collection will be added to the original amount.

Test Approved By W. Bruce Biddleman Signature of Customer or his authorized representative

Western Representative Ray Schwager 1925 Thank you

FIELD INVOICE

Open Hole Test 400
Misrun \$
Straddle Test \$
Jars \$
Selective Zone \$
Safety Joint NC
Standby \$
Evaluation \$
Extra Packer \$
Circ. Sub. \$
Mileage \$
Fluid Sampler \$
Extra Charts \$
Insurance \$
Telecopier \$
TOTAL

WESTERN TESTING CO., INC.

Pressure Data

Date 3-24-90 Test Ticket No. 15749
 Recorder No. 10270 Capacity 4150 Location _____ Ft.
 Clock No. _____ Elevation _____ Well Temperature 106 °F

Point	Pressure	Open Tool	Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1583</u> P.S.I.		<u>10:50</u> M	
B First Initial Flow Pressure	<u>114</u> P.S.I.	First Flow Pressure	<u>30</u> Mins	<u>30</u> Mins.
C First Final Flow Pressure	<u>380</u> P.S.I.	Initial Closed-in Pressure	<u>60</u> Mins	<u>60</u> Mins.
D Initial Closed-in Pressure	<u>1029</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>444</u> P.S.I.	Final Closed-in Pressure	<u>90</u> Mins	<u>90</u> Mins.
F Second Final Flow Pressure	<u>664</u> P.S.I.			
G Final Closed-in Pressure	<u>1009</u> P.S.I.			
H Final Hydrostatic Mud	<u>1556</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.	
of <u>5</u> mins. and a		of <u>3</u> mins. and a		of <u>5</u> mins. and a		of <u>3</u> mins. and a	
final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	<u>114</u>	0	<u>380</u>	0	<u>444</u>	0	<u>664</u>
P 2 5	<u>122</u>	3	<u>882</u>	5	<u>444</u>	3	<u>869</u>
P 3 10	<u>249</u>	6	<u>926</u>	10	<u>462</u>	6	<u>900</u>
P 4 15	<u>283</u>	9	<u>948</u>	15	<u>489</u>	9	<u>914</u>
P 5 20	<u>317</u>	12	<u>960</u>	20	<u>515</u>	12	<u>924</u>
P 6 25	<u>351</u>	15	<u>971</u>	25	<u>536</u>	15	<u>931</u>
P 7 30	<u>380</u>	18	<u>978</u>	30	<u>562</u>	18	<u>937</u>
P 8 35		21	<u>985</u>	35	<u>582</u>	21	<u>942</u>
P 9 40		24	<u>991</u>	40	<u>603</u>	24	<u>947</u>
P 10 45		27	<u>995</u>	45	<u>626</u>	27	<u>952</u>
P 11 50		30	<u>999</u>	50	<u>641</u>	30	<u>960</u>
P 12 55		33	<u>1002</u>	55	<u>656</u>	33	<u>964</u>
P 13 60		36	<u>1004</u>	60	<u>664</u>	36	<u>967</u>
P 14 65		39	<u>1007</u>	65		39	<u>971</u>
P 15 70		42	<u>1009</u>	70		42	<u>974</u>
P 16 75		45	<u>1011</u>	75		45	<u>976</u>
P 17 80		48	<u>1014</u>	80		48	<u>979</u>
P 18 85		51	<u>1018</u>	85		51	<u>981</u>
P 19 90		54	<u>1022</u>	90		54	<u>983</u>
P 20 95		57	<u>1026</u>	95		57	<u>985</u>
100		60	<u>1029</u>	100		60	<u>987</u>

WESTERN TESTING CO., INC.

Pressure Data

Date _____

Test Ticker No. 15749

Recorder No. _____ Capacity _____ Location _____ Ft.

Clock No. _____ Elevation _____ Well Temperature _____ °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud _____	P.S.I.	Open Tool _____	M _____	
B First Initial Flow Pressure _____	P.S.I.	First Flow Pressure _____	Mins. _____	Mins. _____
C First Final Flow Pressure _____	P.S.I.	Initial Closed-in Pressure _____	Mins. _____	Mins. _____
D Initial Closed-in Pressure _____	P.S.I.	Second Flow Pressure _____	Mins. _____	Mins. _____
E Second Initial Flow Pressure _____	P.S.I.	Final Closed-in Pressure _____	Mins. _____	Mins. _____
F Second Final Flow Pressure _____	P.S.I.			
G Final Closed-in Pressure _____	P.S.I.			
H Final Hydrostatic Mud _____	P.S.I.			

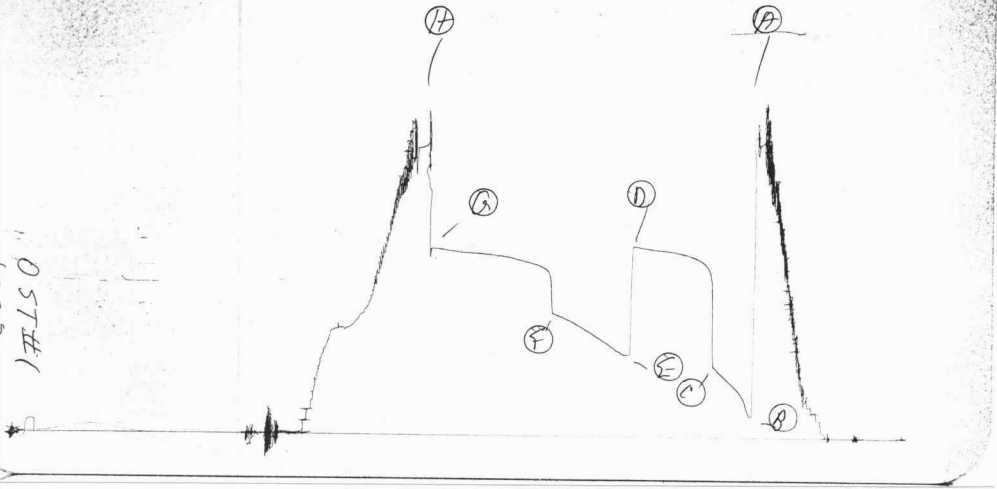
PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In	
	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	
	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 105	_____	63	_____	63	989
P 2 110	_____	66	_____	66	991
P 3 115	_____	69	_____	69	993
P 4 120	_____	72	_____	72	995
P 5 125	_____	75	_____	75	997
P 6 130	_____	78	_____	78	999
P 7 135	_____	81	_____	81	1001
P 8 140	_____	84	_____	84	1003
P 9 145	_____	87	_____	87	1004
P10 150	_____	90	_____	90	1009
P11 155	_____	93	_____	93	
P12 160	_____	96	_____	96	
P13 165	_____	99	_____	99	
P14 170	_____	102	_____	102	
P15 175	_____	105	_____	105	
P16 180	_____	108	_____	108	
P17 185	_____	111	_____	111	
P18 190	_____	114	_____	114	
P19 195	_____	117	_____	117	
P20 200	_____	120	_____	120	

KT 15749

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OST 150



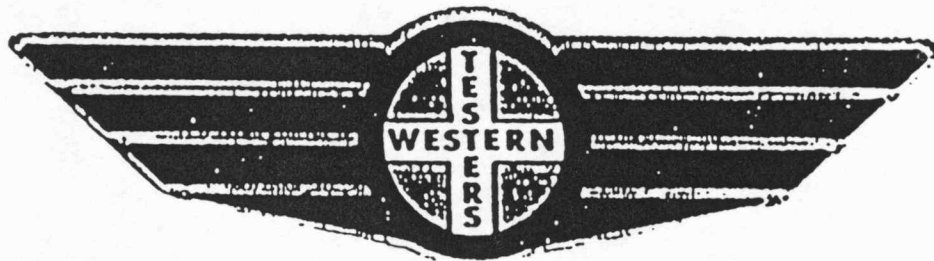
KT 15749

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OST 150



FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 3/24/90 TICKET : 15749
CUSTOMER : F G HOLL ESTATE LEASE : DRACH
WELL : 1-18 TEST: 1 GEOLOGIST : BIDLEMAN
ELEVATION : 1805 KB FORMATION : LANSING
SECTION : 18 TOWNSHIP : 21S
RANGE : 11W COUNTY : STAFFORD STATE : KANSAS
GAUGE SN# : 10270 RANGE : 4150 CLOCK : 12

INTERVAL FROM : 3182 TO : 3273 TOTAL DEPTH : 3273
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 3144 SIZE : 6.63
PACKER DEPTH : 3182 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : STERLING RIG 4
MUD TYPE : CHEMICAL VISCOSITY : 46
WEIGHT : 9.4 WATER LOSS (CC) : 10.4
CHLORIDES (PPM) : 3500
JARS-MAKE : SERIAL NUMBER :
DID WELL FLOW ? : REVERSED OUT ? :

DRILL COLLAR LENGTH : 365 FT I.D. inch : 2.20
WEIGHT PIPE LENGTH : 0 FT I.D. inch : 0.00
DRILL PIPE LENGTH : 2795 FT I.D. inch : 3.80
TEST TOOL LENGTH : 22 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 91 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5XH

BLOW COMMENT #1 : INITIAL FLOW PERIOD STRONG BLOW
BLOW COMMENT #2 : IN 2 MINUTES.
BLOW COMMENT #3 : FINAL FLOW PERIOD WEAK BLOW BUILDING
BLOW COMMENT #4 : TO STRONG BLOW IN 5 MINUTES.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL ESTATE
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : 1-18
DATE : 3/24/90
GAUGE NO : 10270

OPERATIONAL COMMENTS

COMPANY : F G HOLL ESTATE
 WELL : 1-18
 GAUGE # : 10270
 DATE : 24/ 3/90

FIELD : DRACH
 JOB # : 15749
 DEPTH : 3273
 TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
INITIAL FLOW PERIOD					
2	10:50: 0	0.000	114.000	106.00	0.000
3	10:54:59	0.083	173.000	106.00	59.000
4	11: 0: 0	0.167	247.000	106.00	74.000
5	11: 5: 0	0.250	283.000	106.00	36.000
6	11: 9:59	0.333	317.000	106.00	34.000
7	11:15: 0	0.417	351.000	106.00	34.000
8	11:20: 0	0.500	380.000	106.00	29.000
INITIAL SHUT-IN PERIOD					
9	11:23: 0	0.550	882.000	106.00	502.000
10	11:26: 0	0.600	926.000	106.00	44.000
11	11:29: 0	0.650	948.000	106.00	22.000
12	11:32: 0	0.700	960.000	106.00	12.000
13	11:35: 0	0.750	971.000	106.00	11.000
14	11:38: 0	0.800	978.000	106.00	7.000
15	11:41: 0	0.850	985.000	106.00	7.000
16	11:44: 0	0.900	991.000	106.00	6.000
17	11:47: 0	0.950	995.000	106.00	4.000
18	11:50: 0	1.000	999.000	106.00	4.000
19	11:53: 0	1.050	1002.000	106.00	3.000
20	11:56: 0	1.100	1004.000	106.00	2.000
21	11:59: 0	1.150	1007.000	106.00	3.000
22	12: 2: 0	1.200	1009.000	106.00	2.000
23	12: 5: 0	1.250	1011.000	106.00	2.000
24	12: 8: 0	1.300	1014.000	106.00	3.000
25	12:11: 0	1.350	1018.000	106.00	4.000
26	12:14: 0	1.400	1022.000	106.00	4.000
27	12:17: 0	1.450	1026.000	106.00	4.000
28	12:20: 0	1.500	1029.000	106.00	3.000
FINAL FLOW PERIOD					
29	12:21: 0	1.517	444.000	106.00	-585.000
30	12:24:59	1.583	444.000	106.00	0.000
31	12:30: 0	1.667	462.000	106.00	18.000
32	12:35: 0	1.750	489.000	106.00	27.000
33	12:39:59	1.833	515.000	106.00	26.000
34	12:45: 0	1.917	536.000	106.00	21.000
35	12:50: 0	2.000	562.000	106.00	26.000
36	12:54:59	2.083	582.000	106.00	20.000
37	13: 0: 0	2.167	603.000	106.00	21.000
38	13: 5: 0	2.250	626.000	106.00	23.000
39	13: 9:59	2.333	641.000	106.00	15.000
40	13:15: 0	2.417	656.000	106.00	15.000
41	13:20: 0	2.500	664.000	106.00	8.000
FINAL SHUT-IN PERIOD					
42	13:23: 0	2.550	869.000	106.00	205.000
43	13:26: 0	2.600	900.000	106.00	31.000
44	13:29: 0	2.650	914.000	106.00	14.000
45	13:32: 0	2.700	924.000	106.00	10.000
46	13:35: 0	2.750	931.000	106.00	7.000
47	13:38: 0	2.800	937.000	106.00	6.000
48	13:41: 0	2.850	942.000	106.00	5.000

COMPANY : F G HOLL ESTATE
WELL : 1-18
GAUGE # : 10270
DATE : 24/ 3/90

FIELD : DRACH
JOB # : 15749
DEPTH : 3273
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
49	13:44: 0	2.900	947.000	106.00	5.000
50	13:47: 0	2.950	952.000	106.00	5.000
51	13:50: 0	3.000	960.000	106.00	8.000
52	13:53: 0	3.050	964.000	106.00	4.000
53	13:56: 0	3.100	967.000	106.00	3.000
54	13:59: 0	3.150	971.000	106.00	4.000
55	14: 2: 0	3.200	974.000	106.00	3.000
56	14: 5: 0	3.250	976.000	106.00	2.000
57	14: 8: 0	3.300	979.000	106.00	3.000
58	14:11: 0	3.350	981.000	106.00	2.000
59	14:14: 0	3.400	983.000	106.00	2.000
60	14:17: 0	3.450	985.000	106.00	2.000
61	14:20: 0	3.500	987.000	106.00	2.000
62	14:23: 0	3.550	989.000	106.00	2.000
63	14:26: 0	3.600	991.000	106.00	2.000
64	14:29: 0	3.650	993.000	106.00	2.000
65	14:32: 0	3.700	995.000	106.00	2.000
66	14:35: 0	3.750	997.000	106.00	2.000
67	14:38: 0	3.800	999.000	106.00	2.000
68	14:41: 0	3.850	1001.000	106.00	2.000
69	14:44: 0	3.900	1003.000	106.00	2.000
70	14:47: 0	3.950	1006.000	106.00	3.000
71	14:50: 0	4.000	1009.000	106.00	3.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL ESTATE
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : 1-18
DATE : 3/24/90
GAUGE NO : 10270
TEST : DST-1 SHUTIN-1

COMPANY : F G HOLL ESTATE
 WELL : 1-18
 GAUGE # : 10270
 DATE : 24/ 3/90
 Comment : DST-1 SHUTIN-1
 Horner T: .5 Hours

FIELD : DRACH
 JOB # : 15749
 DEPTH : 3273
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
8	11:20: 0	0.000	380.000	106.00	0.0000	0.000
9	11:23: 0	0.050	882.000	106.00	11.0000	502.000
10	11:26: 0	0.100	926.000	106.00	6.0000	546.000
11	11:29: 0	0.150	948.000	106.00	4.3333	568.000
12	11:32: 0	0.200	960.000	106.00	3.5000	580.000
13	11:35: 0	0.250	971.000	106.00	3.0000	591.000
14	11:38: 0	0.300	978.000	106.00	2.6667	598.000
15	11:41: 0	0.350	985.000	106.00	2.4286	605.000
16	11:44: 0	0.400	991.000	106.00	2.2500	611.000
17	11:47: 0	0.450	995.000	106.00	2.1111	615.000
18	11:50: 0	0.500	999.000	106.00	2.0000	619.000
19	11:53: 0	0.550	1002.000	106.00	1.9091	622.000
20	11:56: 0	0.600	1004.000	106.00	1.8333	624.000
21	11:59: 0	0.650	1007.000	106.00	1.7692	627.000
22	12: 2: 0	0.700	1009.000	106.00	1.7143	629.000
23	12: 5: 0	0.750	1011.000	106.00	1.6667	631.000
24	12: 8: 0	0.800	1014.000	106.00	1.6250	634.000
25	12:11: 0	0.850	1018.000	106.00	1.5882	638.000
26	12:14: 0	0.900	1022.000	106.00	1.5556	642.000
27	12:17: 0	0.950	1026.000	106.00	1.5263	646.000
28	12:20: 0	1.000	1029.000	106.00	1.5000	649.000

WESTERN TESTING CO. INC.

