WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 6/3/83 TICKET #18965
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 1 GEOLOGIST: G EMBY
ELEVATION (KB): 2069 FORMATION: LANSING
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4120 FT TO: 4165 FT TOTAL DEPTH: 4165 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4115 FT SIZE: 6 5/8 IN PACKER DEPTH: 4120 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 39
WEIGHT: 9.4 WATER LOSS (CC): 16.4
CHLORIDES (P.P.M.): 28000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO

DRILL COLLAR LENGTH:		FT	I.D.:		IN		
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN		
DRILL PIPE LENGTH:	3006	FT	I.D.:	3.8	IN		
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN		
ANCHOR LENGTH:	45	FT	SIZE:	5 1/2	IN		
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	IN		

BLOW: INITIAL FLOW PERIOD FAIR BLOW-
8 INCHES DEPLEATING TO 4 INCHES.
FINAL FLOW PERIOD STEADY 2 INCH BLOW.

RECOVERED:	670	FT	OF: MUDDY SALTWATER-FEW OIL SPOTS ON TOP OF TOOL
RECOVERED:		FT	OF: CHLORIDES 79000 PPM
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:

REMARKS: TOOL SLID 10 FT. TO BOTTOM.

TIME SET PACKER(S): 3:30 PM TIME STARTED OFF BOTTOM: 7:15 PM
WELL TEMPERATURE: 124 'F

INITIAL HYDROSTATIC PRESSURE:		(A) 2176	PSI		
INITIAL FLOW PERIOD	MIN: 45	(B) 78	PSI TO	(C) 170	PSI
INITIAL CLOSED IN PERIOD	MIN: 60	(D) 1491	PSI		
FINAL FLOW PERIOD	MIN: 60	(E) 229	PSI TO	(F) 320	PSI
FINAL CLOSED IN PERIOD	MIN: 60	(G) 1485	PSI		
FINAL HYDROSTATIC PRESSURE		(H) 2166	PSI		

WESTERN TESTING CO. INC.
PRESSURE DATA

DATE: 6/3/83 TICKET #18965
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 1 GEOLOGIST: G EMBY
ELEVATION (KB): 2069 FORMATION: LANSING
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

(A) INITIAL HYDROSTATIC PRESSURE:	2176	PSI
(B) FIRST INITIAL FLOW PRESSURE:	78	PSI
(C) FIRST FINAL FLOW PRESSURE:	170	PSI
(D) INITIAL CLOSED-IN PRESSURE:	1491	PSI
(E) SECOND INITIAL FLOW PRESSURE:	229	PSI
(F) SECOND FINAL FLOW PRESSURE:	320	PSI
(G) FINAL CLOSED-IN PRESSURE:	1485	PSI
(H) FINAL HYDROSTATIC PRESSURE:	2166	PSI
WELL TEMPERATURE:	124	'F

OPEN TOOL: 3:30 PM

	TIME - GIVEN		TIME - ACTUAL	
FIRST FLOW PRESSURE:	45	MIN	45	MIN
INITIAL CLOSED-IN PRESSURE:	60	MIN	60	MIN
SECOND FLOW PRESSURE:	60	MIN	60	MIN
FINAL CLOSED-IN PRESSURE:	60	MIN	60	MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	78	0	170	0	229	0	320
2	5	79	3	1268	5	229	3	1257
3	10	86	6	1349	10	231	6	1356
4	15	94	9	1388	15	235	9	1393
5	20	105	12	1412	20	245	12	1415
6	25	119	15	1429	25	257	15	1429
7	30	133	18	1442	30	264	18	1440
8	35	146	21	1450	35	268	21	1448
9	40	160	24	1458	40	278	24	1456
10	45	170	27	1463	45	291	27	1460
11			30	1468	50	303	30	1464
12			33	1471	55	313	33	1467
13			36	1474	60	320	36	1470
14			39	1477			39	1473
15			42	1480			42	1476
16			45	1483			45	1478
17			48	1485			48	1480
18			51	1487			51	1482
19			54	1489			54	1483
20			57	1490			57	1484
21			60	1491			60	1485
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TKT # 18965

1566

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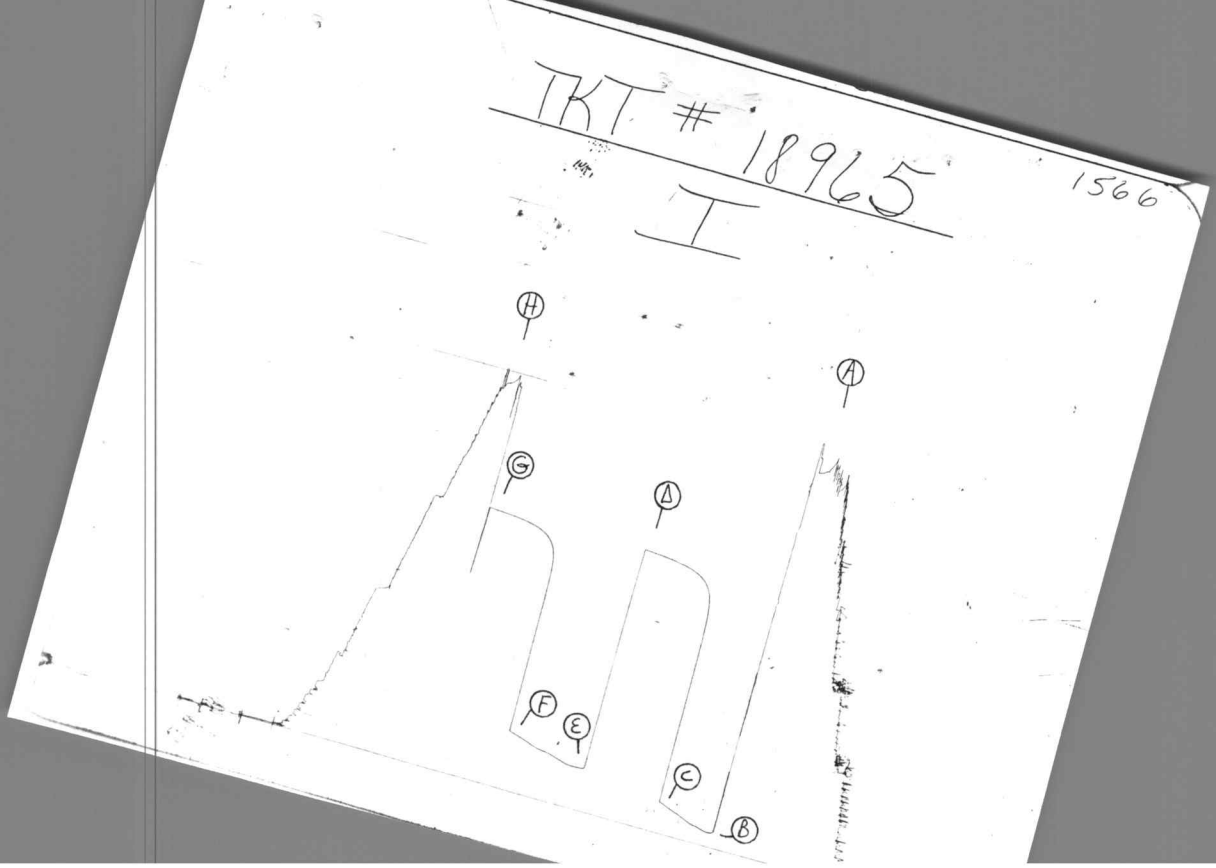