COMPANY: F G HOLL ESTATE
 FIELD: DRACH

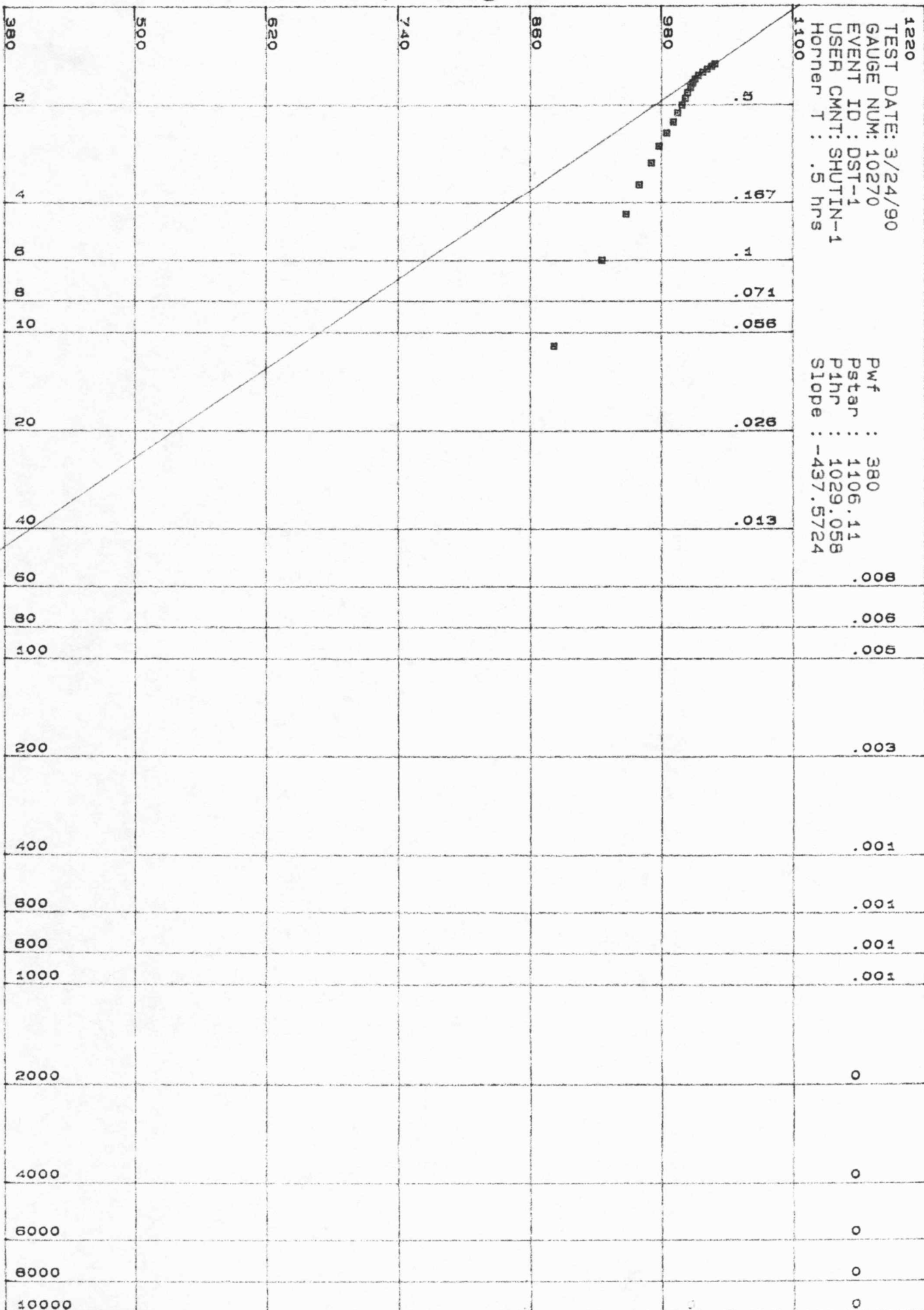
WELL # : 1-18
 LOCATION: STAFFORD-KANSAS

PROCESSED: 03-30-1990
 ENGINEER: LARRY KING

1220
 TEST DATE: 3/24/90
 GAUGE NUM: 10270
 EVENT ID : DST-1
 USER CMNT: SHUTIN-1
 Horner T : .5 hrs

Pwf : 380
 Pstar : 1106.11
 P1hr : 1029.058
 Slope : -437.5724

Pressure, Psig



Job No. 15749
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt)/dt

RES-TRAN

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL ESTATE
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : 1-18
DATE : 3/24/90
GAUGE NO : 10270
TEST : DST-1 SHUTIN-2

COMPANY : F G HOLL ESTATE
 WELL : 1-18
 GAUGE # : 10270
 DATE : 24/ 3/90
 Comment : DST-1 SHUTIN-2
 Horner T: 1 Hours

FIELD : DRACH
 JOB # : 15749
 DEPTH : 3273
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
41	13:20: 0	0.000	664.000	106.00	0.0000	0.000
42	13:23: 0	0.050	869.000	106.00	21.0000	205.000
43	13:26: 0	0.100	900.000	106.00	11.0000	236.000
44	13:29: 0	0.150	914.000	106.00	7.6667	250.000
45	13:32: 0	0.200	924.000	106.00	6.0000	260.000
46	13:35: 0	0.250	931.000	106.00	5.0000	267.000
47	13:38: 0	0.300	937.000	106.00	4.3333	273.000
48	13:41: 0	0.350	942.000	106.00	3.8571	278.000
49	13:44: 0	0.400	947.000	106.00	3.5000	283.000
50	13:47: 0	0.450	952.000	106.00	3.2222	288.000
51	13:50: 0	0.500	960.000	106.00	3.0000	296.000
52	13:53: 0	0.550	964.000	106.00	2.8182	300.000
53	13:56: 0	0.600	967.000	106.00	2.6667	303.000
54	13:59: 0	0.650	971.000	106.00	2.5385	307.000
55	14: 2: 0	0.700	974.000	106.00	2.4286	310.000
56	14: 5: 0	0.750	976.000	106.00	2.3333	312.000
57	14: 8: 0	0.800	979.000	106.00	2.2500	315.000
58	14:11: 0	0.850	981.000	106.00	2.1765	317.000
59	14:14: 0	0.900	983.000	106.00	2.1111	319.000
60	14:17: 0	0.950	985.000	106.00	2.0526	321.000
61	14:20: 0	1.000	987.000	106.00	2.0000	323.000
62	14:23: 0	1.050	989.000	106.00	1.9524	325.000
63	14:26: 0	1.100	991.000	106.00	1.9091	327.000
64	14:29: 0	1.150	993.000	106.00	1.8696	329.000
65	14:32: 0	1.200	995.000	106.00	1.8333	331.000
66	14:35: 0	1.250	997.000	106.00	1.8000	333.000
67	14:38: 0	1.300	999.000	106.00	1.7692	335.000
68	14:41: 0	1.350	1001.000	106.00	1.7407	337.000
69	14:44: 0	1.400	1003.000	106.00	1.7143	339.000
70	14:47: 0	1.450	1006.000	106.00	1.6897	342.000
71	14:50: 0	1.500	1009.000	106.00	1.6667	345.000

WESTERN TESTING CO. INC.

COMPANY: F G HOLL ESTATE
 FIELD: DRACH

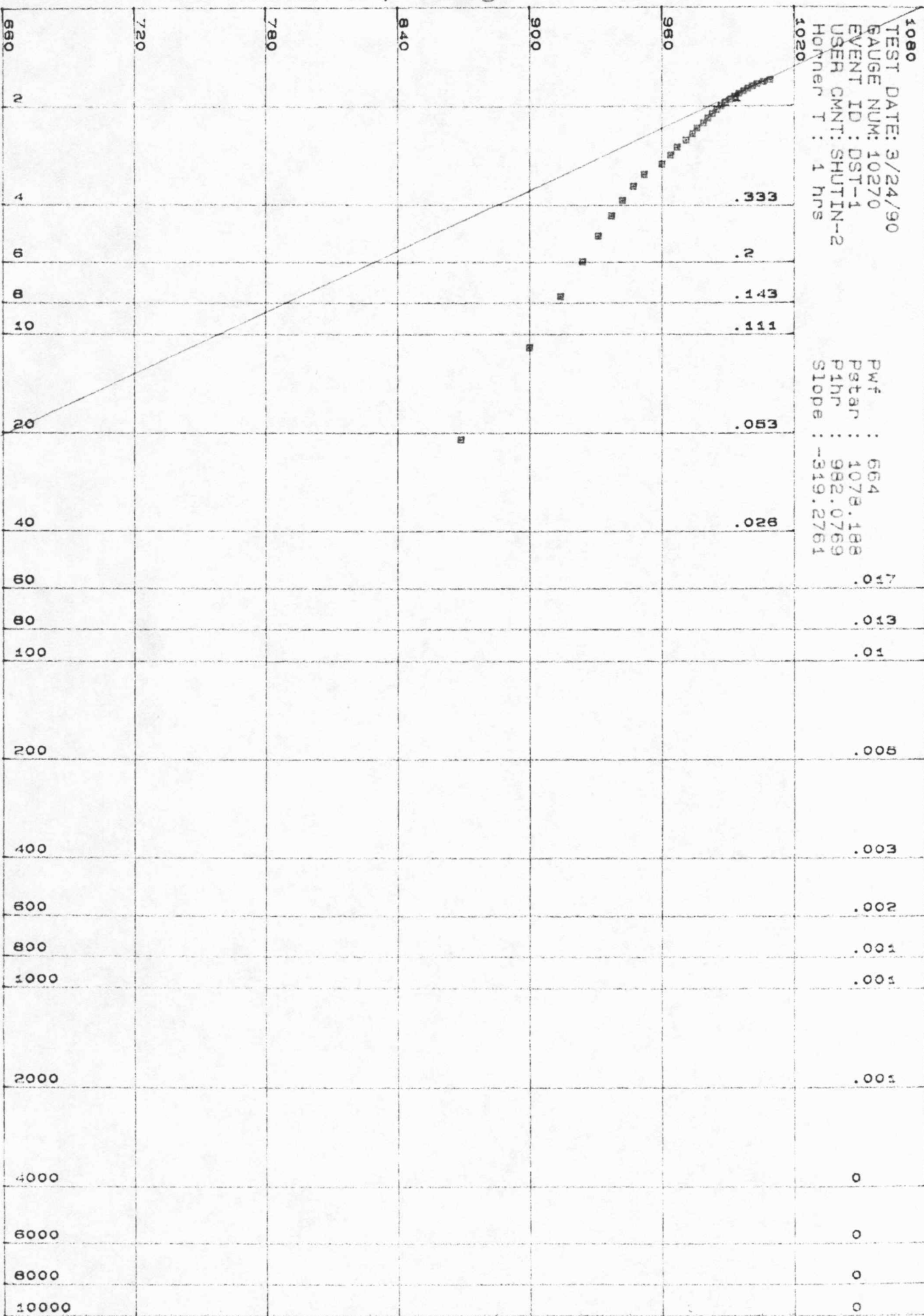
WELL # : 1118
 LOCATION: STAFFORD-KANSAS

PROCESSED: 03-30-1990
 ENGINEER: LARRY KING

TEST DATE: 3/24/90
 GAUGE NUM: 10270
 EVENT ID: DST-1
 USER CMNT: SHUTIN-2
 Horner T: 1 hrs

Pwf : 664
 Pstar : 1078.188
 P1hr : 982.0769
 Slope : -319.2761

Pressure, Psig



Job No. 15749
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN



WESTERN TESTING CO., INC.
FORMATION TESTING

TICKET N^o 15750

P. O. BOX 1599 PHONE (316) 262-5861
WICHITA, KANSAS 67201

Elevation 1805 KB Formation LANSING Eff. Pay Ft.

District GT. Bend Date 3-25-90 Customer Order No.

COMPANY NAME H140 F. G. Hall Company

ADDRESS P.O. Box 780167 WICHITA, KS 67278-0167

LEASE AND WELL NO. DRACH #1-18 COUNTY STAFFORD STATE Ks Sec. 18 Twp 21^s Rge. 11^w

Mail Invoice To SAME Co. Name Address No. Copies Requested Reg

Mail Charts To SAME Co. Name Address DRACH #1-18 No. Copies Requested Reg

Formation Test No. 2 Interval Tested From 3314 ft. to 3369 ft. Total Depth 3369 ft.

Packer Depth 3309 ft. Size 6 5/8 in. Packer Depth ft. Size in.

Packer Depth 3314 ft. Size 6 5/8 in. Packer Depth ft. Size in.

Depth of Selective Zone Set

Top Recorder Depth (Inside) 3317 ft. Recorder Number 10270 Cap. 4150

Bottom Recorder Depth (Outside) 3320 ft. Recorder Number 13268 Cap. 4225

Below Straddle Recorder Depth ft. Recorder Number Cap.

Drilling Contractor STERLING rig 4 Drill Collar Length 365 I. D. 2.2 in.

Mud Type CHEMICAL Viscosity 48 Weight Pipe Length I. D. in.

Weight 9.2 Water Loss 10 cc. Drill Pipe Length 3081 2927 I. D. 3.8 in.

Chlorides 8,500 P.P.M. Test Tool Length 22 ft. Tool Size 5 1/2 in.

Jars: Make Serial Number Anchor Length 55 ft. Size 5 1/2 in.

Did Well Flow? GAS Reversed Out yes Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.

Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 X 4 in.

Blow: TF - STRONG BLOW IN 2 min

FF - GAS TO SURFACE TO WEAK TO GAUGE

Recovered 60 ft. of Oil cut mud 5% oil 95% mud 3. oil 56.4 MA .6 W

Recovered 1370 ft. of GASSY OIL GRAVITY 33 1370 oil

Recovered ft. of 1393 oil .6 water

Recovered ft. of

Recovered ft. of

Chlorides P.P.M. Sample Jars used 2 Remarks: GAS SURFACED 35 min INTO TEST

Time On Location 2:05 A.M. P.M. Time Pick Up Tool 2:20 A.M. P.M. Time Off Location 11:30 A.M. P.M.

Time Set Packer(s) 3:35 A.M. P.M. Time Started Off Bottom 7:35 A.M. P.M. Maximum Temperature 104°

Initial Hydrostatic Pressure (A) 1620 P.S.I.

Initial Flow Period Minutes 30 (B) 125 P.S.I. to (C) 281 P.S.I.

Initial Closed In Period Minutes 60 (D) 1080 P.S.I.

Final Flow Period Minutes 60 (E) 333 P.S.I. to (F) 510 P.S.I.

Final Closed In Period Minutes 90 (G) 1049 P.S.I.

Final Hydrostatic Pressure (H) 1599 P.S.I.

COMPANY TERMS

Western Testing Co., Inc. shall not be liable for damages of any kind to 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, of its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid at cost by the party for whom the test is made.

All charges subject to 12% interest after 60 days from date of invoice. Any expense incurred for collection will be added to the original amount.

Test Approved By W. Bryce Bidlama
Signature of Customer or his authorized representative

Western Representative Ray Schwager 1925 Thank you

FIELD INVOICE

Open Hole Test	✓	400
Misrun	\$	
Straddle Test	\$	
Jars	\$	
Selective Zone	\$	
Safety Joint	✓	NC
Standby	\$	
Evaluation	\$	
Extra Packer	\$	
Circ. Sub.	✓	35
Mileage	\$	
Fluid Sampler	\$	
Extra Charts	\$	
Insurance	\$	
Telecopier	\$	
TOTAL	✓	

WESTERN TESTING CO., INC.

Pressure Data

Date 9-25-90 Recorder No. 10270 Capacity 4150 Location _____ Ft. _____
 Test Ticket No. 15750
 Clock No. _____ Elevation _____ Well Temperature 104 °F
 Point _____ Pressure _____ Time Given _____ Time Computed _____
 A Initial Hydrostatic Mud 1070 P.S.I. Open Tool 3:25 P M _____
 B First Initial Flow Pressure 138 P.S.I. First Flow Pressure 30 Mins 30 Mins
 C First Final Flow Pressure 297 P.S.I. Initial Closed-in Pressure 60 Mins 60 Mins
 D Initial Closed-in Pressure 1093 P.S.I. Second Flow Pressure 60 Mins 60 Mins
 E Second Initial Flow Pressure 345 P.S.I. Final Closed-in Pressure 90 Mins 90 Mins
 F Second Final Flow Pressure 522 P.S.I.
 G Final Closed-in Pressure 1055 P.S.I.
 H Final Hydrostatic Mud 1610 P.S.I.

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.	
of <u>5</u> mins. and a		of <u>3</u> mins. and a		of <u>5</u> mins. and a		of <u>3</u> mins. and a	
final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	138	0	297	0	345	0	522
P 2 5	180	3	810	5	5	3	908
P 3 10	189	6	920	10	345	6	975
P 4 15	221	9	1019	15	362	9	958
P 5 20	259	12	1043	20	383	12	1014
P 6 25	281	15	1055	25	406	15	1020
P 7 30	297	18	1065	30	424	18	1025
P 8 35		21	1072	35	444	21	1029
P 9 40		24	1077	40	460	24	1033
P10 45		27	1082	45	478	27	1035
P11 50		30	1084	50	493	30	1036
P12 55		33	1088	55	510	33	1037
P13 60		36	1091	60	522	36	1038
P14 65		39	1093	65		39	1039
P15 70		42		70		42	1041
P16 75		45	1093	75		45	1043
P17 80		48		80		48	1045
P18 85		51		85		51	1047
P19 90		54		90		54	1048
P20 95		57		95		57	1049
100		60	1093	100		60	1050

WESTERN TESTING CO., INC.

Pressure Data

Date _____

Test Ticket No. 15750

Recorder No. _____ Capacity _____ Location _____ Ft.

Clock No. _____ Elevation _____ Well Temperature _____ °F

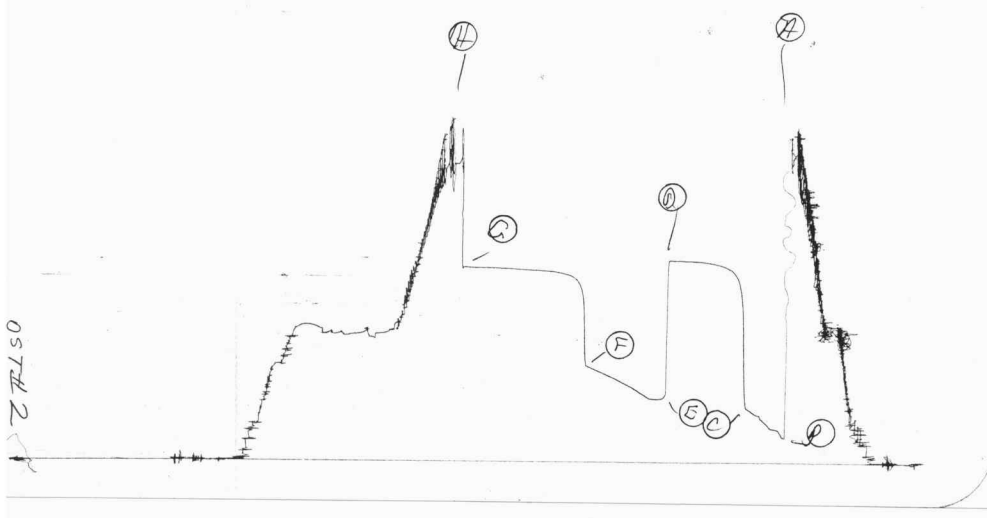
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud _____	P.S.I.	Open Tool _____	M _____	
B First Initial Flow Pressure _____	P.S.I.	First Flow Pressure _____	Mins. _____	Mins. _____
C First Final Flow Pressure _____	P.S.I.	Initial Closed-in Pressure _____	Mins. _____	Mins. _____
D Initial Closed-in Pressure _____	P.S.I.	Second Flow Pressure _____	Mins. _____	Mins. _____
E Second Initial Flow Pressure _____	P.S.I.	Final Closed-in Pressure _____	Mins. _____	Mins. _____
F Second Final Flow Pressure _____	P.S.I.			
G Final Closed-in Pressure _____	P.S.I.			
H Final Hydrostatic Mud _____	P.S.I.			

PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.
	Press.	Point Minutes	Press.	Point Minutes
P 1	105	63	105	63
P 2	110	66	110	66
P 3	115	69	115	69
P 4	120	72	120	72
P 5	125	75	125	75
P 6	130	78	130	78
P 7	135	81	135	81
P 8	140	84	140	84
P 9	145	87	145	87
P10	150	90	150	90
P11	155	93	155	93
P12	160	96	160	96
P13	165	99	165	99
P14	170	102	170	102
P15	175	105	175	105
P16	180	108	180	108
P17	185	111	185	111
P18	190	114	190	114
P19	195	117	195	117
P20	200	120	200	120

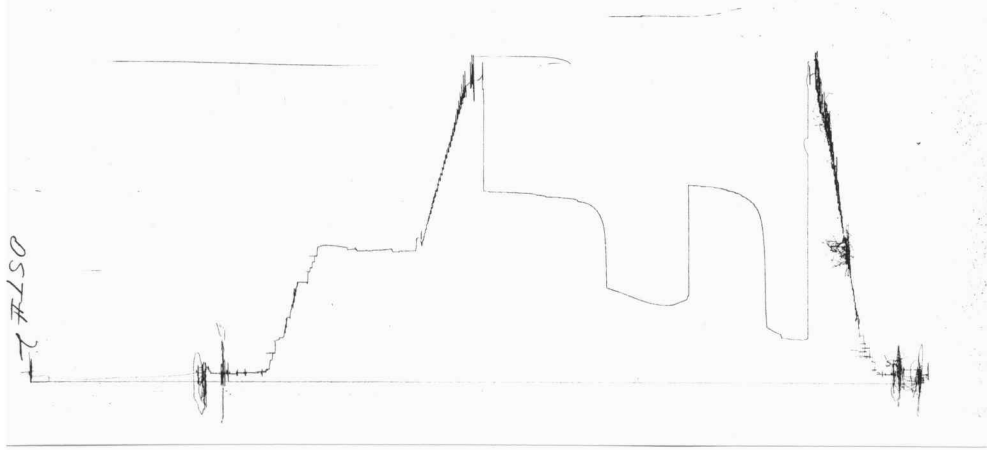
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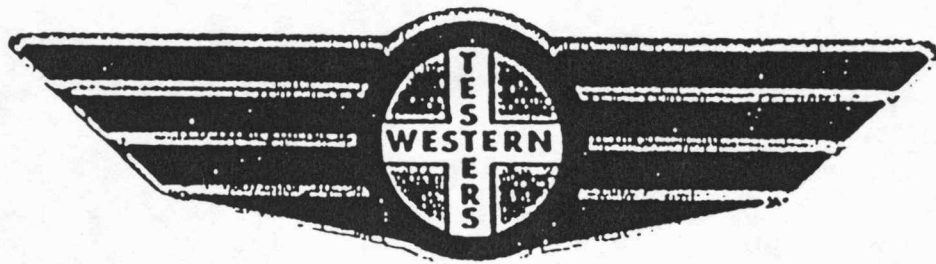


KT 15750

O



FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 03-25-90 TICKET : 15750
CUSTOMER : F G HOLL COMPANY LEASE : DRACH
WELL : #1-18 TEST: 2 GEOLOGIST : BIDELEMAN
ELEVATION : 1805 KB FORMATION : LANSING
SECTION : 18 TOWNSHIP : 21S
RANGE : 11W COUNTY : STAFFORD STATE : KANSAS
GAUGE SN# : 10270 RANGE : 4150 CLOCK : 12

INTERVAL FROM : 3314 TO : 3369 TOTAL DEPTH : 3369
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 3309 SIZE : 6.63
PACKER DEPTH : 3314 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : STERLING
MUD TYPE : CHEMICAL VISCOSITY : 48
WEIGHT : 9.2 WATER LOSS (CC) : 10
CHLORIDES (PPM) : 8500
JARS-MAKE : SERIAL NUMBER :
DID WELL FLOW ? : GAS REVERSED OUT ? : YES

DRILL COLLAR LENGTH : 365 FT I.D. inch : 2.20
WEIGHT PIPE LENGTH : 0 FT I.D. inch : 0.00
DRILL PIPE LENGTH : 2927 FT I.D. inch : 3.80
TEST TOOL LENGTH : 22 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 55 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL FLOW PERIOD STRONG BLOW IN 2 MIN
BLOW COMMENT #2 : FINAL FLOW PERIOD GAS TO SURFACE TOO WEAK TO GAUGE
BLOW COMMENT #3 :
BLOW COMMENT #4 :

RECOVERED : 60 FT OF: OIL CUT MUD 5% OIL 95% MUD
RECOVERED : 1370 FT OF: GASSY OIL GRAVITY 33

Total Barrels Fluid = 16.65
Total Fluid Prod Rate = 266.46 BFPD
Indicated Oil Rate = 255.84 BOPD
Indicated Wtr Rate = 10.51 BWPD
Corrected Oil Rate = 192.11 BOPD
Corrected Wtr Rate = 7.89 BWPD

REMARK 1 :
REMARK 2 : GAS SURFACED 35 MIN INTO TEST
REMARK 3 :
REMARK 4 :

SET PACKER(S) : 3:35 PM TIME STARTED OFF BOTTOM : 7:35 PM
WELL TEMPERATURE : 104
INITIAL HYDROSTATIC PRESSURE (A) 1670
INITIAL FLOW PERIOD MIN: 30 (B) 138 PSI TO (C) : 297
INITIAL CLOSED IN PERIOD MIN: 60 (D) 1093
FINAL FLOW PERIOD MIN: 60 (E) 345 PSI TO (F) : 522
FINAL CLOSED IN PERIOD MIN: 90 (G) 1055
FINAL HYDROSTATIC PRESSURE (H) 1610

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-25-90
GAUGE NO : 10270

OPERATIONAL COMMENTS

GAS SURFACED 35 MIN INTO TEST

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 25/ 3/90

FIELD : DRACH
 JOB # : 15750
 DEPTH : 3369
 TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
INITIAL FLOW PERIOD					
2	3:35: 0	0.000	138.000	104.00	0.000
3	3:39:59	0.083	180.000	104.00	42.000
4	3:45: 0	0.167	189.000	104.00	9.000
5	3:50: 0	0.250	221.000	104.00	32.000
6	3:54:59	0.333	259.000	104.00	38.000
7	4: 0: 0	0.417	281.000	104.00	22.000
8	4: 5: 0	0.500	297.000	104.00	16.000
INITIAL SHUT-IN PERIOD					
9	4: 8: 0	0.550	810.000	104.00	513.000
10	4:11: 0	0.600	970.000	104.00	160.000
11	4:14: 0	0.650	1019.000	104.00	49.000
12	4:17: 0	0.700	1043.000	104.00	24.000
13	4:20: 0	0.750	1055.000	104.00	12.000
14	4:23: 0	0.800	1065.000	104.00	10.000
15	4:26: 0	0.850	1072.000	104.00	7.000
16	4:29: 0	0.900	1077.000	104.00	5.000
17	4:32: 0	0.950	1082.000	104.00	5.000
18	4:35: 0	1.000	1084.000	104.00	2.000
19	4:38: 0	1.050	1088.000	104.00	4.000
20	4:41: 0	1.100	1091.000	104.00	3.000
21	4:44: 0	1.150	1093.000	104.00	2.000
22	4:47: 0	1.200	1093.000	104.00	0.000
23	4:50: 0	1.250	1093.000	104.00	0.000
24	4:53: 0	1.300	1093.000	104.00	0.000
25	4:56: 0	1.350	1093.000	104.00	0.000
26	4:59: 0	1.400	1093.000	104.00	0.000
27	5: 2: 0	1.450	1093.000	104.00	0.000
28	5: 5: 0	1.500	1093.000	104.00	0.000
FINAL FLOW PERIOD					
29	5: 6: 0	1.517	345.000	104.00	-748.000
30	5: 9:59	1.583	345.000	104.00	0.000
31	5:15: 0	1.667	345.000	104.00	0.000
32	5:20: 0	1.750	362.000	104.00	17.000
33	5:24:59	1.833	383.000	104.00	21.000
34	5:30: 0	1.917	406.000	104.00	23.000
35	5:35: 0	2.000	424.000	104.00	18.000
36	5:39:59	2.083	444.000	104.00	20.000
37	5:45: 0	2.167	460.000	104.00	16.000
38	5:50: 0	2.250	478.000	104.00	18.000
39	5:54:59	2.333	493.000	104.00	15.000
40	6: 0: 0	2.417	510.000	104.00	17.000
41	6: 5: 0	2.500	522.000	104.00	12.000
FINAL SHUT-IN PERIOD					
42	6: 8: 0	2.550	908.000	104.00	386.000
43	6:11: 0	2.600	975.000	104.00	67.000
44	6:14: 0	2.650	998.000	104.00	23.000
45	6:17: 0	2.700	1014.000	104.00	16.000
46	6:20: 0	2.750	1020.000	104.00	6.000
47	6:23: 0	2.800	1025.000	104.00	5.000
48	6:26: 0	2.850	1029.000	104.00	4.000

COMPANY : F G HOLL COMPANY
WELL : #1-18
GAUGE # : 10270
DATE : 25/ 3/90

FIELD : DRACH
JOB # : 15750
DEPTH : 3369
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
49	6:29: 0	2.900	1033.000	104.00	4.000
50	6:32: 0	2.950	1035.000	104.00	2.000
51	6:35: 0	3.000	1036.000	104.00	1.000
52	6:38: 0	3.050	1037.000	104.00	1.000
53	6:41: 0	3.100	1038.000	104.00	1.000
54	6:44: 0	3.150	1039.000	104.00	1.000
55	6:47: 0	3.200	1041.000	104.00	2.000
56	6:50: 0	3.250	1043.000	104.00	2.000
57	6:53: 0	3.300	1045.000	104.00	2.000
58	6:56: 0	3.350	1047.000	104.00	2.000
59	6:59: 0	3.400	1048.000	104.00	1.000
60	7: 2: 0	3.450	1049.000	104.00	1.000
61	7: 5: 0	3.500	1050.000	104.00	1.000
62	7: 8: 0	3.550	1051.000	104.00	1.000
63	7:11: 0	3.600	1052.000	104.00	1.000
64	7:14: 0	3.650	1052.000	104.00	0.000
65	7:17: 0	3.700	1052.000	104.00	0.000
66	7:20: 0	3.750	1052.000	104.00	0.000
67	7:23: 0	3.800	1052.000	104.00	0.000
68	7:26: 0	3.850	1052.000	104.00	0.000
69	7:29: 0	3.900	1053.000	104.00	1.000
70	7:32: 0	3.950	1054.000	104.00	1.000
71	7:35: 0	4.000	1055.000	104.00	1.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-25-90
GAUGE NO : 10270
TEST : DST-2 SHUTIN-1

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 25/ 3/90
 Comment : DST-2 SHUTIN-1
 Horner T: .5 Hours

FIELD : DRACH
 JOB # : 15750
 DEPTH : 3369
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
8	4: 5: 0	0.000	297.000	104.00	0.0000	0.000
9	4: 8: 0	0.050	810.000	104.00	11.0000	513.000
10	4:11: 0	0.100	970.000	104.00	6.0000	673.000
11	4:14: 0	0.150	1019.000	104.00	4.3333	722.000
12	4:17: 0	0.200	1043.000	104.00	3.5000	746.000
13	4:20: 0	0.250	1055.000	104.00	3.0000	758.000
14	4:23: 0	0.300	1065.000	104.00	2.6667	768.000
15	4:26: 0	0.350	1072.000	104.00	2.4286	775.000
16	4:29: 0	0.400	1077.000	104.00	2.2500	780.000
17	4:32: 0	0.450	1082.000	104.00	2.1111	785.000
18	4:35: 0	0.500	1084.000	104.00	2.0000	787.000
19	4:38: 0	0.550	1088.000	104.00	1.9091	791.000
20	4:41: 0	0.600	1091.000	104.00	1.8333	794.000
21	4:44: 0	0.650	1093.000	104.00	1.7692	796.000
22	4:47: 0	0.700	1093.000	104.00	1.7143	796.000
23	4:50: 0	0.750	1093.000	104.00	1.6667	796.000
24	4:53: 0	0.800	1093.000	104.00	1.6250	796.000
25	4:56: 0	0.850	1093.000	104.00	1.5882	796.000
26	4:59: 0	0.900	1093.000	104.00	1.5556	796.000
27	5: 2: 0	0.950	1093.000	104.00	1.5263	796.000
28	5: 5: 0	1.000	1093.000	104.00	1.5000	796.000

WESTERN TESTING CO. INC.

COMPANY: F G HOLL COMPANY
 FIELD: DRACH

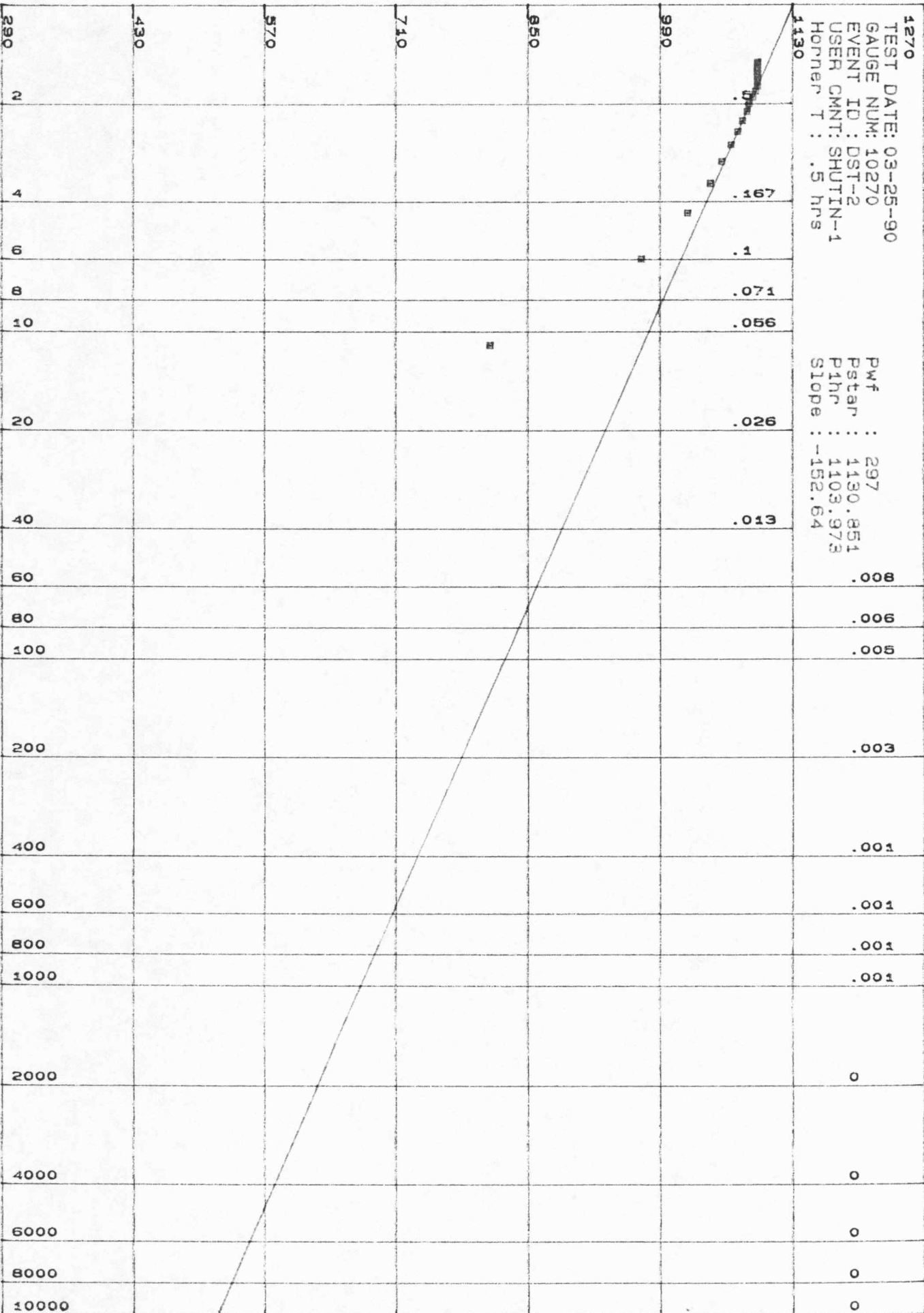
WELL # : #1-18
 LOCATION: STAFFORD-KANSAS

PROCESSED: 03-29-1990
 ENGINEER: LARRY KINS

1270 TEST DATE: 03-25-90
 GAUGE NUM: 10270
 EVENT ID: DST-2
 USER CMNT: SHUTIN-1
 Horner T : .5 hrs

Pwf : 297
 Pstar : 1130.851
 Plhr : 1103.973
 Slope : -152.64

Pressure, .Psig



Job No. 15750
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-25-90
GAUGE NO : 10270
TEST : DST-2 SHUTIN-2

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 25/ 3/90
 Comment : DST-2 SHUTIN-2
 Horner T: 1 Hours

FIELD : DRACH
 JOB # : 15750
 DEPTH : 3369
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
41	6: 5: 0	0.000	522.000	104.00	0.0000	0.000
42	6: 8: 0	0.050	908.000	104.00	21.0000	386.000
43	6:11: 0	0.100	975.000	104.00	11.0000	453.000
44	6:14: 0	0.150	998.000	104.00	7.6667	476.000
45	6:17: 0	0.200	1014.000	104.00	6.0000	492.000
46	6:20: 0	0.250	1020.000	104.00	5.0000	498.000
47	6:23: 0	0.300	1025.000	104.00	4.3333	503.000
48	6:26: 0	0.350	1029.000	104.00	3.8571	507.000
49	6:29: 0	0.400	1033.000	104.00	3.5000	511.000
50	6:32: 0	0.450	1035.000	104.00	3.2222	513.000
51	6:35: 0	0.500	1036.000	104.00	3.0000	514.000
52	6:38: 0	0.550	1037.000	104.00	2.8182	515.000
53	6:41: 0	0.600	1038.000	104.00	2.6667	516.000
54	6:44: 0	0.650	1039.000	104.00	2.5385	517.000
55	6:47: 0	0.700	1041.000	104.00	2.4286	519.000
56	6:50: 0	0.750	1043.000	104.00	2.3333	521.000
57	6:53: 0	0.800	1045.000	104.00	2.2500	523.000
58	6:56: 0	0.850	1047.000	104.00	2.1765	525.000
59	6:59: 0	0.900	1048.000	104.00	2.1111	526.000
60	7: 2: 0	0.950	1049.000	104.00	2.0526	527.000
61	7: 5: 0	1.000	1050.000	104.00	2.0000	528.000
62	7: 8: 0	1.050	1051.000	104.00	1.9524	529.000
63	7:11: 0	1.100	1052.000	104.00	1.9091	530.000
64	7:14: 0	1.150	1052.000	104.00	1.8696	530.000
65	7:17: 0	1.200	1052.000	104.00	1.8333	530.000
66	7:20: 0	1.250	1052.000	104.00	1.8000	530.000
67	7:23: 0	1.300	1052.000	104.00	1.7692	530.000
68	7:26: 0	1.350	1052.000	104.00	1.7407	530.000
69	7:29: 0	1.400	1053.000	104.00	1.7143	531.000
70	7:32: 0	1.450	1054.000	104.00	1.6897	532.000
71	7:35: 0	1.500	1055.000	104.00	1.6667	533.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY F G HOLL COMPANY
DATE 03-25-90
FIELD DRACH
WELL #1-18
AREA STAFFORD-KANSAS
JOB NUMBER 15750
GAUGE NUMBER 10270
GAUGE DEPTH 3369
ZONE TESTED 3314-3369