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 6/5/83 TICKET #18966
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 2 GEOLOGIST: G EMBY
ELEVATION (KB): 2069 FORMATION: MARMATON
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4452 FT TO: 4510 FT TOTAL DEPTH: 4510 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4447 FT SIZE: 6 5/8 IN PACKER DEPTH: 4452 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 46
WEIGHT: 9.6 WATER LOSS (CC): 12.0
CHLORIDES (P.P.M.): 41000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO

DRILL COLLAR LENGTH:		FT	I.D.:		IN	
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN	
DRILL PIPE LENGTH:	3328	FT	I.D.:	3.8	IN	
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN	
ANCHOR LENGTH:	26	FT	SIZE:	5 1/2	IN	
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: INITIAL FLOW PERIOD STRONG BLOW.
GAS TO SURFACE IN 3 MINUTES.
SEE ATTACHED GAS SHEET.

RECOVERED:	150	FT	OF: SLIGHTLY GAS CUT DRILLING MUD
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:

REMARKS: 32 FT. OF TAIL PIPE IN ANCHOR LENGTH
TOOL SLID 5 FT TO BOTTOM.

TIME SET PACKER(S): 4:30 PM TIME STARTED OFF BOTTOM: 8:30 PM
WELL TEMPERATURE: 130 'F

INITIAL HYDROSTATIC PRESSURE:		(A) 2363	PSI	
INITIAL FLOW PERIOD	MIN: 30	(B) 345	PSI TO (C) 324	PSI
INITIAL CLOSED IN PERIOD	MIN: 63	(D) 1258	PSI	
FINAL FLOW PERIOD	MIN: 30	(E) 389	PSI TO (F) 335	PSI
FINAL CLOSED IN PERIOD	MIN: 126	(G) 1212	PSI	
FINAL HYDROSTATIC PRESSURE		(H) 2347	PSI	

WESTERN TESTING CO. INC.
PRESSURE DATA

DATE: 6/5/83 TICKET #18966
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 2 GEOLOGIST: G EMBY
ELEVATION (KB): 2069 FORMATION: MARMATON
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

(A) INITIAL HYDROSTATIC PRESSURE:	2363	PSI
(B) FIRST INITIAL FLOW PRESSURE:	345	PSI
(C) FIRST FINAL FLOW PRESSURE:	324	PSI
(D) INITIAL CLOSED-IN PRESSURE:	1258	PSI
(E) SECOND INITIAL FLOW PRESSURE:	389	PSI
(F) SECOND FINAL FLOW PRESSURE:	335	PSI
(G) FINAL CLOSED-IN PRESSURE:	1212	PSI
(H) FINAL HYDROSTATIC PRESSURE:	2347	PSI
WELL TEMPERATURE:	130	'F

OPEN TOOL: 4:30 PM

	TIME - GIVEN		TIME - ACTUAL	
FIRST FLOW PRESSURE:	30	MIN	30	MIN
INITIAL CLOSED-IN PRESSURE:	60	MIN	63	MIN
SECOND FLOW PRESSURE:	30	MIN	30	MIN
FINAL CLOSED-IN PRESSURE:	120	MIN	126	MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	345	0	324	0	389	0	335
2	5	345	3	996	5	389	3	941
3	10	375	6	1077	10	374	6	1017
4	15	367	9	1130	15	359	9	1066
5	20	352	12	1163	20	350	12	1102
6	25	336	15	1188	25	344	15	1128
7	30	324	18	1207	30	335	18	1145
8			21	1221			21	1157
9			24	1231			24	1169
10			27	1239			27	1177
11			30	1244			30	1182
12			33	1246			33	1185
13			36	1248			36	1188
14			39	1250			39	1190
15			42	1252			42	1192
16			45	1253			45	1194
17			48	1254			48	1196
18			51	1255			51	1197
19			54	1256			54	1198
20			57	1257			57	1199
21			60	1258			60	1200
22			63	1258			63	1201
23							66	1202
24							69	1203
25							72	1204
26							75	1205
27							78	1206
28							81	1207
29							84	1208
30							87	1209

PRESSURE BREAKDOWN - CONT. TICKET #18966

PT	FIRST FLOW MIN	FIRST FLOW PRESSURE	INITIAL SHUT-IN MIN	INITIAL SHUT-IN PRESSURE	SECOND FLOW MIN	SECOND FLOW PRESSURE	FINAL SHUT-IN MIN	FINAL SHUT-IN PRESSURE
31							90	1210
32							93	1211
33							96	1212
34							99	1212
35							102	1212
36							105	1212
37							108	1212
38							111	1212
39							114	1212
40							117	1212
41							120	1212
42							123	1212
43							126	1212
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WESTERN TESTING CO. INC.
GAS FLOW REPORT

DATE: 6/5/83 TICKET #18966
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 2 GEOLOGIST: G EMBY
ELEVATION (KB): 2069 FORMATION: MARMATON
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

TIME GAUGE (MIN)	TESTER TYPE	ORIFICE SIZE	PRESSURE (PSI)	FLOW DESCRIPTION
			PRE FLOW	
3				GAS TO SURFACE
5	MERLA	1 1/2	20 PSIG	1949000 CFPD
10		1 1/2	25 PSIG	2258000 CFPD
15		1 1/2	29 PSIG	2503000 CFPD
20		1 1/2	28 PSIG	2441000 CFPD
25		1 1/2	28 PSIG	2441000 CFPD
30		1 1/2	28 PSIG	2441000 CFPD
			SECOND FLOW	
5	MERLA	1 1/2	23 PSIG	2140000 CFPD
10		1 1/2	28 PSIG	2441000 CFPD
15		1 1/2	26 PSIG	2319000 CFPD
20		1 1/2	24 PSIG	2200000 CFPD
25		1 1/2	24 PSIG	2200000 CFPD
30		1 1/2	23 PSIG	2140000 CFPD

GAS BOTTLE SN #: 2
DATE BOTTLE FILLED: 6/5/83
DATE TO BE INVOICED: 6/5/83

Gas Production

B.T. Gauge Numbers			Ticket Number	18966	
		Pressure			
Initial Hydrostatic		2363	Elevation	2068	ft.
Final Hydrostatic		2347	Production Rate — Intial	2441	m cu. ft.
	Time		Production Rate — Final	2140	m cu. ft.
1st Flow — Initial	— — — —	345			
1st Flow — Final	30	324	Hole Size	7.875	in.
Initial Closed In Pressure	63	1258	Footage Tested	58	ft.
2nd Flow — Initial	— — — —	389	Mud Weight	9.6	lbs. gal.
2nd Flow — Final	30	335	Gas Viscosity		cp
Final Closed In Pressure	126	1212	Gas Gravity		—
Extrapolated Static Pressure	Initial	1274-1176	Gas Compressibility		—
	Final	1216-1172			
Slope Psi²/cycle	Initial	97.707			
	Final	43.521			

Remarks:

SUMMARY

BT Gauge Number Depth

Product	Equation	Initial	Final	Units
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$	8051.747	16130.258	$\frac{\text{md. ft.}}{\text{cp}}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	144.931	290.344	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$	12.077	24.195	md.
	$K_1 = \frac{Kh}{h_1}$	–	–	md.
Indicated Flow Capacity	$(Kh)_s = \frac{3200\ Q_g\ \mu\ ZT\ \text{Log}(0.472\ b/r_w)}{P_s^2 - P_f^2}$	65.758	70.770	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \quad \frac{Kh}{(Kh)_s}$	5.245	4.102	—
Indicated Flow Rate	$OF_1 = \frac{Q_g \quad P_s^2}{P_s^2 - P_f^2}$	2609.794	2315.758	MCFD
		2523.986	2226.145	MCFD
Theoretical Potential Rate	$OF_3 = OF_1\ DR$ Max.	13689.584	9500.641	MCFD
	$OF_4 = OF_2\ DR$ Min.	13239.483	9132.995	MCFD
Approx. Radius of Investigation	$b \leftrightarrows \sqrt{Kt}$ or $\sqrt{Kt_0}$	19.034	26.94	ft.
	$b_1 \leftrightarrows \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$			ft.
Potentiometric Surface *	$\text{Pot.} = (EI - GD) + (2.319\ Ps)$	567.406	432.904	ft.

INTERPRETATIONS AND CALCULATIONS

1566

TKT # 18966

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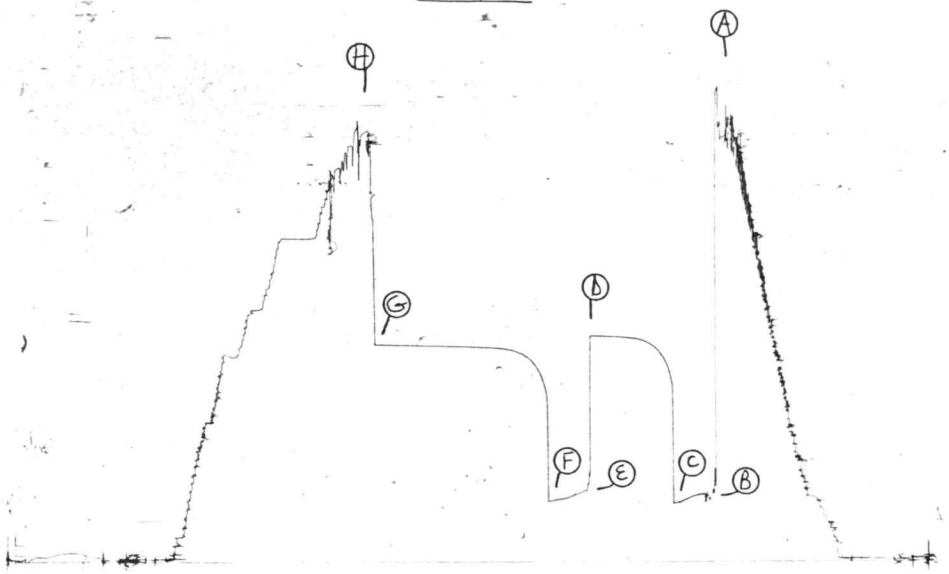

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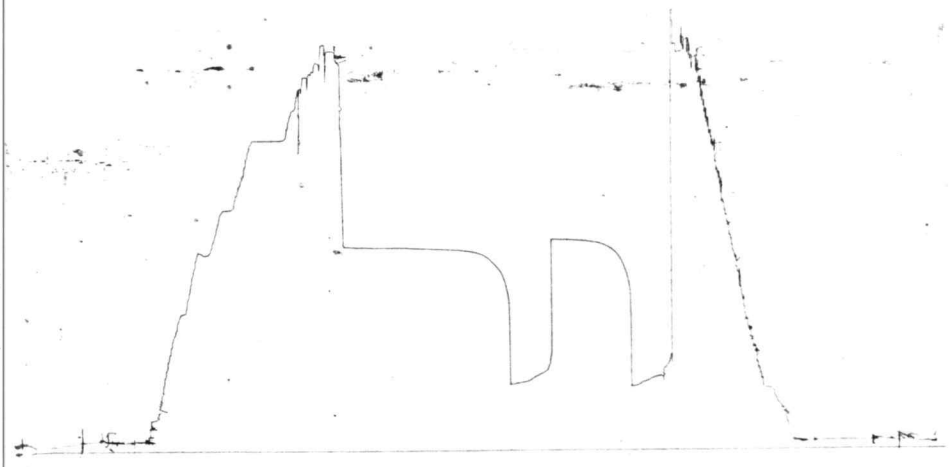

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 6/6/83 TICKET #18967
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 3 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4564 FT TO: 4597 FT TOTAL DEPTH: 4597 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4559 FT SIZE: 6 5/8 IN PACKER DEPTH: 4564 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 46
WEIGHT: 9.6 WATER LOSS (CC): 12.4
CHLORIDES (P.P.M.): 41000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO

DRILL COLLAR LENGTH:		FT	I.D.:		IN	
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN	
DRILL PIPE LENGTH:	3450	FT	I.D.:	3.8	IN	
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN	
ANCHOR LENGTH:	33	FT	SIZE:	5 1/2	IN	
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	IN	

BLOW:

RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:

REMARKS: MISRUN.
COULDN'T GET TO BOTTOM.
HIT BRIDGE AT 4100 FT.