PHASE : OIL FUNCTION : PRESSURE

=====I=N=P=U=T====D=A=T=A====S=U=M=M=A=R=Y=====

THICKNESS	H	1.2000E+01	Feet
POROSITY	POR	2.2000E-01	Frac
VISCOSITY	U	8.4226E+00	Cp
FORMATION VOLUME FACTOR	B	1.0322E+00	Rb/stb
TOTAL COMPRESSIBILITY	Ct	3.9407E-06	Psi^-1
WELLBORE RADIUS	Rw	5.2000E-01	Feet
DRAINAGE RADIUS	Re	1.0500E+03	Feet
RESERVOIR TEMPERATURE	T	1.0400E+02	Deg F
GRAVITY OF FLUID	G	3.3000E+01	
PVT EVALUATION PRESSURE	P	1.0550E+03	Psig
PRESSURE AT SHUT-IN	Pwf	5.2200E+02	Psig
FINAL RECORDED PRESSURE	Ps	1.0550E+03	Psig
PRODUCTION RATE	Q	1.6650E+01	Bbl/day
TOTAL FLOW TIME	T	1.0000E+00	Hours

=====R=E=G=R=E=S=S=I=O=N====R=E=S=U=L=T=S=====

LEAST SQUARE RESULTS OVER THE INTERVAL :
FROM 2.6667 TO 1.8696

SLOPE OF THE LINE	1.0174E+02	psi/cycle
FALSE PRESSURE, PSTAR	1.0807E+03	psi
PRESSURE AT 1 HOUR	1.0501E+03	psi

=====A=N=A=L=Y=S=I=S====R=E=S=U=L=T=S=====

TRANSMISSIBILITY	Kh/u	2.7466E+01	md-ft/cp
FLOW CAPACITY	Kh	2.3133E+02	md-ft
PERMEABILITY to PHASE	K	1.9278E+01	md
DAMAGE RATIO	Dr	1.4604E+00	
RADIUS OF INVESTIGATION	Rinv	5.2771E+01	ft
SKIN FACTOR	S	1.9941E+00	
AVERAGE PRESSURE	Pbar	1.0806E+03	psig
DIMENSIONLESS TIME	Tda	2.0122E-04	
MATTHEWS-BRONS-HAZEBROEK	PDmbh	2.5287E-03	

COMPANY: F G HOLL COMPANY
 FIELD: DRACH

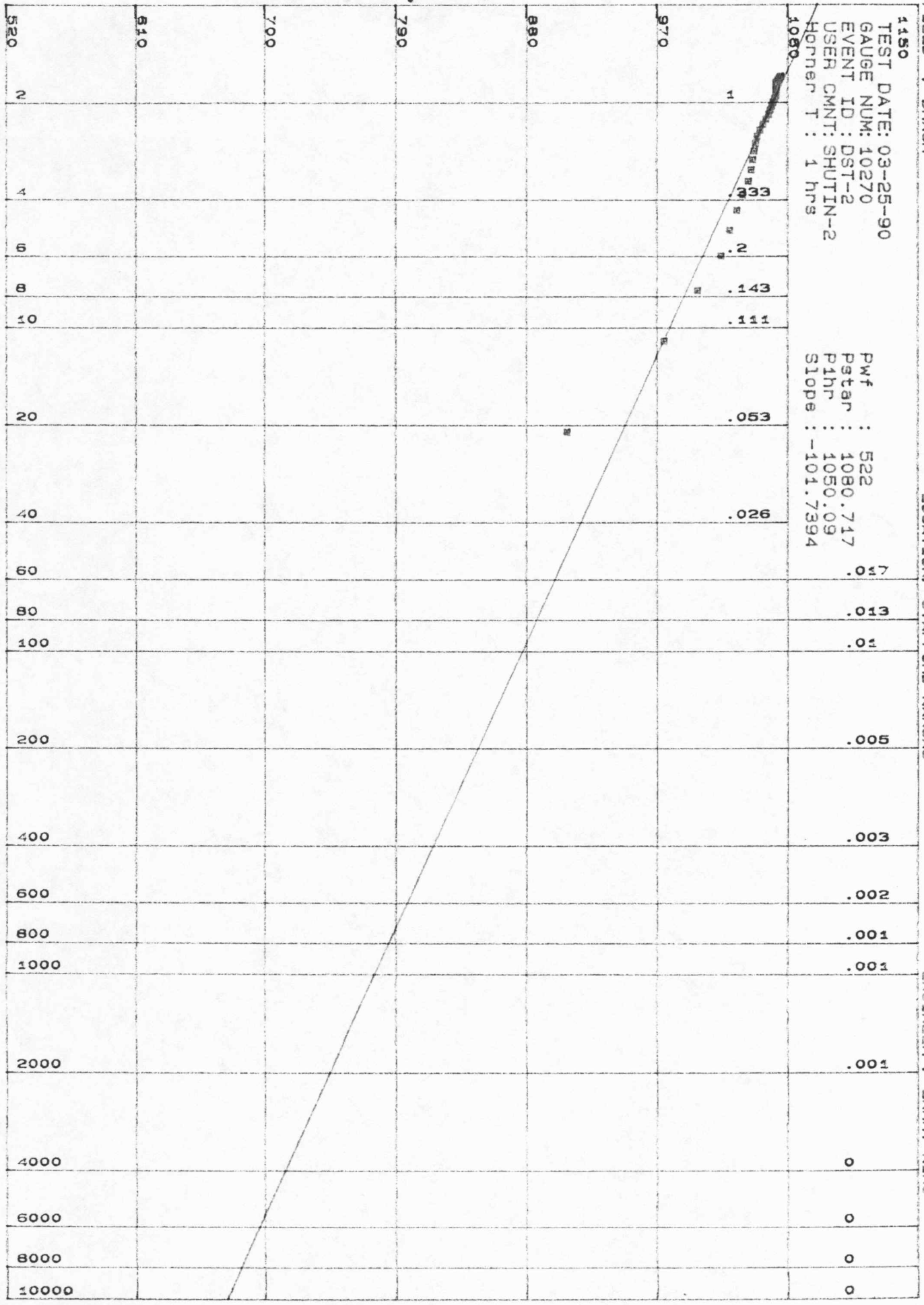
WELL LOCATION: #1-18 STAFFORD-KANSAS

PROCESSED: 03-29-1990
 ENGINEER: LARRY KING

1450
 TEST DATE: 03-25-90
 GAUGE NUM: 10270
 EVENT ID: DST-2
 USER CMNT: SHUTIN-2
 Horner T: 1 hrs

Pwf : 522
 Patar : 1080.717
 P1hr : 1050.09
 Slope : -101.7394

Pressure, Psig



Job No. 15750
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt)/dt

RES-TRAN



WESTERN TESTING CO., INC.
FORMATION TESTING

TICKET NO 16076

P. O. BOX 1599 WICHITA, KANSAS 67201
PHONE (316) 262-5861

Elevation 1805 KB Formation Simpson Eff. Pay Ft.

District H140 GT. Bend Date 3-26-90 Customer Order No.
COMPANY NAME F.G. Holl Company
ADDRESS P.O. Box 780167 Wichita, Kb 67278-0167
LEASE AND WELL NO. DRACH #1-18 COUNTY STAFFORD STATE KS Sec. 18 Twp. 215 Rge. 11W
Mail Invoice To SAME Co. Name SAME Address DRACH #1-18 No. Copies Requested Reg
Mail Charts To SAME Address DRACH #1-18 No. Copies Requested Reg

Formation Test No. 3 Interval Tested From 3405 ft. to 3457 ft. Total Depth 3457 ft.
Packer Depth 3400 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.
Packer Depth 3405 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.
Depth of Selective Zone Set -
Top Recorder Depth (Inside) 3408 ft. Recorder Number 10270 Cap. 4150
Bottom Recorder Depth (Outside) 3411 ft. Recorder Number 13268 Cap. 4225
Below Straddle Recorder Depth - ft. Recorder Number - Cap. -
Drilling Contractor STERLING rig 4 Drill Collar Length 425 I. D. 2.2 in.
Mud Type CHEMICAL Viscosity 49 Weight Pipe Length - I. D. - in.
Weight 9.1 Water Loss 14.4 cc. Drill Pipe Length 2958 I. D. 3.8 in.
Chlorides 13000 P.P.M. Test Tool Length 22 ft. Tool Size 5 1/2 in.
Jars: Make - Serial Number - Anchor Length 52 ft. Size 5 1/2 in.
Did Well Flow? - Reversed Out - Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 XH in.

Blow: FF - Very Weak Blow died in 8 min.
FF - NO Blow
Recovered 170 ft. of GAS in Pipe 1. oil 8.1 mud .9 water
Recovered 10 ft. of OIL cut mud 10% oil 90% mud
Recovered 60 ft. of HEAVY OIL cut mud 35% oil 65% mud 38.61 m
Recovered ft. of 21. oil 39 water
Recovered ft. of 22. oil 48 water
Chlorides P.P.M. Sample Jars used 2 Remarks:

Time On Location 8:45 A.M. Time Pick Up Tool 9:15 A.M. Time Off Location 3:00 A.M.
Time Set Packer(s) 10:45 P.M. Time Started Off Bottom 12:45 P.M. Maximum Temperature 105
Initial Hydrostatic Pressure (A) 1692 P.S.I.
Initial Flow Period Minutes 30 (B) 41 P.S.I. to (C) 41 P.S.I.
Initial Closed In Period Minutes 30 (D) 1008 P.S.I.
Final Flow Period Minutes 30 (E) 62 P.S.I. to (F) 62 P.S.I.
Final Closed In Period Minutes 30 (G) 1049 P.S.I.
Final Hydrostatic Pressure (H) 1672 P.S.I.

COMPANY TERMS

Western Testing Co., Inc. shall not be liable for damages of any kind to 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, of its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid at cost by the party for whom the test is made.

All charges subject to 12% interest after 60 days from date of invoice. Any expense incurred for collection will be added to the original amount.

Test Approved By W. Bruce Bidleman
Signature of Customer or his authorized representative

Western Representative Ray Schwager 1925 THANK YOU

FIELD INVOICE

Open Hole Test \$
Misrun \$
Straddle Test \$
Jars \$
Selective Zone \$
Safety Joint \$
Standby \$
Evaluation \$
Extra Packer \$
Circ. Sub. \$
Mileage \$
Fluid Sampler \$
Extra Charts \$
Insurance \$
Telecopier \$
TOTAL \$

WESTERN TESTING CO., INC.

Pressure Data

Date 3-26-90 Recorder No. 10220 Capacity _____ Location _____
 Well Temperature 105 °F

Test Ticket No. 16076
 4150

Point	Pressure	P.S.I.	Open Tool	Time Given	Time Computed
A Initial Hydrostatic Mod	<u>1705</u>	P.S.I.		<u>10:45 A</u>	
B First Initial Flow Pressure	<u>45</u>	P.S.I.	First Flow Pressure	<u>30</u> Mins	<u>30</u> Mins
C First Final Flow Pressure	<u>45</u>	P.S.I.	Initial Closed-In Pressure	<u>30</u> Mins	<u>30</u> Mins
D Initial Closed-In Pressure	<u>1000</u>	P.S.I.	Second Flow Pressure	<u>30</u> Mins	<u>30</u> Mins
E Second Initial Flow Pressure	<u>62</u>	P.S.I.	Final Closed-In Pressure	<u>30</u> Mins	<u>30</u> Mins
F Second Final Flow Pressure	<u>62</u>	P.S.I.			
G Final Closed-In Pressure	<u>1045</u>	P.S.I.			
H Final Hydrostatic Mod	<u>1676</u>	P.S.I.			

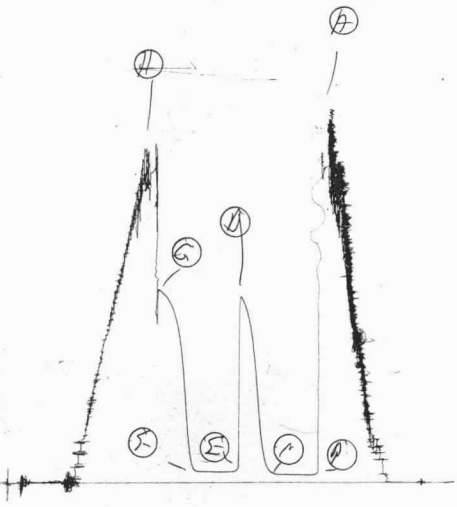
PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: _____ Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.		Breakdown: _____ Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.		Breakdown: _____ Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.		Breakdown: _____ Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	<u>45</u>	0	<u>45</u>	0	<u>62</u>	0	<u>62</u>
P 2 5		3	<u>54</u>	5		3	<u>74</u>
P 3 10		6	<u>74</u>	10		6	<u>167</u>
P 4 15		9	<u>81</u>	15		9	<u>401</u>
P 5 20		12	<u>253</u>	20		12	<u>654</u>
P 6 25		15	<u>493</u>	25		15	<u>812</u>
P 7 30	<u>45</u>	18	<u>724</u>	30	<u>62</u>	18	<u>913</u>
P 8 35		21	<u>862</u>	35		21	<u>969</u>
P 9 40		24	<u>942</u>	40		24	<u>1002</u>
P10 45		27	<u>998</u>	45		27	<u>1056</u>
P11 50		30	<u>1006</u>	50		30	<u>1045</u>
P12 55		33		55		33	
P13 60		36		60		36	
P14 65		39		65		39	
P15 70		42		70		42	
P16 75		45		75		45	
P17 80		48		80		48	
P18 85		51		85		51	
P19 90		54		90		54	
P20 95		57		95		57	
100		60		100		60	

KT 16076

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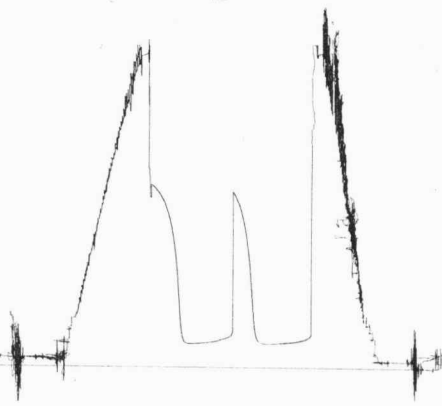
OSTH 3



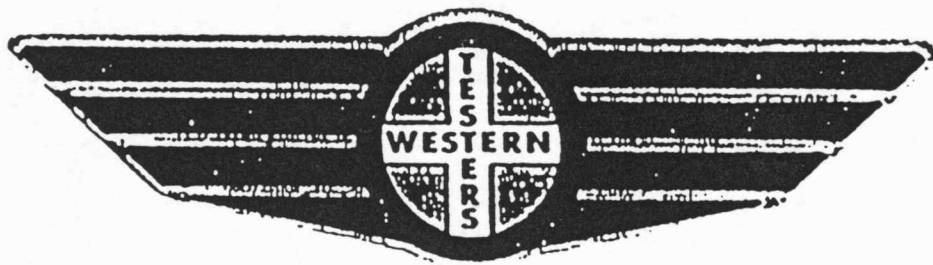
KT 16076

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OSTH 3



FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 03-26-90 TICKET : 16076
CUSTOMER : F G HOLL COMPANY LEASE : DRACH
WELL : #1-18 TEST: 3 GEOLOGIST : BIDLEMAN
ELEVATION : 1805 KB FORMATION : SIMPSON
SECTION : 18 TOWNSHIP : 21S
RANGE : 11W COUNTY : STAFFORD STATE : KANSAS
GAUGE SN# : 10270 RANGE : 4150 CLOCK : 12

INTERVAL FROM : 3405 TO : 3457 TOTAL DEPTH : 3457
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 3400 SIZE : 6.63
PACKER DEPTH : 3405 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : STERLING RIG 4
MUD TYPE : CHEMICAL VISCOSITY : 49
WEIGHT : 9.1 WATER LOSS (CC) : 14.4
CHLORIDES (PPM) : 13000
JARS-MAKE : SERIAL NUMBER :
DID WELL FLOW ? : REVERSED OUT ? :

DRILL COLLAR LENGTH : 425 FT I.D. inch : 2.20
WEIGHT PIPE LENGTH : 0 FT I.D. inch : 0.00
DRILL PIPE LENGTH : 2958 FT I.D. inch : 3.80
TEST TOOL LENGTH : 22 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 52 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL FLOW PERIOD VERY WEAK BLOW DIED IN 8 MIN
BLOW COMMENT #2 : FINAL FLOW PERIOD NO BLOW
BLOW COMMENT #3 :
BLOW COMMENT #4 :

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-26-90
GAUGE NO : 10270

OPERATIONAL COMMENTS

170 FT GAS ABOVE FLUID

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 26/ 3/90

FIELD : DRACH
 JOB # : 16076
 DEPTH : 3457
 TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
INITIAL FLOW PERIOD					
2	10:45: 0	0.000	45.000	105.00	0.000
3	10:49:59	0.083	45.000	105.00	0.000
4	10:55: 0	0.167	45.000	105.00	0.000
5	11: 0: 0	0.250	45.000	105.00	0.000
6	11: 4:59	0.333	45.000	105.00	0.000
7	11:10: 0	0.417	45.000	105.00	0.000
8	11:15: 0	0.500	45.000	105.00	0.000
INITIAL SHUT-IN PERIOD					
9	11:18: 0	0.550	54.000	105.00	9.000
10	11:21: 0	0.600	74.000	105.00	20.000
11	11:24: 0	0.650	131.000	105.00	57.000
12	11:27: 0	0.700	253.000	105.00	122.000
13	11:30: 0	0.750	493.000	105.00	240.000
14	11:33: 0	0.800	724.000	105.00	231.000
15	11:36: 0	0.850	863.000	105.00	139.000
16	11:39: 0	0.900	943.000	105.00	80.000
17	11:42: 0	0.950	998.000	105.00	55.000
18	11:45: 0	1.000	1006.000	105.00	8.000
FINAL FLOW PERIOD					
19	11:46: 0	1.017	62.000	105.00	-944.000
20	11:49:59	1.083	62.000	105.00	0.000
21	11:55: 0	1.167	62.000	105.00	0.000
22	12: 0: 0	1.250	62.000	105.00	0.000
23	12: 4:59	1.333	62.000	105.00	0.000
24	12:10: 0	1.417	62.000	105.00	0.000
25	12:15: 0	1.500	62.000	105.00	0.000
FINAL SHUT-IN PERIOD					
26	12:18: 0	1.550	74.000	105.00	12.000
27	12:21: 0	1.600	167.000	105.00	93.000
28	12:24: 0	1.650	401.000	105.00	234.000
29	12:27: 0	1.700	654.000	105.00	253.000
30	12:30: 0	1.750	812.000	105.00	158.000
31	12:33: 0	1.800	913.000	105.00	101.000
32	12:36: 0	1.850	969.000	105.00	56.000
33	12:39: 0	1.900	1003.000	105.00	34.000
34	12:42: 0	1.950	1026.000	105.00	23.000
35	12:45: 0	2.000	1045.000	105.00	19.000

WESTERN TESTING CO. INC.