TIME SET PACKER(S): TIME STARTED OFF BOTTOM:
WELL TEMPERATURE: 0 °F

INITIAL HYDROSTATIC PRESSURE:		(A)	PSI
INITIAL FLOW PERIOD	MIN: 0	(B) 0	PSI TO (C) 0 PSI
INITIAL CLOSED IN PERIOD	MIN: 0	(D) 0	PSI
FINAL FLOW PERIOD	MIN: 0	(E) 0	PSI TO (F) 0 PSI
FINAL CLOSED IN PERIOD	MIN: 0	(G) 0	PSI
FINAL HYDROSTATIC PRESSURE		(H)	PSI

WESTERN TESTING CO. INC.
PRESSURE DATA

DATE: 6/6/83 TICKET #18967
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 3 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

(A) INITIAL HYDROSTATIC PRESSURE:		PSI
(B) FIRST INITIAL FLOW PRESSURE:	0	PSI
(C) FIRST FINAL FLOW PRESSURE:	0	PSI
(D) INITIAL CLOSED-IN PRESSURE:	0	PSI
(E) SECOND INITIAL FLOW PRESSURE:	0	PSI
(F) SECOND FINAL FLOW PRESSURE:	0	PSI
(G) FINAL CLOSED-IN PRESSURE:	0	PSI
(H) FINAL HYDROSTATIC PRESSURE:		PSI
WELL TEMPERATURE:	0	'F
OPEN TOOL:		

	TIME - GIVEN	TIME - ACTUAL
FIRST FLOW PRESSURE:	MIN 0	MIN
INITIAL CLOSED-IN PRESSURE:	MIN 0	MIN
SECOND FLOW PRESSURE:	MIN 0	MIN
FINAL CLOSED-IN PRESSURE:	MIN 0	MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	0	0	0	0	0	0	0
2								
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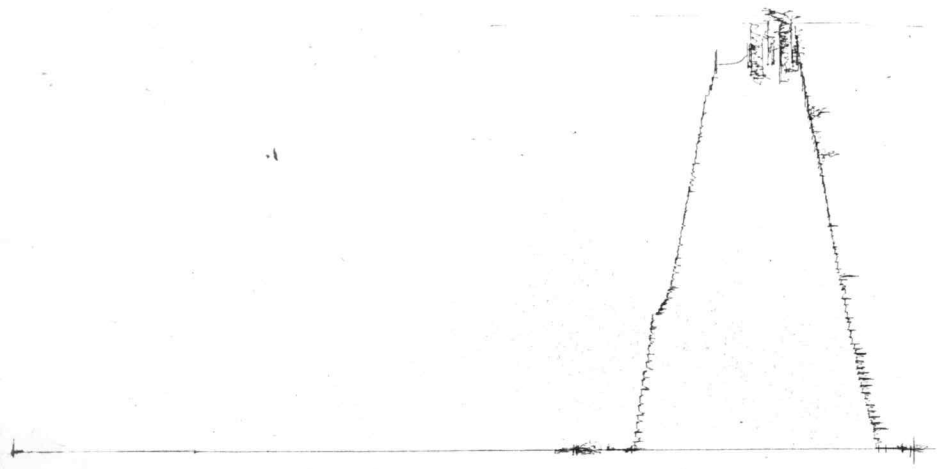

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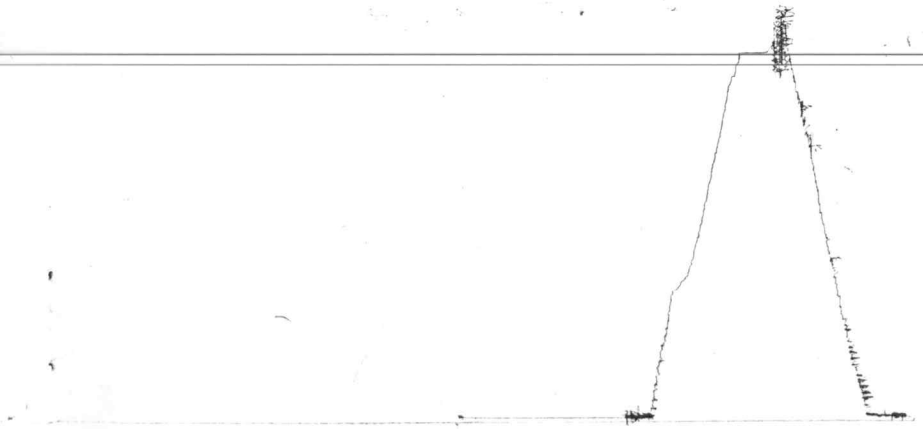

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 6/7/83 TICKET #18968
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 4 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4564 FT TO: 4597 FT TOTAL DEPTH: 4597 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4559 FT SIZE: 6 5/8 IN PACKER DEPTH: 4564 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 56
WEIGHT: 9.7 WATER LOSS (CC): 8.0
CHLORIDES (P.P.M.): 43000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO

DRILL COLLAR LENGTH:		FT	I.D.:		IN	
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN	
DRILL PIPE LENGTH:	3450	FT	I.D.:	3.8	IN	
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN	
ANCHOR LENGTH:	33	FT	SIZE:	5 1/2	IN	
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	IN	

BLOW: STRONG. GAS TO SURFACE IN 2 MINUTES INITIAL
FLOW PERIOD. WITH FINE MUD MIST 10 MINUTES
INTO FINAL FLOW PERIOD.
SEE ATTACHED GAS SHEET.