WESTERN TESTING CO., INC.
FORMATION TESTING

TICKET NO 16077

P. O. BOX 1599 PHONE (316) 262-5861
WICHITA, KANSAS 67201

Elevation 1805 KB Formation Arbuckle Eff. Pay - Ft.

District #140 GT. Bend Date 3-26-90 Customer Order No. -
COMPANY NAME F.G. Hall Company
ADDRESS P.O. Box 780167 Wichita, KS 67278-0167
LEASE AND WELL NO. DRACH #1-18 COUNTY STAFFORD STATE KS Sec. 18 Twp. 21 S Rge. 11 W
Mail Invoice To SAME Co. Name SAME Address DRACH #1-18 No. Copies Requested Reg
Mail Charts To SAME Address DRACH #1-18 No. Copies Requested Reg

Formation Test No. 4 Interval Tested From 3475 ft. to 3486 ft. Total Depth 3486 ft.
Packer Depth 3470 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.
Packer Depth 3475 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.
Depth of Selective Zone Set -
Top Recorder Depth (Inside) 3478 ft. Recorder Number 10270 Cap. 4150
Bottom Recorder Depth (Outside) 3481 ft. Recorder Number 13268 Cap. 4225
Below Straddle Recorder Depth - ft. Recorder Number - Cap. -
Drilling Contractor STERLING rig 4 Drill Collar Length 425 I. D. 2.2 in.
Mud Type CHEMICAL Viscosity 8.55 Weight Pipe Length - I. D. - in.
Weight 8.8 Water Loss 14.4 cc. Drill Pipe Length 3028 I. D. 3.8 in.
Chlorides 13000 P.P.M. Test Tool Length 22 ft. Tool Size 5 1/2 in.
Jars: Make - Serial Number - Anchor Length 11 ft. Size 5 1/2 in.
Did Well Flow? - Reversed Out YES Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 x H in.

Blow: IF - STRONG Blow Throughout
FF - WEAK building to Agood Blow 1" to 7" Blow
Recovered 1180 ft. of CLEAN Gassy Oil GRAVITY 36
Recovered 930 ft. of GAS in Pipe
Recovered - ft. of
Recovered - ft. of
Recovered - ft. of
Chlorides - P.P.M. Sample Jars used 1 Remarks:

Time On Location 8:15 A.M. Time Pick Up Tool 9:10 P.M. Time Off Location 5:40 P.M.
Time Set Packer(s) 10:30 A.M. Time Started Off Bottom 2:30 P.M. Maximum Temperature 104
Initial Hydrostatic Pressure (A) 1751 P.S.I.
Initial Flow Period Minutes 30 (B) 267 P.S.I. to (C) 288 P.S.I.
Initial Closed In Period Read Minutes 60 (D) 768 P.S.I.
Final Flow Period Minutes 60 (E) 427 P.S.I. to (F) 459 P.S.I.
Final Closed In Period 13:26 P.M. Minutes 90 (G) 693 P.S.I.
Final Hydrostatic Pressure (H) 1729 P.S.I.

COMPANY TERMS
Western Testing Co., Inc. shall not be liable for damages of any kind to 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, of its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid at cost by the party for whom the test is made.
All charges subject to 12% interest after 60 days from date of invoice. Any expense incurred for collection will be added to the original amount.
Test Approved By W. Bryce Billman
Signature of Customer or his authorized representative
Western Representative Ray Schwager 1925 Thank you

FIELD INVOICE table with columns for item and amount. Items include Open Hole Test, Misrun, Straddle Test, Jars, Selective Zone, Safety Joint, Standby, Evaluation, Extra Packer, Circ. Sub., Mileage, Fluid Sampler, Extra Charts, Insurance, Telecopier, and TOTAL.

WESTERN TESTING CO., INC.

Pressure Data

Date 5-26-90 Test Ticket No. 16077
 Recorder No. B268 Capacity 425 Location _____ Ft. _____
 Lock No. _____ Elevation _____ Well Temperature 104 °P
 Point _____ Pressure _____ Time Given _____ Time Computed _____

A Initial Hydrostatic Mod	<u>1759</u>	P.S.I.	Open Tool	<u>10:30 P</u>	M
B First Initial Flow Pressure	<u>254</u>	P.S.I.	First Flow Pressure	<u>30</u>	Min. <u>30</u> Min.
C First Final Flow Pressure	<u>274</u>	P.S.I.	Initial Closed-in Pressure	<u>60</u>	Min. <u>60</u> Min.
D Initial Closed-in Pressure	<u>757</u>	P.S.I.	Second Flow Pressure	<u>60</u>	Min. <u>60</u> Min.
E Second Initial Flow Pressure	<u>416</u>	P.S.I.	Final Closed-in Pressure	<u>90</u>	Min. <u>90</u> Min.
F Second Final Flow Pressure	<u>446</u>	P.S.I.			
G Final Closed-in Pressure	<u>681</u>	P.S.I.			
H Final Hydrostatic Mod	<u>1744</u>	P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.	
of <u>5</u> mins. and a		of <u>3</u> mins. and a		of <u>5</u> mins. and a		of <u>3</u> mins. and a	
final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	<u>254</u>	0	<u>274</u>	0	<u>416</u>	0	<u>446</u>
P 2 5	<u>5</u>	3	<u>368</u>	5	<u>7</u>	3	<u>465</u>
P 3 10	<u>254</u>	6	<u>432</u>	10	<u>7</u>	6	<u>480</u>
P 4 15	<u>256</u>	9	<u>479</u>	15	<u>7</u>	9	<u>494</u>
P 5 20	<u>263</u>	12	<u>520</u>	20	<u>416</u>	12	<u>512</u>
P 6 25	<u>270</u>	15	<u>552</u>	25	<u>418</u>	15	<u>525</u>
P 7 30	<u>274</u>	18	<u>574</u>	30	<u>420</u>	18	<u>536</u>
P 8 35		21	<u>601</u>	35	<u>422</u>	21	<u>544</u>
P 9 40		24	<u>627</u>	40	<u>427</u>	24	<u>554</u>
P10 45		27	<u>645</u>	45	<u>434</u>	27	<u>564</u>
P11 50		30	<u>661</u>	50	<u>438</u>	30	<u>572</u>
P12 55		33	<u>676</u>	55	<u>442</u>	33	<u>580</u>
P13 60		36	<u>686</u>	60	<u>446</u>	36	<u>587</u>
P14 65		39	<u>699</u>	65		39	<u>593</u>
P15 70		42	<u>713</u>	70		42	<u>602</u>
P16 75		45	<u>718</u>	75		45	<u>606</u>
P17 80		48	<u>729</u>	80		48	<u>615</u>
P18 85		51	<u>738</u>	85		51	<u>619</u>
P19 90		54	<u>747</u>	90		54	<u>626</u>
P20 95		57	<u>751</u>	95		57	<u>632</u>
100		60	<u>757</u>	100		60	<u>635</u>

WESTERN TESTING CO., INC.

Pressure Data

Date _____

Test Ticket No. 16077

Recorder No. _____ Capacity _____ Location _____ Ft.

Clock No. _____ Elevation _____ Well Temperature _____ °F

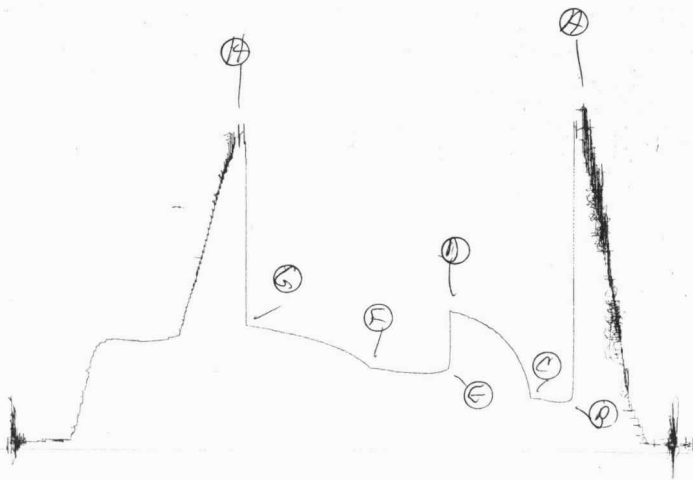
Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud _____	P.S.I.	Open Tool	_____ M	_____
B First Initial Flow Pressure _____	P.S.I.	First Flow Pressure	_____ Mins.	_____ Mins.
C First Final Flow Pressure _____	P.S.I.	Initial Closed-in Pressure	_____ Mins.	_____ Mins.
D Initial Closed-in Pressure _____	P.S.I.	Second Flow Pressure	_____ Mins.	_____ Mins.
E Second Initial Flow Pressure _____	P.S.I.	Final Closed-in Pressure	_____ Mins.	_____ Mins.
F Second Final Flow Pressure _____	P.S.I.			
G Final Closed-in Pressure _____	P.S.I.			
H Final Hydrostatic Mud _____	P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.	
of _____ mins. and a		of _____ mins. and a		of _____ mins. and a		of _____ mins. and a	
final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 105	_____	63	_____	105	_____	63	629
P 2 110	_____	66	_____	110	_____	66	644
P 3 115	_____	69	_____	115	_____	69	649
P 4 120	_____	72	_____	120	_____	72	655
P 5 125	_____	75	_____	125	_____	75	660
P 6 130	_____	78	_____	130	_____	78	664
P 7 135	_____	81	_____	135	_____	81	667
P 8 140	_____	84	_____	140	_____	84	672
P 9 145	_____	87	_____	145	_____	87	676
P10 150	_____	90	_____	150	_____	90	679
P11 155	_____	93	_____	155	_____	93	681
P12 160	_____	96	_____	160	_____	96	
P13 165	_____	99	_____	165	_____	99	
P14 170	_____	102	_____	170	_____	102	
P15 175	_____	105	_____	175	_____	105	
P16 180	_____	108	_____	180	_____	108	
P17 185	_____	111	_____	185	_____	111	
P18 190	_____	114	_____	190	_____	114	
P19 195	_____	117	_____	195	_____	117	
P20 200	_____	120	_____	200	_____	120	

KT 16077

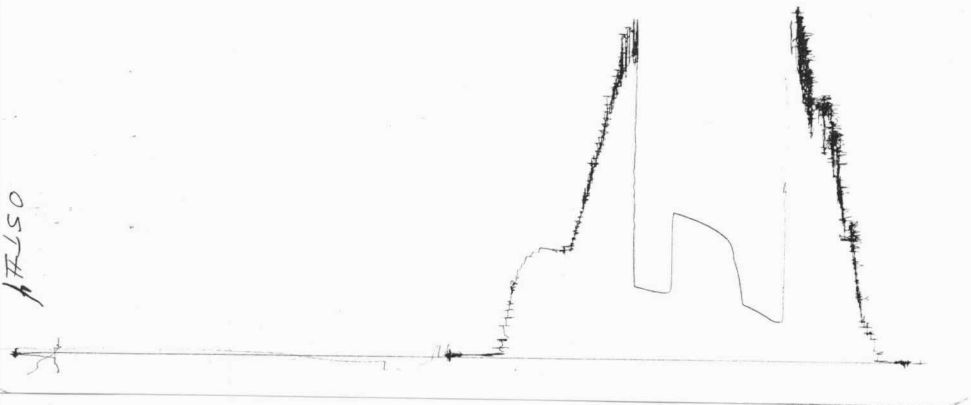
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OST#1
13268

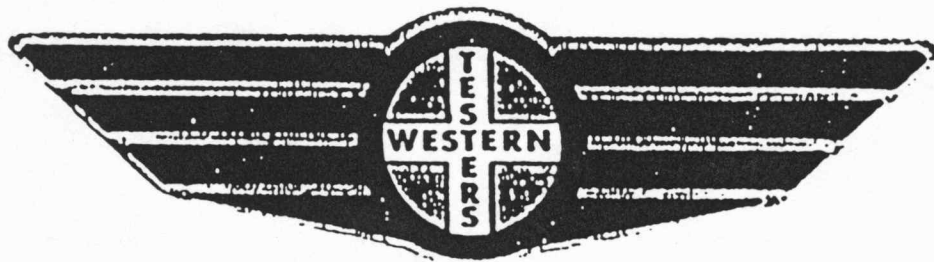
KT 16077

①



OST#1

FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 03-26-90 TICKET : 16077
CUSTOMER : F G HOLL COMPANY LEASE : DRACH
WELL : #1-18 TEST: 4 GEOLOGIST : BIDLEMAN
ELEVATION : 1805 KB FORMATION : ARBUCKLE
SECTION : 18 TOWNSHIP : 21S
RANGE : 11W COUNTY : STAFFORD STATE : KANSAS
GAUGE SN# : 13268 RANGE : 4225 CLOCK : 12

INTERVAL FROM : 3475 TO : 3486 TOTAL DEPTH : 3486
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 3470 SIZE : 6.63
PACKER DEPTH : 3475 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : STERLING RIG 4
MUD TYPE : CHEMICAL VISCOSITY : 55
WEIGHT : 8.8 WATER LOSS (CC) : 14.4
CHLORIDES (PPM) : 13000
JARS-MAKE : SERIAL NUMBER :
DID WELL FLOW ? : REVERSED OUT ? : YES

DRILL COLLAR LENGTH : 425 FT I.D. inch : 2.20
WEIGHT PIPE LENGTH : 0 FT I.D. inch : 0.00
DRILL PIPE LENGTH : 3028 FT I.D. inch : 3.80
TEST TOOL LENGTH : 22 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 11 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL FLOW PERIOD STRONG BLOW THRUOUGHOUT
BLOW COMMENT #2 : FINAL FLOW PERIOD WEAK BUILDING TO A GOOD BLOW
BLOW COMMENT #3 : 1" TO 7" BLOW
BLOW COMMENT #4 :

RECOVERED : 1180 FT OF: CLEAN GASSY OIL GRAVITY 36

Total Barrels Fluid = 12.59
Total Fluid Prod Rate = 201.41 BFPD
Indicated Oil Rate = 201.41 BOPD
Corrected Oil Rate = 89.59 BOPD

REMARK 1 :
REMARK 2 : 930 FT GAS ABOVE FLUID
REMARK 3 :
REMARK 4 :

SET PACKER(S) : 10:30 PM TIME STARTED OFF BOTTOM : 2:30 AM
WELL TEMPERATURE : 104
INITIAL HYDROSTATIC PRESSURE (A) 1759
INITIAL FLOW PERIOD MIN: 30 (B) 254 PSI TO (C) : 274
INITIAL CLOSED IN PERIOD MIN: 60 (D) 757
FINAL FLOW PERIOD MIN: 60 (E) 416 PSI TO (F) : 446
FINAL CLOSED IN PERIOD MIN: 93 (G) 681
FINAL HYDROSTATIC PRESSURE (H) 1744

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-26-90
GAUGE NO : 13268

OPERATIONAL COMMENTS

930 FT GAS ABOVE FLUID

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 13268
 DATE : 26/ 3/90

FIELD : DRACH
 JOB # : 16077
 DEPTH : 3486
 TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
INITIAL FLOW PERIOD					
2	10:30: 0	0.000	254.000	104.00	0.000
3	10:34:59	0.083	254.000	104.00	0.000
4	10:40: 0	0.167	254.000	104.00	0.000
5	10:45: 0	0.250	256.000	104.00	2.000
6	10:49:59	0.333	263.000	104.00	7.000
7	10:55: 0	0.417	270.000	104.00	7.000
8	11: 0: 0	0.500	274.000	104.00	4.000
INITIAL SHUT-IN PERIOD					
9	11: 3: 0	0.550	368.000	104.00	94.000
10	11: 6: 0	0.600	433.000	104.00	65.000
11	11: 9: 0	0.650	479.000	104.00	46.000
12	11:12: 0	0.700	520.000	104.00	41.000
13	11:15: 0	0.750	552.000	104.00	32.000
14	11:18: 0	0.800	574.000	104.00	22.000
15	11:21: 0	0.850	601.000	104.00	27.000
16	11:24: 0	0.900	627.000	104.00	26.000
17	11:27: 0	0.950	645.000	104.00	18.000
18	11:30: 0	1.000	661.000	104.00	16.000
19	11:33: 0	1.050	676.000	104.00	15.000
20	11:36: 0	1.100	686.000	104.00	10.000
21	11:39: 0	1.150	699.000	104.00	13.000
22	11:42: 0	1.200	713.000	104.00	14.000
23	11:45: 0	1.250	718.000	104.00	5.000
24	11:48: 0	1.300	729.000	104.00	11.000
25	11:51: 0	1.350	738.000	104.00	9.000
26	11:54: 0	1.400	747.000	104.00	9.000
27	11:57: 0	1.450	751.000	104.00	4.000
28	12: 0: 0	1.500	757.000	104.00	6.000
FINAL FLOW PERIOD					
29	12: 1: 0	1.517	416.000	104.00	-341.000
30	12: 4:59	1.583	416.000	104.00	0.000
31	12:10: 0	1.667	416.000	104.00	0.000
32	12:15: 0	1.750	416.000	104.00	0.000
33	12:19:59	1.833	416.000	104.00	0.000
34	12:25: 0	1.917	418.000	104.00	2.000
35	12:30: 0	2.000	420.000	104.00	2.000
36	12:34:59	2.083	423.000	104.00	3.000
37	12:40: 0	2.167	427.000	104.00	4.000
38	12:45: 0	2.250	434.000	104.00	7.000
39	12:49:59	2.333	438.000	104.00	4.000
40	12:55: 0	2.417	443.000	104.00	5.000
41	13: 0: 0	2.500	446.000	104.00	3.000
FINAL SHUT-IN PERIOD					
42	13: 3: 0	2.550	465.000	104.00	19.000
43	13: 6: 0	2.600	480.000	104.00	15.000
44	13: 9: 0	2.650	494.000	104.00	14.000
45	13:12: 0	2.700	512.000	104.00	18.000
46	13:15: 0	2.750	525.000	104.00	13.000
47	13:18: 0	2.800	536.000	104.00	11.000
48	13:21: 0	2.850	544.000	104.00	8.000