RECOVERED:	65	FT	OF: 15% GAS; 20% DRLG MUD; 25% WATER; 40% OIL
RECOVERED:	150	FT	OF: 20% GAS; 2% DRLG MUD; 18% WATER; 60% OIL
RECOVERED:	180	FT	OF: 20% GAS; 5% DRLG MUD; 60% WATER; 15% OIL
RECOVERED:	210	FT	OF: 5% GAS; 5% MUD; 80% WATER; 10% OIL
RECOVERED:	120	FT	OF: 3% DRLG MUD; 7% OIL; 90% WATER
RECOVERED:	400	FT	OF: VERY SLIGHTLY GASSY SALT WATER
RECOVERED:		FT	OF: CHLORIDES 79000 PPM
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:

REMARKS:

TIME SET PACKER(S): 10:00 AM TIME STARTED OFF BOTTOM: 3:15 PM
WELL TEMPERATURE: 132 'F

INITIAL HYDROSTATIC PRESSURE:		(A) 2467	PSI	
INITIAL FLOW PERIOD	MIN: 45	(B) 354	PSI TO (C) 393	PSI
INITIAL CLOSED IN PERIOD	MIN: 90	(D) 722	PSI	
FINAL FLOW PERIOD	MIN: 60	(E) 401	PSI TO (F) 471	PSI
FINAL CLOSED IN PERIOD	MIN: 120	(G) 716	PSI	
FINAL HYDROSTATIC PRESSURE		(H) 2435	PSI	

WESTERN TESTING CO. INC.
PRESSURE DATA

DATE: 6/7/83 TICKET #18968
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 4 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

(A) INITIAL HYDROSTATIC PRESSURE:	2467	PSI
(B) FIRST INITIAL FLOW PRESSURE:	354	PSI
(C) FIRST FINAL FLOW PRESSURE:	393	PSI
(D) INITIAL CLOSED-IN PRESSURE:	722	PSI
(E) SECOND INITIAL FLOW PRESSURE:	401	PSI
(F) SECOND FINAL FLOW PRESSURE:	471	PSI
(G) FINAL CLOSED-IN PRESSURE:	716	PSI
(H) FINAL HYDROSTATIC PRESSURE:	2435	PSI
WELL TEMPERATURE:	132	'F

OPEN TOOL: 10:00 AM

	TIME - GIVEN	TIME - ACTUAL
FIRST FLOW PRESSURE:	45 MIN	45 MIN
INITIAL CLOSED-IN PRESSURE:	90 MIN	90 MIN
SECOND FLOW PRESSURE:	60 MIN	60 MIN
FINAL CLOSED-IN PRESSURE:	120 MIN	120 MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	354	0	393	0	401	0	471
2	5	354	3	665	5	401	3	658
3	10	354	6	682	10	432	6	673
4	15	354	9	693	15	462	9	683
5	20	360	12	698	20	471	12	689
6	25	367	15	703	25	471	15	695
7	30	374	18	708	30	471	18	698
8	35	384	21	711	35	471	21	700
9	40	388	24	713	40	471	24	702
10	45	393	27	715	45	471	27	704
11			30	716	50	471	30	705
12			33	717	55	471	33	706
13			36	718	60	471	36	707
14			39	719			39	708
15			42	720			42	709
16			45	721			45	710
17			48	722			48	711
18			51	722			51	712
19			54	722			54	713
20			57	722			57	714
21			60	722			60	715
22			63	722			63	716
23			66	722			66	716
24			69	722			69	716
25			72	722			72	716
26			75	722			75	716
27			78	722			78	716
28			81	722			81	716
29			84	722			84	716
30			87	722			87	716

PRESSURE BREAKDOWN - CONT. TICKET #18968

PT	FIRST FLOW MIN	FIRST FLOW PRESSURE	INITIAL SHUT-IN MIN	INITIAL SHUT-IN PRESSURE	SECOND FLOW MIN	SECOND FLOW PRESSURE	FINAL SHUT-IN MIN	FINAL SHUT-IN PRESSURE
31			90	722			90	716
32							93	716
33							96	716
34							99	716
35							102	716
36							105	716
37							108	716
38							111	716
39							114	716
40							117	716
41							120	716
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WESTERN TESTING CO. INC.
GAS FLOW REPORT

DATE: 6/7/83 TICKET #18968
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 4 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

TIME GAUGE (MIN)	TESTER	TYPE	ORIFICE SIZE	PRESSURE (PSI)	FLOW DESCRIPTION
				PRE FLOW	
2					GAS TO SURFACE
5	MERLA		1	20 PSIG	725000 CFPD
10			1	22 PSIG	773000 CFPD
15			1	23 PSIG	796000 CFPD
20			1	23 PSIG	796000 CFPD
25			1	21 PSIG	749000 CFPD
30			1	19 PSIG	699000 CFPD
35			1	17 PSIG	652000 CFPD
40			1	17 PSIG	652000 CFPD
45			1	17 PSIG	652000 CFPD
				SECOND FLOW	
5	MERLA		1	5.0 PSIG	319000 CFPD
10			1	20 PSIG	725000 CFPD W/FINE MUDDY MIST
20			1	32 PSIG	994000 CFPD
30			1	24 PSIG	817000 CFPD
40			1	18 PSIG	687000 CFPD
45			1	26 PSIG	865000 CFPD
50			1	19 PSIG	699000 CFPD
55			1	26 PSIG	865000 CFPD
60			1	26 PSIG	865000 CFPD

GAS BOTTLE SN #: 102
DATE BOTTLE FILLED: 6/7/83
DATE TO BE INVOICED: 6/7/83

Liquid Production

B.T. Gauge Numbers			Ticket Number	18968
		PRESSURE		
Initial Hydrostatic		2467	Elevation	2064 GL ft.
Final Hydrostatic		2435	Indicated Production 1st Flow	6.20 bbls. day
	Time		Total Flow	8.19 bbls. day
1st Flow Initial	— — — —	354		
1st Flow Final	45	393	Drill ~~Collar~~ weight pipe ~~Length~~	1093 ft.
Initial Closed In Pressure	90	722	Drill ~~Collar~~ weight pipe ~~I.D.~~	3.2 in.
2nd Flow Initial	— — — —	401	Drill Pipe Factor	.0142 bbls. ft.
2nd Flow Final	60	471	Hole Size	7.875 in.
Final Closed In Pressure	90	716	Footage Tested	33 ft.
Extrapolated Static Pressure Initial		728–702	Mud Weight	9.7 lbs. gal.
Extrapolated Static Pressure Final		727–685	Viscosity, Oil or Water	cp
Slope psi/cycle Initial		25.710	Oil API Gravity	—
Slope psi/cycle Final		41.35	Water Specific Gravity	—

Remarks:

SUMMARY

Gauge No.
Depth

Product	Equation	INITIAL	FINAL	Units
Production	$Q = \frac{1440\ R}{t}$	198.449	196.700	bbls., day.
Transmissability	$\frac{Kh}{\mu} = \frac{162.6\ Q}{m}$	1241.072	761.512	$\frac{\text{md. ft.}}{\text{cp}}$
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	4964.291	3046.050	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$	236.394	145.050	md.
	$K_1 = \frac{Kh}{h_1}$		–	md.
Damage Ratio	$DR = .183\ \frac{Ps - Pf}{m}$	2.357	1.115	—
Theoretical Potential w/Damage Removed	$Q_1 = Q\ DR$	467.921	219.405	bbls. day
Approx. Radius of Investigation	$b \leftrightarrows \sqrt{Kt}$ or $\sqrt{Kt_0}$	103.139	93.289	ft.
	$b_1 \leftrightarrows \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	–	–	ft.
Potentiometric Surface *	$Pot. = El - GD + 2.319\ Ps$	–	–	ft.