COMPANY : F G HOLL COMPANY
WELL : #1-18
GAUGE # : 13268
DATE : 26/ 3/90

FIELD : DRACH
JOB # : 16077
DEPTH : 3486
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
49	13:24: 0	2.900	554.000	104.00	10.000
50	13:27: 0	2.950	564.000	104.00	10.000
51	13:30: 0	3.000	572.000	104.00	8.000
52	13:33: 0	3.050	580.000	104.00	8.000
53	13:36: 0	3.100	587.000	104.00	7.000
54	13:39: 0	3.150	593.000	104.00	6.000
55	13:42: 0	3.200	602.000	104.00	9.000
56	13:45: 0	3.250	606.000	104.00	4.000
57	13:48: 0	3.300	615.000	104.00	9.000
58	13:51: 0	3.350	619.000	104.00	4.000
59	13:54: 0	3.400	626.000	104.00	7.000
60	13:57: 0	3.450	632.000	104.00	6.000
61	14: 0: 0	3.500	635.000	104.00	3.000
62	14: 3: 0	3.550	639.000	104.00	4.000
63	14: 6: 0	3.600	644.000	104.00	5.000
64	14: 9: 0	3.650	649.000	104.00	5.000
65	14:12: 0	3.700	653.000	104.00	4.000
66	14:15: 0	3.750	660.000	104.00	7.000
67	14:18: 0	3.800	664.000	104.00	4.000
68	14:21: 0	3.850	667.000	104.00	3.000
69	14:24: 0	3.900	672.000	104.00	5.000
70	14:27: 0	3.950	676.000	104.00	4.000
71	14:30: 0	4.000	679.000	104.00	3.000
72	14:33: 0	4.050	681.000	104.00	2.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-26-90
GAUGE NO : 13268
TEST : DST-4 SHUTIN-1

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 13268
 DATE : 26/ 3/90
 Comment : DST-4 SHUTIN-1
 Horner T: .5 Hours

FIELD : DRACH
 JOB # : 16077
 DEPTH : 3486
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
8	11: 0: 0	0.000	274.000	104.00	0.0000	0.000
9	11: 3: 0	0.050	368.000	104.00	11.0000	94.000
10	11: 6: 0	0.100	433.000	104.00	6.0000	159.000
11	11: 9: 0	0.150	479.000	104.00	4.3333	205.000
12	11:12: 0	0.200	520.000	104.00	3.5000	246.000
13	11:15: 0	0.250	552.000	104.00	3.0000	278.000
14	11:18: 0	0.300	574.000	104.00	2.6667	300.000
15	11:21: 0	0.350	601.000	104.00	2.4286	327.000
16	11:24: 0	0.400	627.000	104.00	2.2500	353.000
17	11:27: 0	0.450	645.000	104.00	2.1111	371.000
18	11:30: 0	0.500	661.000	104.00	2.0000	387.000
19	11:33: 0	0.550	676.000	104.00	1.9091	402.000
20	11:36: 0	0.600	686.000	104.00	1.8333	412.000
21	11:39: 0	0.650	699.000	104.00	1.7692	425.000
22	11:42: 0	0.700	713.000	104.00	1.7143	439.000
23	11:45: 0	0.750	718.000	104.00	1.6667	444.000
24	11:48: 0	0.800	729.000	104.00	1.6250	455.000
25	11:51: 0	0.850	738.000	104.00	1.5882	464.000
26	11:54: 0	0.900	747.000	104.00	1.5556	473.000
27	11:57: 0	0.950	751.000	104.00	1.5263	477.000
28	12: 0: 0	1.000	757.000	104.00	1.5000	483.000

WESTERN TESTING CO. INC.

COMPANY: F G HOLL COMPANY
 FIELD: DRACH

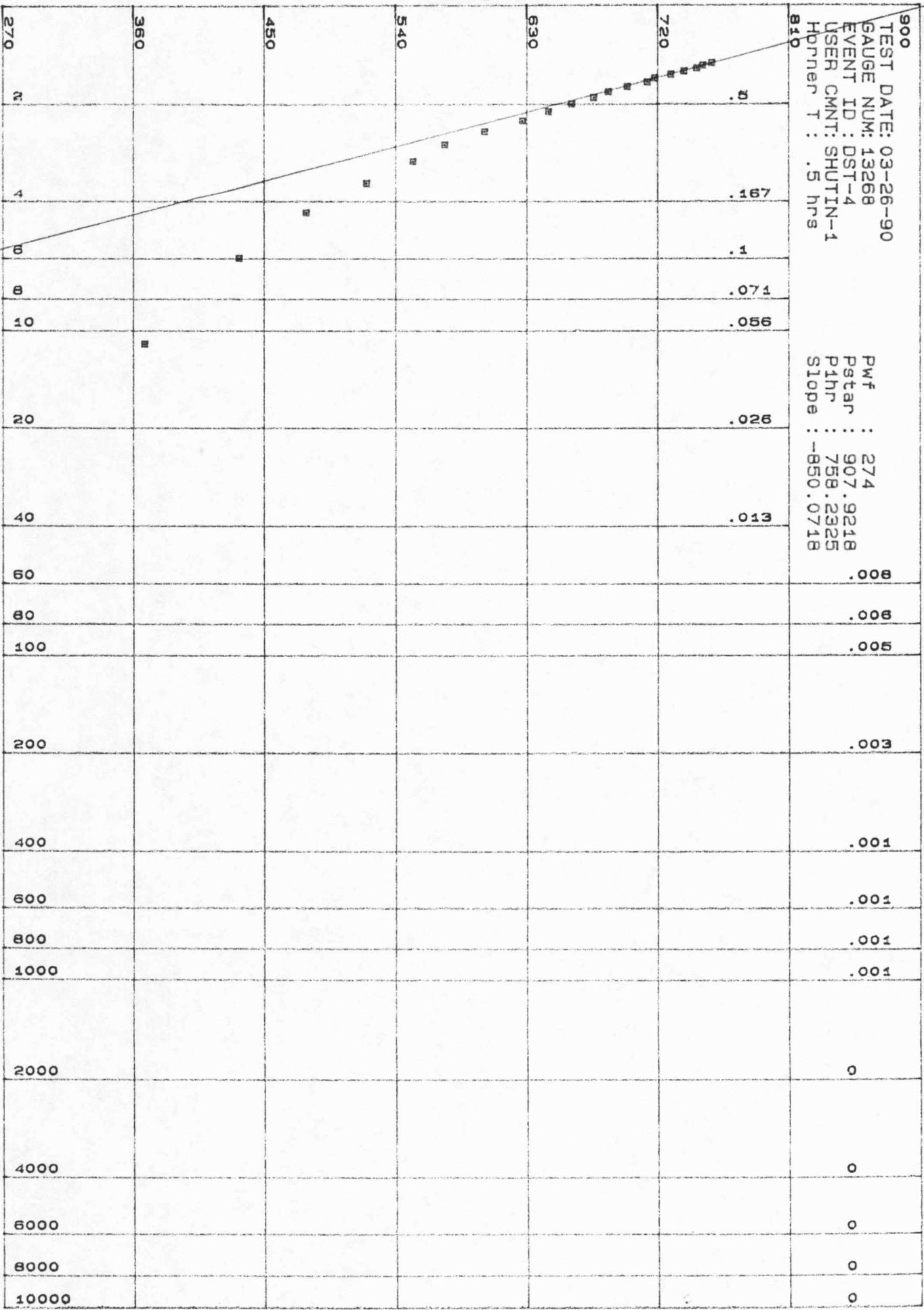
WELL # : #1-18
 LOCATION: STAFFORD-KANSAS

PROCESSED: 03-29-1990
 ENGINEER: LARRY KING

TEST DATE: 03-26-90
 GAUGE NUM: 13268
 EVENT ID: DST-4
 USER CMNT: SHUTIN-1
 Horner T: .5 hrs

Pwf : 274
 Pstar : 907.9218
 P4hr : 758.2325
 Slope : -850.0718

Pressure, Psig.



Job No. 16077
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-26-90
GAUGE NO : 13268
TEST : DST-4 SHUTIN-2

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 13268
 DATE : 26/ 3/90
 Comment : DST-4 SHUTIN-2
 Horner T: 1 Hours

FIELD : DRACH
 JOB # : 16077
 DEPTH : 3486
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
41	13: 0: 0	0.000	446.000	104.00	0.0000	0.000
42	13: 3: 0	0.050	465.000	104.00	21.0000	19.000
43	13: 6: 0	0.100	480.000	104.00	11.0000	34.000
44	13: 9: 0	0.150	494.000	104.00	7.6667	48.000
45	13:12: 0	0.200	512.000	104.00	6.0000	66.000
46	13:15: 0	0.250	525.000	104.00	5.0000	79.000
47	13:18: 0	0.300	536.000	104.00	4.3333	90.000
48	13:21: 0	0.350	544.000	104.00	3.8571	98.000
49	13:24: 0	0.400	554.000	104.00	3.5000	108.000
50	13:27: 0	0.450	564.000	104.00	3.2222	118.000
51	13:30: 0	0.500	572.000	104.00	3.0000	126.000
52	13:33: 0	0.550	580.000	104.00	2.8182	134.000
53	13:36: 0	0.600	587.000	104.00	2.6667	141.000
54	13:39: 0	0.650	593.000	104.00	2.5385	147.000
55	13:42: 0	0.700	602.000	104.00	2.4286	156.000
56	13:45: 0	0.750	606.000	104.00	2.3333	160.000
57	13:48: 0	0.800	615.000	104.00	2.2500	169.000
58	13:51: 0	0.850	619.000	104.00	2.1765	173.000
59	13:54: 0	0.900	626.000	104.00	2.1111	180.000
60	13:57: 0	0.950	632.000	104.00	2.0526	186.000
61	14: 0: 0	1.000	635.000	104.00	2.0000	189.000
62	14: 3: 0	1.050	639.000	104.00	1.9524	193.000
63	14: 6: 0	1.100	644.000	104.00	1.9091	198.000
64	14: 9: 0	1.150	649.000	104.00	1.8696	203.000
65	14:12: 0	1.200	653.000	104.00	1.8333	207.000
66	14:15: 0	1.250	660.000	104.00	1.8000	214.000
67	14:18: 0	1.300	664.000	104.00	1.7692	218.000
68	14:21: 0	1.350	667.000	104.00	1.7407	221.000
69	14:24: 0	1.400	672.000	104.00	1.7143	226.000
70	14:27: 0	1.450	676.000	104.00	1.6897	230.000
71	14:30: 0	1.500	679.000	104.00	1.6667	233.000
72	14:33: 0	1.550	681.000	104.00	1.6452	235.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY. F G HOLL COMPANY
DATE 03-26-90
FIELD. DRACH
WELL #1-18
AREA STAFFORD-KANSAS
JOB NUMBER 16077
GAUGE NUMBER . . . 13268
GAUGE DEPTH. . . . 3486
ZONE TESTED. . . . 3475-3486

PHASE : OIL FUNCTION : PRESSURE

=====I=N=P=U=T====D=A=T=A====S=U=M=M=A=R=Y=====

THICKNESS.	H	2.0000E+01	Feet
POROSITY	POR	1.1000E-01	Frac
VISCOSITY.	U	6.7035E+00	Cp
FORMATION VOLUME FACTOR.	B	1.0335E+00	Rb/stb
TOTAL COMPRESSIBILITY.	Ct	5.7185E-06	Psi^-1
WELLBORE RADIUS.	Rw	5.2000E-01	Feet
DRAINAGE RADIUS.	Re	1.0500E+03	Feet
RESERVOIR TEMPERATURE.	T	1.0400E+02	Deg F
GRAVITY OF FLUID	G	3.5000E+01	
PVT EVALUATION PRESSURE.	P	6.8100E+02	Psig
PRESSURE AT SHUT-IN.	Pwf	4.4600E+02	Psig
FINAL RECORDED PRESSURE.	Ps	6.8100E+02	Psig
PRODUCTION RATE.	Q	1.2590E+01	Bbl/day
TOTAL FLOW TIME.	T	1.0000E+00	Hours

=====R=E=G=R=E=S=S=I=O=N====R=E=S=U=L=T=S=====

LEAST SQUARE RESULTS OVER THE INTERVAL :
FROM 2 TO 1.6452

SLOPE OF THE LINE.	5.7489E+02	psi/cycle
FALSE PRESSURE, PSTAR.	8.0616E+02	psi
PRESSURE AT 1 HOUR	6.3310E+02	psi

=====A=N=A=L=Y=S=I=S====R=E=S=U=L=T=S=====

TRANSMISSIBILITY.	Kh/u	3.6802E+00	md-ft/cp
FLOW CAPACITY.	Kh	2.4670E+01	md-ft
PERMEABILITY to PHASE.	K	1.2335E+00	md
DAMAGE RATIO	Dr	2.2350E-01	
RADIUS OF INVESTIGATION.	Rinv	1.7566E+01	ft
SKIN FACTOR.	S	-2.5071E+00	
AVERAGE PRESSURE	Pbar	8.0609E+02	psig
DIMENSIONLESS TIME	Tda	2.2297E-05	
MATTHEWS-BRONS-HAZEBROEK	PDmbh	2.8019E-04	

COMPANY: F G HOLL COMPANY
 FIELD : DRACH

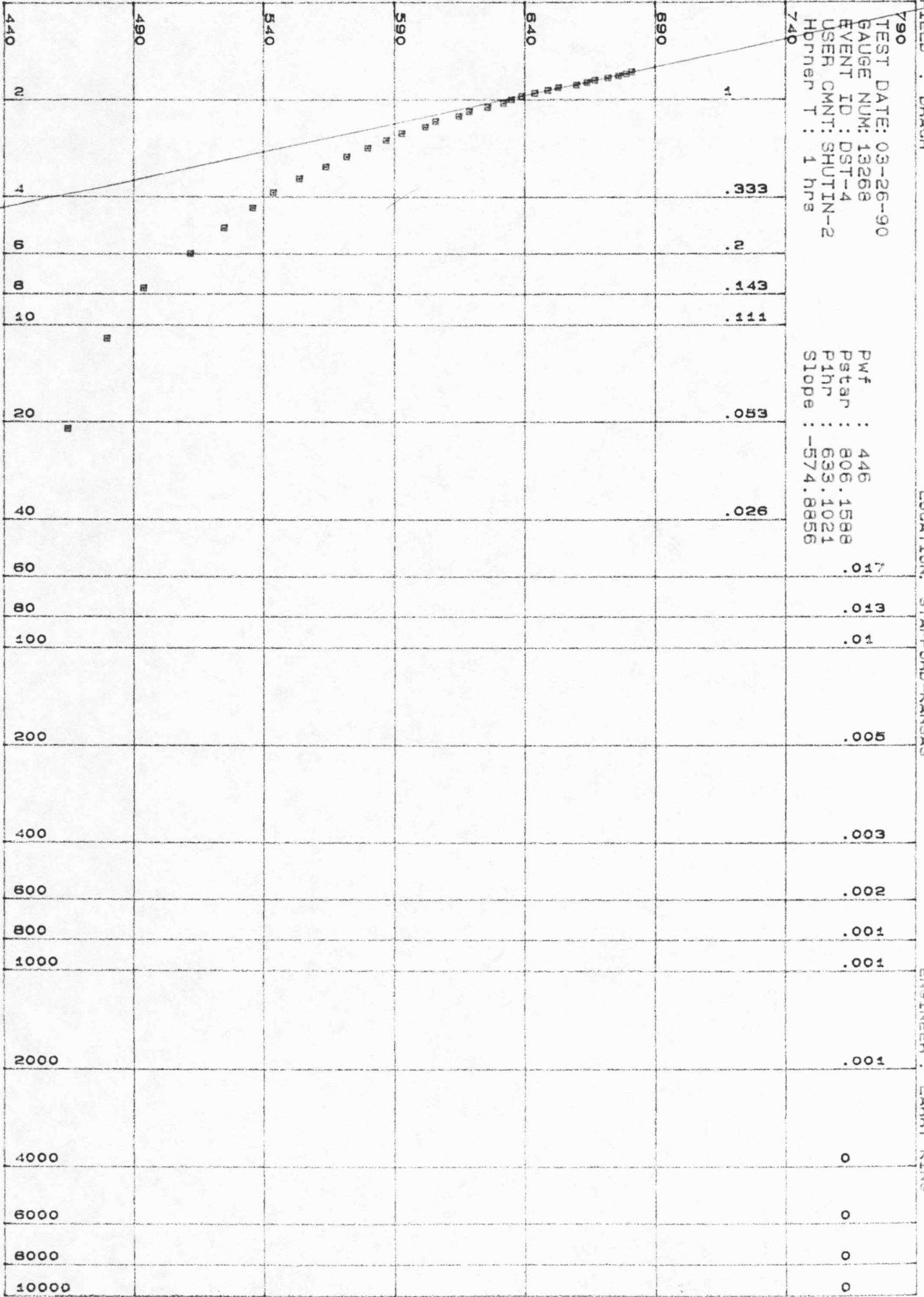
WELL # : #118
 LOCATION : STAFFORD-KANSAS

PROCESSED: 03-23-1990
 ENGINEER : LARRY KINZ

TEST DATE: 03-26-90
 GAUGE NUM: 13268
 EVENT ID : DST-4
 USER CMNT: SHUTIN-2
 Horner T : 1 hrs

Pwf : 446
 Pstar : 806.1588
 P1hr : 633.1021
 Slope : -574.8856

Pressure, Psig



Job No. 16077
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN



WESTERN TESTING CO., INC.
FORMATION TESTING

TICKET No 16078

P. O. BOX 1599 PHONE (316) 262-5861
WICHITA, KANSAS 67201

Elevation 1805 RB Formation Arbuckle Eff. Pay - Ft.

District GT, Bend Date 3-27-90 Customer Order No. -
COMPANY NAME H140 F.G. Hall Company
ADDRESS P.O. Box 780167 Wichita, KS 67278-0167
LEASE AND WELL NO. Drach #1-18 COUNTY Staffed STATE KS Sec. 18 Twp. 25 Rge. 11 W
Mail Invoice To SAME Co. Name Address DRACH #1-18 No. Copies Requested Reg
Mail Charts To SAME Address DRACH #1-18 No. Copies Requested Reg

Formation Test No. 5 Interval Tested From 3488 ft. to 3525 ft. Total Depth 3525 ft.
Packer Depth 3483 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.
Packer Depth 3488 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.
Depth of Selective Zone Set -

Top Recorder Depth (Inside) 3491 ft. Recorder Number 10270 Cap. 4150
Bottom Recorder Depth (Outside) 3494 ft. Recorder Number 13268 Cap. 4225
Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Sterling rig 4 Drill Collar Length 425 I. D. 2.2 in.
Mud Type Chemical Viscosity 62 Weight Pipe Length - I. D. - in.
Weight 9 Water Loss 10.4 cc. Drill Pipe Length 3041 I. D. 3.8 in.
Chlorides 15,000 P.P.M. Test Tool Length 22 ft. Tool Size 5 1/2 in.
Jars: Make - Serial Number - Anchor Length 37 ft. Size 5 1/2 in.
Did Well Flow? - Reversed Out yes Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
Main Hole Size 7/8 in. Tool Joint Size 4 1/2 XH in.

Blow: IF - Strong Blow in 1 min
FF - Strong Blow throughout

Recovered 930 ft. of GAS IN Pipe
Recovered 1500 ft. of CLEAN Gassy OIL GRAVITY 35
Recovered - ft. of
Recovered - ft. of
Recovered - ft. of
Chlorides - P.P.M. Sample Jars used 1 Remarks:

Time On Location 11:15 A.M. Time Pick Up Tool 12:00 P.M. Time Off Location - A.M.
Time Set Packer(s) 1:05 P.M. Time Started Off Bottom 5:05 P.M. Maximum Temperature 108
Initial Hydrostatic Pressure (A) 1724 P.S.I.
Initial Flow Period Minutes 30 (B) 187 P.S.I. to (C) 322 P.S.I.
Initial Closed In Period Minutes 60 (D) 904 P.S.I.
Final Flow Period Minutes 60 (E) 385 P.S.I. to (F) 541 P.S.I.
Final Closed In Period Minutes 90 (G) 873 P.S.I.
Final Hydrostatic Pressure (H) 1692 P.S.I.

COMPANY TERMS

Western Testing Co., Inc. shall not be liable for damages of any kind to 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, of its statements or opinion concerning the results of any test. Tools lost or damaged in the hole shall be paid at cost by the party for whom the test is made. All charges subject to 12% interest after 60 days from date of invoice. Any expense incurred for collection will be added to the original amount.

Test Approved By W. Byrse Bidlema
Signature of Customer or his authorized representative

Western Representative Ray Schwager 1925 THANK YOU

FIELD INVOICE

Open Hole Test 400
Misrun \$
Straddle Test \$
Jars \$
Selective Zone \$
Safety Joint NL
Standby \$
Evaluation \$
Extra Packer \$
Circ. Sub. 35
Mileage \$
Fluid Sampler \$
Extra Charts \$
Insurance \$
Telecopier \$
TOTAL \$

WESTERN TESTING CO., INC.

Pressure Data

Date 3-27-90 Test Ticket No. 16028
 Recorder No. 0270 Capacity 450 Location _____ Ft.
 Clock No. _____ Elevation _____ Well Temperature 108 °F

Point	Pressure	Open Tool	Time Given	Time Computed
A Initial Hydrostatic Mod	<u>1746</u> P.S.I.		<u>1:05 PM</u>	
B First Initial Flow Pressure	<u>503</u> P.S.I.	First Flow Pressure	<u>30</u> Mins	<u>30</u> Mins
C First Final Flow Pressure	<u>324</u> P.S.I.	Initial Closed-In Pressure	<u>60</u> Mins	<u>60</u> Mins
D Initial Closed-In Pressure	<u>909</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins	<u>60</u> Mins
E Second Initial Flow Pressure	<u>397</u> P.S.I.	Final Closed-In Pressure	<u>90</u> Mins	<u>90</u> Mins
F Second Final Flow Pressure	<u>548</u> P.S.I.			
G Final Closed-In Pressure	<u>875</u> P.S.I.			
H Final Hydrostatic Mod	<u>1709</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.		Breakdown: _____ Inc.	
of <u>5</u> mins. and a		of <u>3</u> mins. and a		of <u>5</u> mins. and a		of <u>3</u> mins. and a	
final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.		final inc. of <u>0</u> Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	<u>203</u>	0	<u>324</u>	0	<u>397</u>	0	<u>548</u>
P 2 5	<u>214</u>	3	<u>557</u>	5	<u>397</u>	3	<u>630</u>
P 3 10	<u>235</u>	6	<u>653</u>	10	<u>404</u>	6	<u>671</u>
P 4 15	<u>262</u>	9	<u>704</u>	15	<u>423</u>	9	<u>701</u>
P 5 20	<u>291</u>	12	<u>744</u>	20	<u>435</u>	12	<u>721</u>
P 6 25	<u>314</u>	15	<u>771</u>	25	<u>456</u>	15	<u>737</u>
P 7 30	<u>324</u>	18	<u>789</u>	30	<u>472</u>	18	<u>750</u>
P 8 35		21	<u>808</u>	35	<u>483</u>	21	<u>760</u>
P 9 40		24	<u>824</u>	40	<u>499</u>	24	<u>768</u>
P 10 45		27	<u>835</u>	45	<u>511</u>	27	<u>776</u>
P 11 50		30	<u>842</u>	50	<u>524</u>	30	<u>785</u>
P 12 55		33	<u>852</u>	55	<u>536</u>	33	<u>794</u>
P 13 60		36	<u>860</u>	60	<u>548</u>	36	<u>800</u>
P 14 65		39	<u>868</u>	65		39	<u>807</u>
P 15 70		42	<u>875</u>	70		42	<u>814</u>
P 16 75		45	<u>882</u>	75		45	<u>820</u>
P 17 80		48	<u>888</u>	80		48	<u>825</u>
P 18 85		51	<u>892</u>	85		51	<u>830</u>
P 19 90		54	<u>897</u>	90		54	<u>834</u>
P 20 95		57	<u>902</u>	95		57	<u>838</u>
100		60	<u>909</u>	100		60	<u>841</u>

WESTERN TESTING CO., INC.
Pressure Data

Date _____

Test Ticket No. 16078

Recorder No. _____ Capacity _____ Location _____ Ft.

Clock No. _____ Elevation _____ Well Temperature _____ °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud _____	P.S.I.	Open Tool	_____	M _____
B First Initial Flow Pressure _____	P.S.I.	First Flow Pressure	_____	Mins. _____ Mins.
C First Final Flow Pressure _____	P.S.I.	Initial Closed-in Pressure	_____	Mins. _____ Mins.
D Initial Closed-in Pressure _____	P.S.I.	Second Flow Pressure	_____	Mins. _____ Mins.
E Second Initial Flow Pressure _____	P.S.I.	Final Closed-in Pressure	_____	Mins. _____ Mins.
F Second Final Flow Pressure _____	P.S.I.			
G Final Closed-in Pressure _____	P.S.I.			
H Final Hydrostatic Mud _____	P.S.I.			

PRESSURE BREAKDOWN

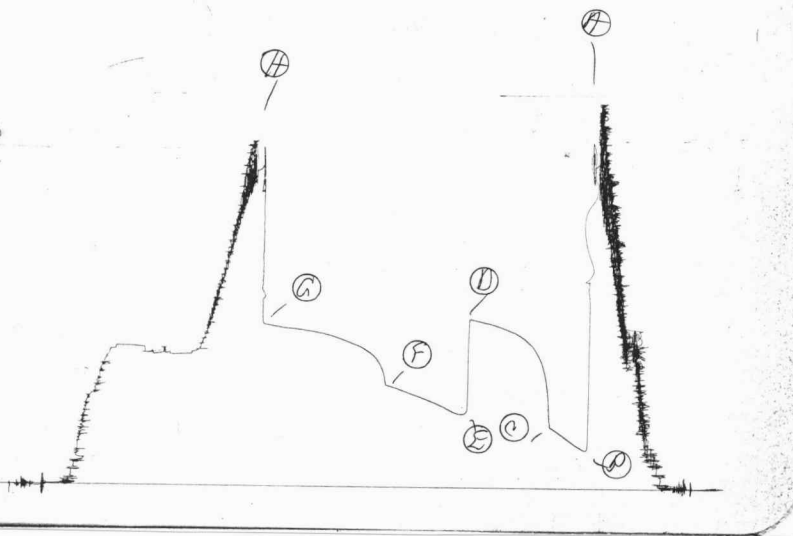
Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.	Breakdown: _____ Inc. of _____ mins. and a final inc. of _____ Min.
	Point Minutes	Point Minutes	Point Minutes	Point Minutes
P 1	105	63	105	63
P 2	110	66	110	66
P 3	115	69	115	69
P 4	120	72	120	72
P 5	125	75	125	75
P 6	130	78	130	78
P 7	135	81	135	81
P 8	140	84	140	84
P 9	145	87	145	87
P10	150	90	150	90
P11	155	93	155	93
P12	160	96	160	96
P13	165	99	165	99
P14	170	102	170	102
P15	175	105	175	105
P16	180	108	180	108
P17	185	111	185	111
P18	190	114	190	114
P19	195	117	195	117
P20	200	120	200	120

Press. 844
847
850
852
855
857
860
862
868
872
875

KT 16028

I

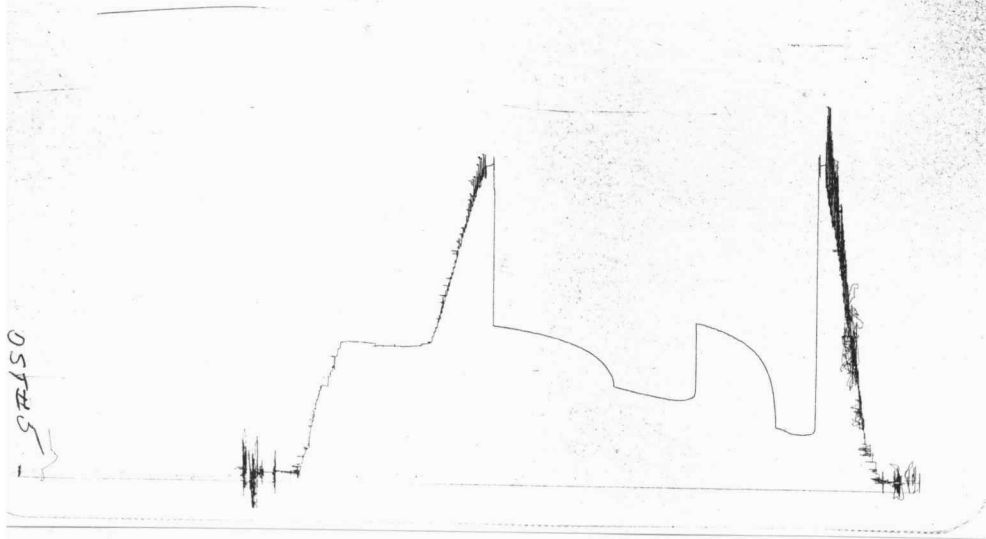
5750



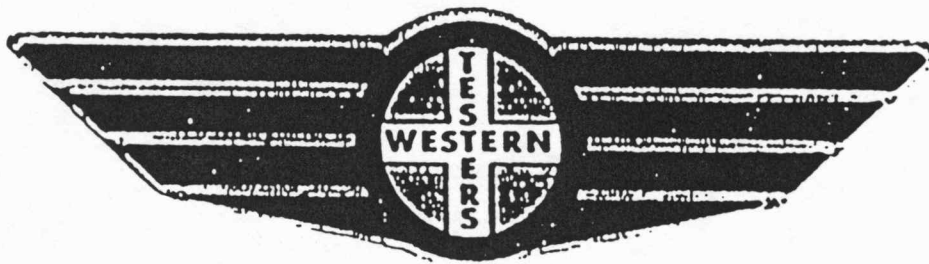
KT 16028

D

5750



FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 03-27-90 TICKET : 16078
CUSTOMER : F G HOLL COMPANY LEASE : DRACH
WELL : #1-18 TEST: 5 GEOLOGIST : BIDLEMAN
ELEVATION : 1805 KB FORMATION : ARBUCKLE
SECTION : 18 TOWNSHIP : 21S
RANGE : 11W COUNTY : STAFFORD STATE : KANSAS
GAUGE SN# : 10270 RANGE : 4150 CLOCK : 12

INTERVAL FROM : 3488 TO : 3525 TOTAL DEPTH : 3525
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 3483 SIZE : 6.63
PACKER DEPTH : 3488 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : STERLING RIG 4
MUD TYPE : CHEMICAL VISCOSITY : 62
WEIGHT : 9 WATER LOSS (CC) : 10.4
CHLORIDES (PPM) : 15000
JARS-MAKE : SERIAL NUMBER :
DID WELL FLOW ? : REVERSED OUT ? : YES

DRILL COLLAR LENGTH : 425 FT I.D. inch : 2.20
WEIGHT PIPE LENGTH : 0 FT I.D. inch : 0.00
DRILL PIPE LENGTH : 3041 FT I.D. inch : 3.80
TEST TOOL LENGTH : 22 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 37 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL FLOW PERIOD STRONG BLOW IN 1 MIN
BLOW COMMENT #2 : FINAL FLOW PERIOD STRONG BLOW THROUGHOUT
BLOW COMMENT #3 :
BLOW COMMENT #4 :

RECOVERED : 1500 FT OF: CLEAN GASSY OIL GRAVITY 35

Total Barrels Fluid = 17.08
Total Fluid Prod Rate = 273.22 BFPD
Indicated Oil Rate = 273.22 BOPD
Corrected Oil Rate = 170.77 BOPD

REMARK 1 :
REMARK 2 : RECOVERED 930 FT GAS ABOVE FLUID
REMARK 3 :
REMARK 4 :

SET PACKER(S) : 1:05 PM TIME STARTED OFF BOTTOM : 5:05 PM
WELL TEMPERATURE : 108
INITIAL HYDROSTATIC PRESSURE (A) 1746
INITIAL FLOW PERIOD MIN: 30 (B) 203 PSI TO (C) : 324
INITIAL CLOSED IN PERIOD MIN: 60 (D) 909
FINAL FLOW PERIOD MIN: 60 (E) 397 PSI TO (F) : 548
FINAL CLOSED IN PERIOD MIN: 93 (G) 875
FINAL HYDROSTATIC PRESSURE (H) 1709

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-27-90
GAUGE NO : 10270

OPERATIONAL COMMENTS

RECOVERED 930 FT GAS ABOVE FLUID

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 27/ 3/90

FIELD : DRACH
 JOB # : 16078
 DEPTH : 3525
 TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
INITIAL FLOW PERIOD					
2	1: 5: 0	0.000	203.000	108.00	0.000
3	1: 9:59	0.083	214.000	108.00	11.000
4	1:15: 0	0.167	235.000	108.00	21.000
5	1:20: 0	0.250	262.000	108.00	27.000
6	1:24:59	0.333	291.000	108.00	29.000
7	1:30: 0	0.417	314.000	108.00	23.000
8	1:35: 0	0.500	324.000	108.00	10.000
INITIAL SHUT-IN PERIOD					
9	1:38: 0	0.550	557.000	108.00	233.000
10	1:41: 0	0.600	653.000	108.00	96.000
11	1:44: 0	0.650	704.000	108.00	51.000
12	1:47: 0	0.700	744.000	108.00	40.000
13	1:50: 0	0.750	771.000	108.00	27.000
14	1:53: 0	0.800	789.000	108.00	18.000
15	1:56: 0	0.850	808.000	108.00	19.000
16	1:59: 0	0.900	824.000	108.00	16.000
17	2: 2: 0	0.950	835.000	108.00	11.000
18	2: 5: 0	1.000	842.000	108.00	7.000
19	2: 8: 0	1.050	852.000	108.00	10.000
20	2:11: 0	1.100	860.000	108.00	8.000
21	2:14: 0	1.150	868.000	108.00	8.000
22	2:17: 0	1.200	875.000	108.00	7.000
23	2:20: 0	1.250	882.000	108.00	7.000
24	2:23: 0	1.300	888.000	108.00	6.000
25	2:26: 0	1.350	893.000	108.00	5.000
26	2:29: 0	1.400	897.000	108.00	4.000
27	2:32: 0	1.450	902.000	108.00	5.000
28	2:35: 0	1.500	909.000	108.00	7.000
FINAL FLOW PERIOD					
29	2:36: 0	1.517	397.000	108.00	-512.000
30	2:39:59	1.583	397.000	108.00	0.000
31	2:45: 0	1.667	404.000	108.00	7.000
32	2:50: 0	1.750	423.000	108.00	19.000
33	2:54:59	1.833	435.000	108.00	12.000
34	3: 0: 0	1.917	456.000	108.00	21.000
35	3: 5: 0	2.000	472.000	108.00	16.000
36	3: 9:59	2.083	485.000	108.00	13.000
37	3:15: 0	2.167	499.000	108.00	14.000
38	3:20: 0	2.250	511.000	108.00	12.000
39	3:24:59	2.333	524.000	108.00	13.000
40	3:30: 0	2.417	536.000	108.00	12.000
41	3:35: 0	2.500	548.000	108.00	12.000
FINAL SHUT-IN PERIOD					
42	3:38: 0	2.550	630.000	108.00	82.000
43	3:41: 0	2.600	671.000	108.00	41.000
44	3:44: 0	2.650	701.000	108.00	30.000
45	3:47: 0	2.700	721.000	108.00	20.000
46	3:50: 0	2.750	737.000	108.00	16.000
47	3:53: 0	2.800	750.000	108.00	13.000
48	3:56: 0	2.850	760.000	108.00	10.000