INTERPRETATIONS AND CALCULATIONS

Gas Production

B.T. Gauge Numbers			Ticket Number	18968	
Initial Hydrostatic		Pressure 2467	Elevation	2064 GL	. ft.
Final Hydrostatic		2435	Production Rate Intial	725	m cu. ft.
1st Flow Initial	Time — — — —	354	Production Rate Final	865	m cu. ft.
1st Flow Final	45	393	Hole Size	7.875	in.
Initial Closed In Pressure	90	722	Footage Tested	33	ft.
2nd Flow Initial	— — — —	401	Mud Weight	9.7	lbs. gal.
2nd Flow Final	60	471	Gas Viscosity		cp
Final Closed In Pressure	120	716	Gas Gravity		—
Extrapolated Static Pressure	Initial	728–702	Gas Compressibility		—
	Final	727–685			
Slope Psi²/cycle	Initial	25.710			
	Final	41.315			

Remarks:

SUMMARY

BT Gauge Number Depth

Product	Equation	Initial	Final	Units
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$	15495.759	11590.878	$\frac{md.\ ft.}{cp}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	278.923	208.635	md. ft.
Average Effective	$K = \frac{Kh}{h}$	13.282	9.935	md.
Permeability	$K_1 = \frac{Kh}{h_1}$	–	–	md.
Indicated Flow Capacity	$(Kh)_2 = \frac{3200\ Q_g\ \mu\ ZT\ Log(0.472\ b/r_w)}{P_s^2 - P_f^2}$	85.210	124.440	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \frac{Kh}{(Kh)_2}$	3.273	1.676	—
Indicated Flow Rate	$OF_1 = \frac{Q_g\ P_s^2}{P_s^2 - P_f^2}$	1023,176	1490,692	MCFD
		861,279	1135,539	MCFD
Theoretical Potential Rate	$OF_3 = OF_1\ DR$ Max.	3349,204	2499,273	MCFD
	$OF_4 = OF_2\ DR$ Min.	2819,262	1903,828	MCFD
Approx. Radius of Investigation	$b \leftrightarrows \sqrt{Kt}$ or $\sqrt{Kt_0}$	24.447	24.415	ft.
	$b_1 \leftrightarrows \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	–	–	ft.
Potentiometric Surface *	$Pot. = (El - GD) + (2.319\ Ps)$	810.768	813.087	ft.

NOTICE: These calculations are based upon information furnished by you and taken from Drill Stem Tests pressure charts, and are furnished you for your information. In furnishing such calculations and evaluations based thereon, Western Testing Co., Inc., is merely expressing its opinion. You agree that Western Testing Co., Inc., make no warranty express or implied as to the accuracy of such calculations or opinions, and that Western Testing Co., Inc., shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

INTERPRETATIONS AND CALCULATIONS

Gas Production

B.T. Gauge Numbers			Ticket Number		18968
		Pressure			
Initial Hydrostatic		2467	Elevation		2064 GL ft.
Final Hydrostatic		2435	Production Rate	Intial	725 m cu. ft.
	Time			Final	865 m cu. ft.
1st Flow Initial	----	354			
1st Flow Final	45	393	Hole Size		7.875 in.
Initial Closed In Pressure	90	722	Footage Tested		33' ft.
2nd Flow Initial	----	401	Mud Weight		9.7 lbs. gal.
2nd Flow Final	60	471	Gas Viscosity		cp
Final Closed In Pressure	120	716	Gas Gravity		—
Extrapolated Static Pressure Initial		728 - 702	Gas Compressibility		—
Extrapolated Static Pressure Final		727 - 685			
Slope Psi²/cycle Initial		25.710			
Slope Psi²/cycle Final		41.315			

Remarks:

SUMMARY

BT Gauge Number Depth

Product	Equation	Initial	Final	Units
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$	15495.759	11590.878	$\frac{md.\ ft.}{cp}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	278.923	208.635	md. ft.
Average Effective	$K = \frac{Kh}{h}$	13.282	9.935	md.
Permeability	$K_1 = \frac{Kh}{h_1}$	—	—	md.
Indicated Flow Capacity	$(Kh)_2 = \frac{3200\ Q_g\ \mu\ ZT\ Log(0.472\ b/r_w)}{P_s^2 - P_f^2}$	85.210	124.440	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \quad \frac{Kh}{(Kh)_2}$	3.273	1.676	—
Indicated Flow Rate	$OF_1 = \frac{Q_g \quad P_s^2}{P_s^2 - P_f^2}$	1023,176	1490,692	MCFD
		861,279	1135,539	MCFD
Theoretical Potential Rate	$OF_3 = OF_1\ DR$ Max.	3349,204	2499,273	MCFD
	$OF_4 = OF_2\ DR$ Min.	2819,262	1903,828	MCFD
Approx. Radius of Investigation	$b \cong \sqrt{Kt}$ or $\sqrt{Kt_0}$	24.447	24.415	ft.
	$b_1 \cong \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	—	—	ft.
Potentiometric Surface *	$Pot. = (El - GD) + (2.319\ Ps)$	810.768	813.087	ft.