COMPANY : F G HOLL COMPANY
WELL : #1-18
GAUGE # : 10270
DATE : 27/ 3/90

FIELD : DRACH
JOB # : 16078
DEPTH : 3525
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
49	3:59: 0	2.900	768.000	108.00	8.000
50	4: 2: 0	2.950	776.000	108.00	8.000
51	4: 5: 0	3.000	785.000	108.00	9.000
52	4: 8: 0	3.050	794.000	108.00	9.000
53	4:11: 0	3.100	800.000	108.00	6.000
54	4:14: 0	3.150	807.000	108.00	7.000
55	4:17: 0	3.200	814.000	108.00	7.000
56	4:20: 0	3.250	820.000	108.00	6.000
57	4:23: 0	3.300	825.000	108.00	5.000
58	4:26: 0	3.350	830.000	108.00	5.000
59	4:29: 0	3.400	834.000	108.00	4.000
60	4:32: 0	3.450	838.000	108.00	4.000
61	4:35: 0	3.500	841.000	108.00	3.000
62	4:38: 0	3.550	844.000	108.00	3.000
63	4:41: 0	3.600	847.000	108.00	3.000
64	4:44: 0	3.650	850.000	108.00	3.000
65	4:47: 0	3.700	853.000	108.00	3.000
66	4:50: 0	3.750	855.000	108.00	2.000
67	4:53: 0	3.800	857.000	108.00	2.000
68	4:56: 0	3.850	860.000	108.00	3.000
69	4:59: 0	3.900	863.000	108.00	3.000
70	5: 2: 0	3.950	868.000	108.00	5.000
71	5: 5: 0	4.000	872.000	108.00	4.000
72	5: 8: 0	4.050	875.000	108.00	3.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-27-90
GAUGE NO : 10270
TEST : DST-5 SHUTIN-1

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 27/ 3/90
 Comment : DST-5 SHUTIN-1
 Horner T: .5 Hours

FIELD : DRACH
 JOB # : 16078
 DEPTH : 3525
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
8	1:35: 0	0.000	324.000	108.00	0.0000	0.000
9	1:38: 0	0.050	557.000	108.00	11.0000	233.000
10	1:41: 0	0.100	653.000	108.00	6.0000	329.000
11	1:44: 0	0.150	704.000	108.00	4.3333	380.000
12	1:47: 0	0.200	744.000	108.00	3.5000	420.000
13	1:50: 0	0.250	771.000	108.00	3.0000	447.000
14	1:53: 0	0.300	789.000	108.00	2.6667	465.000
15	1:56: 0	0.350	808.000	108.00	2.4286	484.000
16	1:59: 0	0.400	824.000	108.00	2.2500	500.000
17	2: 2: 0	0.450	835.000	108.00	2.1111	511.000
18	2: 5: 0	0.500	842.000	108.00	2.0000	518.000
19	2: 8: 0	0.550	852.000	108.00	1.9091	528.000
20	2:11: 0	0.600	860.000	108.00	1.8333	536.000
21	2:14: 0	0.650	868.000	108.00	1.7692	544.000
22	2:17: 0	0.700	875.000	108.00	1.7143	551.000
23	2:20: 0	0.750	882.000	108.00	1.6667	558.000
24	2:23: 0	0.800	888.000	108.00	1.6250	564.000
25	2:26: 0	0.850	893.000	108.00	1.5882	569.000
26	2:29: 0	0.900	897.000	108.00	1.5556	573.000
27	2:32: 0	0.950	902.000	108.00	1.5263	578.000
28	2:35: 0	1.000	909.000	108.00	1.5000	585.000

WESTERN TESTING CO. INC.

COMPANY: F G HOLL COMPANY
 FIELD : DRACH

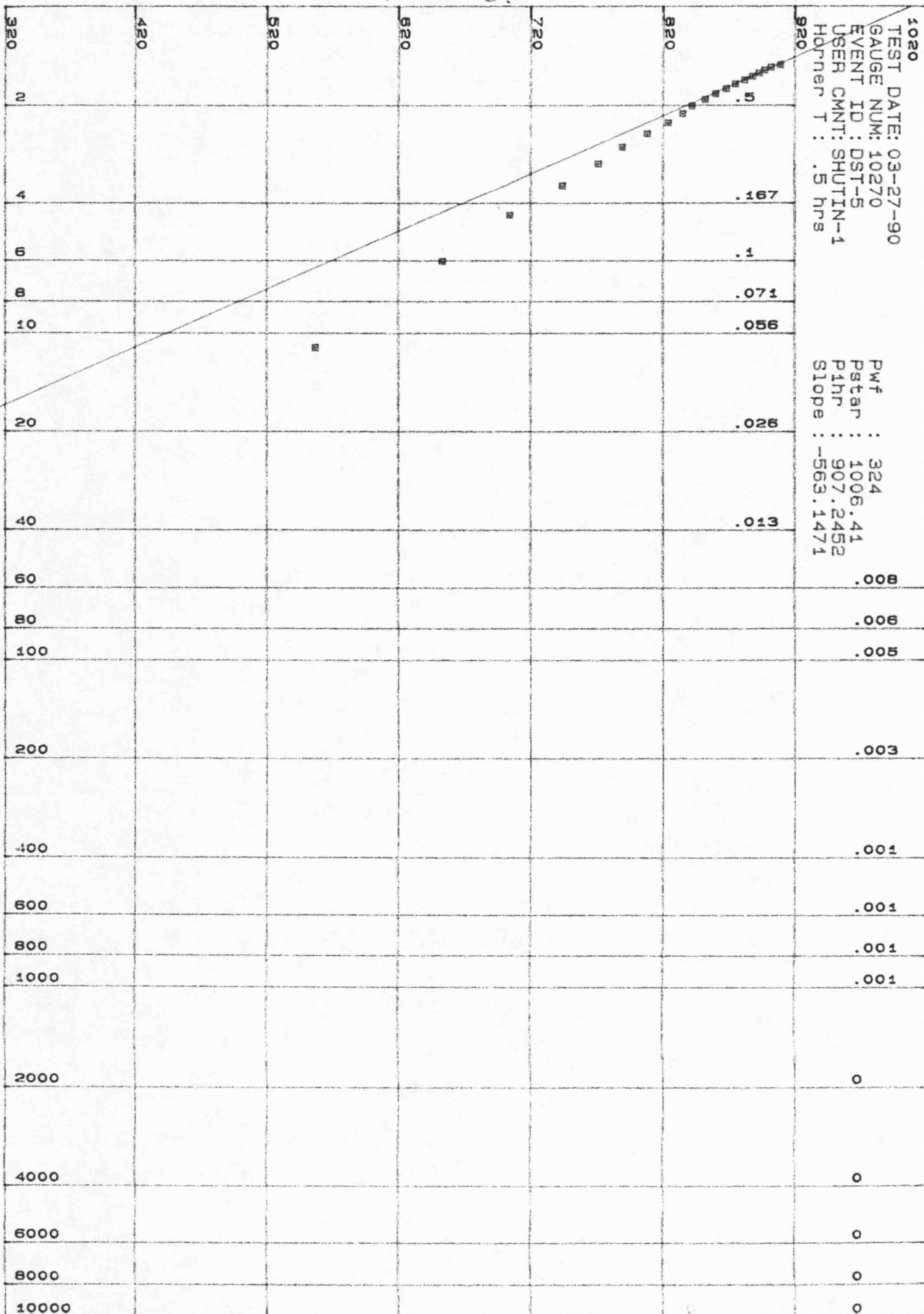
WELL # : #1-18
 LOCATION: STAFFORD-KANSAS

PROCESSED: 03-29-1990
 ENGINEER: LARRY KING

TEST DATE: 03-27-90
 GAUGE NUM: 10270
 EVENT ID : DST-5
 USER CMNT: SHUTIN-1
 Horner T : .5 hrs

Pwf : 324
 Pstar : 1006.41
 P1hr : 907.2452
 Slope : -563.1471

Pressure, Psig.



Job No. 16078
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN

WESTERN TESTING CO. INC.
WICHITA-KANSAS

Pressure Transient Report

COMPANY : F G HOLL COMPANY
RIG : STAFFORD-KANSAS
FIELD : DRACH
WELL : #1-18
DATE : 03-27-90
GAUGE NO : 10270
TEST : DST-5 SHUTIN-2

COMPANY : F G HOLL COMPANY
 WELL : #1-18
 GAUGE # : 10270
 DATE : 27/ 3/90
 Comment : DST-5 SHUTIN-2
 Horner T: 1 Hours

FIELD : DRACH
 JOB # : 16078
 DEPTH : 3525
 TEST :

DATA No.	REAL TIME HR:MM:SS	EVENT TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	HORNER (T+dt)/dt	DELTA P PSIG
41	3:35: 0	0.000	548.000	108.00	0.0000	0.000
42	3:38: 0	0.050	630.000	108.00	21.0000	82.000
43	3:41: 0	0.100	671.000	108.00	11.0000	123.000
44	3:44: 0	0.150	701.000	108.00	7.6667	153.000
45	3:47: 0	0.200	721.000	108.00	6.0000	173.000
46	3:50: 0	0.250	737.000	108.00	5.0000	189.000
47	3:53: 0	0.300	750.000	108.00	4.3333	202.000
48	3:56: 0	0.350	760.000	108.00	3.8571	212.000
49	3:59: 0	0.400	768.000	108.00	3.5000	220.000
50	4: 2: 0	0.450	776.000	108.00	3.2222	228.000
51	4: 5: 0	0.500	785.000	108.00	3.0000	237.000
52	4: 8: 0	0.550	794.000	108.00	2.8182	246.000
53	4:11: 0	0.600	800.000	108.00	2.6667	252.000
54	4:14: 0	0.650	807.000	108.00	2.5385	259.000
55	4:17: 0	0.700	814.000	108.00	2.4286	266.000
56	4:20: 0	0.750	820.000	108.00	2.3333	272.000
57	4:23: 0	0.800	825.000	108.00	2.2500	277.000
58	4:26: 0	0.850	830.000	108.00	2.1765	282.000
59	4:29: 0	0.900	834.000	108.00	2.1111	286.000
60	4:32: 0	0.950	838.000	108.00	2.0526	290.000
61	4:35: 0	1.000	841.000	108.00	2.0000	293.000
62	4:38: 0	1.050	844.000	108.00	1.9524	296.000
63	4:41: 0	1.100	847.000	108.00	1.9091	299.000
64	4:44: 0	1.150	850.000	108.00	1.8696	302.000
65	4:47: 0	1.200	853.000	108.00	1.8333	305.000
66	4:50: 0	1.250	855.000	108.00	1.8000	307.000
67	4:53: 0	1.300	857.000	108.00	1.7692	309.000
68	4:56: 0	1.350	860.000	108.00	1.7407	312.000
69	4:59: 0	1.400	863.000	108.00	1.7143	315.000
70	5: 2: 0	1.450	868.000	108.00	1.6897	320.000
71	5: 5: 0	1.500	872.000	108.00	1.6667	324.000
72	5: 8: 0	1.550	875.000	108.00	1.6452	327.000

WESTERN TESTING CO. INC.

WESTERN TESTING CO. INC.
WICHITA-KANSAS

WELL TEST ANALYSIS REPORT
HORNER METHOD
SHUTIN No. 2

COMPANY F G HOLL COMPANY
DATE 03-27-90
FIELD DRACH
WELL #1-18
AREA STAFFORD-KANSAS
JOB NUMBER 16078
GAUGE NUMBER 10270
GAUGE DEPTH 3525
ZONE TESTED 3314-3369

PHASE : OIL FUNCTION : PRESSURE

=====I=N=P=U=T====D=A=T=A====S=U=M=M=A=R=Y=====

THICKNESS	H	1.2000E+01	Feet
POROSITY	POR	2.2000E-01	Frac
VISCOSITY	U	6.2245E+00	Cp
FORMATION VOLUME FACTOR	B	1.0381E+00	Rb/stb
TOTAL COMPRESSIBILITY	Ct	4.7506E-06	Psi^-1
WELLBORE RADIUS	Rw	5.2000E-01	Feet
DRAINAGE RADIUS	Re	1.0500E+03	Feet
RESERVOIR TEMPERATURE	T	1.0400E+02	Deg F
GRAVITY OF FLUID	G	3.5000E+01	
PVT EVALUATION PRESSURE	P	1.0550E+03	Psig
PRESSURE AT SHUT-IN	Pwf	5.4800E+02	Psig
FINAL RECORDED PRESSURE	Ps	1.0550E+03	Psig
PRODUCTION RATE	Q	1.6650E+01	Bbl/day
TOTAL FLOW TIME	T	1.0000E+00	Hours

=====R=E=G=R=E=S=S=I=O=N====R=E=S=U=L=T=S=====

LEAST SQUARE RESULTS OVER THE INTERVAL :
FROM 2 TO 1.6452

SLOPE OF THE LINE	3.6883E+02	psi/cycle
FALSE PRESSURE, PSTAR	9.5051E+02	psi
PRESSURE AT 1 HOUR	8.3948E+02	psi

=====A=N=A=L=Y=S=I=S====R=E=S=U=L=T=S=====

TRANSMISSIBILITY	Kh/u	7.6199E+00	md-ft/cp
FLOW CAPACITY	Kh	4.7430E+01	md-ft
PERMEABILITY to PHASE	K	3.9525E+00	md
DAMAGE RATIO	Dr	3.4970E-01	
RADIUS OF INVESTIGATION	Rinv	2.5316E+01	ft
SKIN FACTOR	S	-2.3374E+00	
AVERAGE PRESSURE	Pbar	9.5042E+02	psig
DIMENSIONLESS TIME	Tda	4.6310E-05	
MATTHEWS-BRONS-HAZEBROEK	PDmbh	5.8195E-04	

COMPANY: F G HOLL COMPANY
 FIELD : DRACH

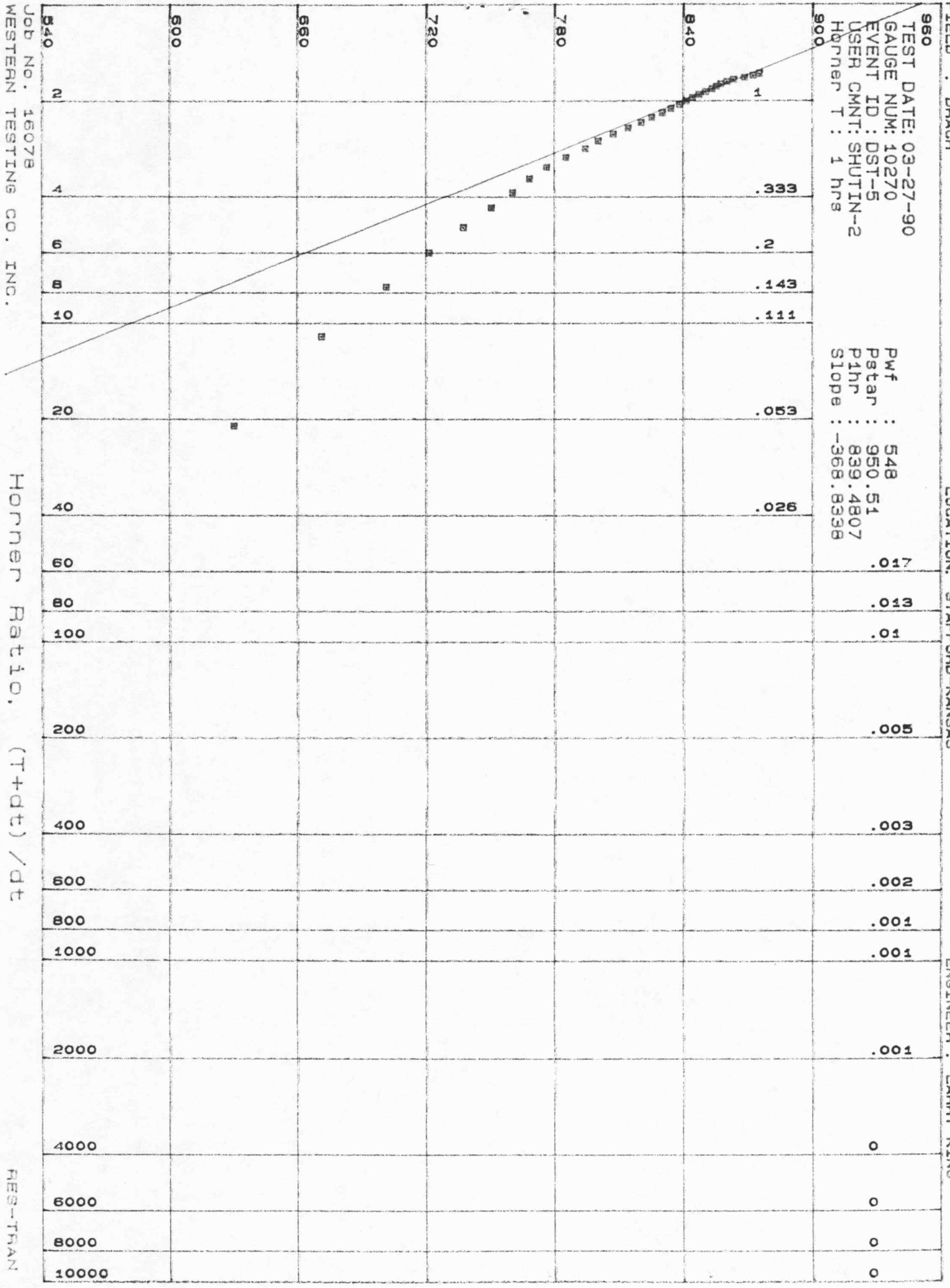
WELL # : #1-19
 LOCATION: STAFFORD-KANSAS

PROCESSED: 03-29-1990
 ENGINEER : LARRY KING

960 TEST DATE: 03-27-90
 GAUGE NUM: 10270
 EVENT ID : DST-5
 USER CMNT: SHUTIN-2
 Horner T : 1 hrs

Pwf : 548
 Patan : 950.51
 P1hr : 839.4807
 Slope : -368.8338

Pressure , Psig



Job No. 16078
 WESTERN TESTING CO. INC.

Horner Ratio, (T+dt) / dt

RES-TRAN