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INTERPRETATIONS AND CALCULATIONS

Liquid Production

B.T. Gauge Numbers			Ticket Number	18968	
		PRESSURE			
Initial Hydrostatic		2467	Elevation	2064GL	ft.
Final Hydrostatic		2435	Indicated Production 1st Flow	6.20	bbls. day
	Time		Indicated Production Total Flow	8.19	bbls. day
1st Flow Initial	----	354			
1st Flow Final	45	393	Drill ~~Collar Length~~ Weight pipe	1093	ft.
Initial Closed In Pressure	90	722	Drill ~~Collar I.D.~~ Weight pipe	3.2	in.
2nd Flow Initial	----	401	Drill Pipe Factor	.0142	bbls. ft.
2nd Flow Final	60	471	Hole Size	7.875	in.
Final Closed In Pressure	90	716	Footage Tested	33	ft.
Extrapolated Static Pressure Initial		728-702	Mud Weight	9.7	lbs. gal.
Extrapolated Static Pressure Final		727-685	Viscosity, Oil or Water		cp
Slope psi/cycle Initial		25.710	Oil API Gravity		—
Slope psi/cycle Final		41.35	Water Specific Gravity		—

Remarks:

SUMMARY

Gauge No.
Depth

Product	Equation	INITIAL	FINAL	Units
Production	$Q = \frac{1440\ R}{t}$	198.449	196.700	bbls., day.
Transmissability	$\frac{Kh}{\mu} = \frac{162.6\ Q}{m}$	1241.072	761.512	$\frac{\text{md. ft.}}{\text{cp}}$
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	4964.291	3046.050	md. ft.
Average Effective	$K = \frac{Kh}{h}$	28.394	145.050	md.
Permeability	$K_I = \frac{Kh}{h_I}$		—	md.
Damage Ratio	$DR = .183\ \frac{Ps - Pf}{m}$	2.357	1.115	—
Theoretical Potential w/Damage Removed	$Q_1 = Q\ DR$	467.921	219.405	bbls. day
Approx. Radius of Investigation	$b \backsimeq \sqrt{Kt}$ or $\sqrt{Kt_0}$	103.139	93.289	ft.
Approx. Radius of Investigation	$b_1 \backsimeq \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	—	—	ft.
Potentiometric Surface *	$Pot. = El - GD + 2.319\ Ps$	—	—	ft.

NOTICE: These calculations are based upon information furnished by you and taken from Drill Stem Test pressure charts, and are furnished you for your information. In furnishing such calculations and elevations based thereon, Western Testing Co., Inc. is merely expressing its opinion. You agree that Western Testing Co., Inc. makes no warranty express or implied as to the accuracy of such calculations or opinions, and that Western Testing Co., Inc. shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

INTERPRETATIONS AND CALCULATIONS

1566

IKT # 18968

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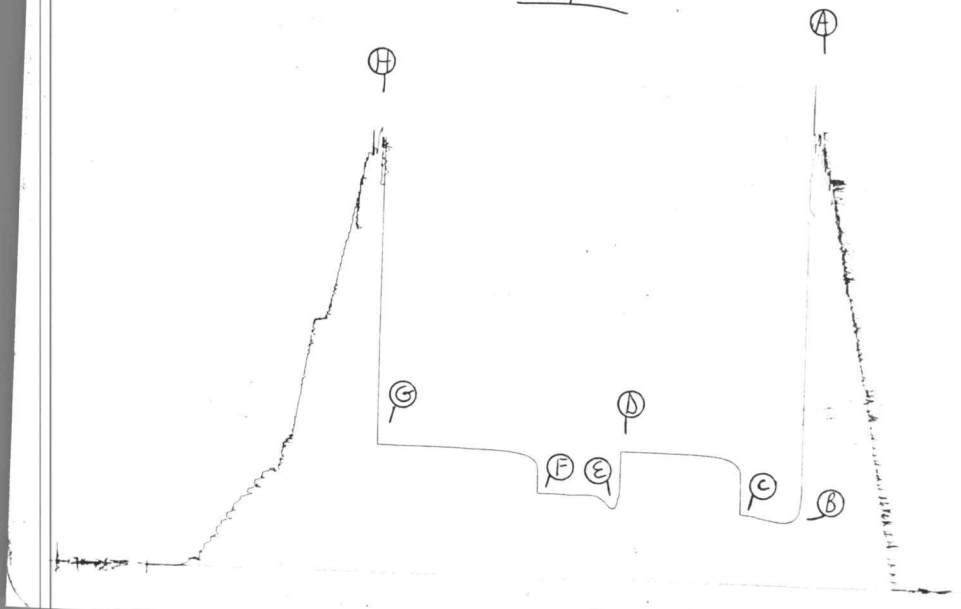

WESTERN TESTING CO.
SUBSURFACE PRESSURE SURVEY

DATE: 6-8-83 TICKET #18969
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: #1 TEST: 5 GEOLOGIST: GREG EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK:

INTERVAL TEST FROM: 4608 FT TO: 4619 FT TOTAL DEPTH: 4619 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4603 FT SIZE: 6 5/8 IN PACKER DEPTH: 4608 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER RIG #1
MUD TYPE: STARCH VISCOSITY: 56
WEIGHT: 9.7 WATER LOSS (CC): 8.0
CHLORIDES (P.P.M.): 43000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT?

DRILL COLLAR LENGTH:		FT	I.D.:		IN
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN
DRILL PIPE LENGTH:	3494	FT	I.D.:	3.8	IN
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN
ANCHOR LENGTH:	11	FT	SIZE:	5 1/2	IN
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: STRONG THROUGHOUT TEST
GAS TO SURFACE IN 11 MIN. ON
INITIAL FLOW PERIOD

RECOVERED:	15	FT	OF: 80% DRLG MUD 2% WATER 18% OIL
RECOVERED:	62	FT	OF: 20% GAS 23% DRLG MUD 2% WATER 55% OIL
RECOVERED:	63	FT	OF: 30% GAS 5% DRLG MUD 4% WATER 61%OIL
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:

REMARKS: HIT 2 BRIDGES AT APPROX. 4100' &4400'

TIME SET PACKER(S): 7:30 TIME STARTED OFF BOTTOM: 11:30 AM
WELL TEMPERATURE: 133 'F

INITIAL HYDROSTATIC PRESSURE:		(A) 2395	PSI	
INITIAL FLOW PERIOD	MIN: 45	(B) 40	PSI TO (C) 43	PSI
INITIAL CLOSED IN PERIOD	MIN: 63	(D) 1336	PSI	
FINAL FLOW PERIOD	MIN: 45	(E) 57	PSI TO (F) 67	PSI
FINAL CLOSED IN PERIOD	MIN: 93	(G) 1327	PSI	
FINAL HYDROSTATIC PRESSURE		(H) 2387	PSI	

Gas Production

B.T. Gauge Numbers			Ticket Number		18969
		Pressure			
Initial Hydrostatic		2395	Elevation		2064 G.L. ft.
Final Hydrostatic		2387	Production Rate	Intial	33.900 m cu. ft.
	Time			Final	20.700 m cu. ft.
1st Flow Initial	— — — —	40			
1st Flow Final	45	43	Hole Size		7.875 in.
Initial Closed In Pressure	60	1336	Footage Tested		11 ft.
2nd Flow Initial	— — — —	57	Mud Weight		9.7 lbs. gal.
2nd Flow Final	45	67	Gas Viscosity		cp
Final Closed In Pressure	90	1327	Gas Gravity		—
Extrapolated Static Pressure	Initial	1393 - 1147	Gas Compressibility		—
	Final	1389 - 1024			
Slope Psi²/cycle	Initial	246.001			
	Final	365.468			

Remarks:

SUMMARY

BT Gauge Number Depth

Product	Equation	Initial	Final	Units
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$	43.186	18.708	$\frac{md.\ ft.}{cp}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	.777	.336	md. ft.
Average Effective	$K = \frac{Kh}{h}$	.077	.033	md.
Permeability	$K_1 = \frac{Kh}{h_1}$			md.
Indicated Flow Capacity	$(Kh)_2 = \frac{3200\ Q_g\ \mu\ ZT\ \log(0.472\ b/r_w)}{P_s^2 - P_f^2}$	.214	.076	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \frac{Kh}{(Kh)_2}$	3.616	4.412	—
Indicated Flow Rate	$OF_1 = \frac{Q_g}{P_s^2 - P_f^2}\ P_s^2$	33,932	20,748	MCFD
		33,916	20,724	MCFD
Theoretical Potential Rate	$OF_3 = OF_1\ DR$ Max.	122,728	91,555	MCFD
	$OF_4 = OF_2\ DR$ Min.	122,670	91,449	MCFD
Approx. Radius of Investigation	$b \leq \sqrt{Kt}$ or $\sqrt{Kt_0}$	1.870	1.231	ft.
	$b_1 \leq \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	---------	--------	ft.
Potentiometric Surface *	$Pot. = (EI - GD) + (2.319\ Ps)$	687.367	678.091	ft.

NOTICE:

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INTERPRETATIONS AND CALCULATIONS

Liquid Production

B.T. Gauge Numbers			Ticket Number	18969	
		PRESSURE			
Initial Hydrostatic		2395	Elevation	2064 G.L.	ft.
Final Hydrostatic		2387	Indicated Production 1st Flow	.56	bbls. day
	Time		Indicated Production Total Flow	.99	bbls. day
1st Flow Initial	— — — —	40			
1st Flow Final	45	43	Weight Pipe ~~Drill Collar~~ Length	3.2	ft.
Initial Closed In Pressure	60	1336	Weight Pipe ~~Drill Collar~~ I.D.	1093	in.
2nd Flow Initial	— — — —	57	Drill Pipe Factor	.0142	bbls. ft.
2nd Flow Final	45	67	Hole Size	7.875	in.
Final Closed In Pressure	90	1327	Footage Tested	11	ft.
Extrapolated Static Pressure	Initial	1393 - 1147	Mud Weight	9.7	lbs. gal.
	Final	1389 - 1024	Viscosity, Oil or Water		cp
Slope psi/cycle	Initial	246.001	Oil API Gravity		—
	Final	365.468	Water Specific Gravity		—

Remarks:

SUMMARY

Gauge No.
Depth

Product	Equation	INITIAL	FINAL	Units
Production	$Q = \frac{1440\ R}{t}$	18.143	31.751	bbls., day.
Transmissability	$\frac{Kh}{\mu} = \frac{162.6\ Q}{m}$	11.992	14.144	$\frac{\text{md. ft.}}{\text{cp}}$
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	47.970	56.579	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$	4.797	5.657	md.
	$K_1 = \frac{Kh}{h_1}$			md.
Damage Ratio	$DR = .183\ \frac{Ps - Pf}{m}$	1.004	.662	—
Theoretical Potential w/Damage Removed	$Q_1 = Q\ DR$	18.221	DR less than one	bbls. day
Approx. Radius of Investigation	$b \leftrightarrows \sqrt{Kt}$ or $\sqrt{Kt_0}$	14.692	15.956	ft.
	$b_1 \leftrightarrows \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	--------	--------	ft.
Potentiometric Surface *	$Pot. = El - GD + 2.319\ Ps$	--------	---------	ft.

NOTICE: These calculations are based upon information furnished by you and taken from Drill Stem Test pressure charts, and are furnished you for your information. In furnishing such calculations and elevations based thereon, Western Testing Co., Inc. is merely expressing its opinion. You agree that Western Testing Co., Inc. makes no warranty express or implied as to the accuracy of such calculations or opinions, and that Western Testing Co., Inc. shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

INTERPRETATIONS AND CALCULATIONS

WESTERN TESTING CO.
PRESSURE DATA

DATE: 6-8-83 TICKET #18969
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: #1 TEST: 5 GEOLOGIST: GREG EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK:

(A) INITIAL HYDROSTATIC PRESSURE:	2395	PSI
(B) FIRST INITIAL FLOW PRESSURE:	40	PSI
(C) FIRST FINAL FLOW PRESSURE:	43	PSI
(D) INITIAL CLOSED-IN PRESSURE:	1336	PSI
(E) SECOND INITIAL FLOW PRESSURE:	57	PSI
(F) SECOND FINAL FLOW PRESSURE:	67	PSI
(G) FINAL CLOSED-IN PRESSURE:	1327	PSI
(H) FINAL HYDROSTATIC PRESSURE:	2387	PSI
WELL TEMPERATURE:	133	°F

OPEN TOOL: 7:30AM

	TIME - GIVEN		TIME - ACTUAL	
FIRST FLOW PRESSURE:	45	MIN	45	MIN
INITIAL CLOSED-IN PRESSURE:	60	MIN	63	MIN
SECOND FLOW PRESSURE:	45	MIN	45	MIN
FINAL CLOSED-IN PRESSURE:	90	MIN	93	MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	40	0	43	0	57	0	67
2	5	40	3	551	5	57	3	459
3	10	40	6	868	10	57	6	744
4	15	40	9	1034	15	57	9	923
5	20	40	12	1126	20	57	12	1026
6	25	40	15	1178	25	58	15	1094
7	30	41	18	1212	30	59	18	1137
8	35	42	21	1236	35	61	21	1167
9	40	43	24	1255	40	64	24	1190
10	45	43	27	1271	45	67	27	1210
11			30	1283			30	1227
12			33	1293			33	1242
13			36	1300			36	1254
14			39	1306			39	1263
15			42	1312			42	1271
16			45	1317			45	1279
17			48	1322			48	1285
18			51	1326			51	1291
19			54	1329			54	1295
20			57	1332			57	1299
21			60	1334			60	1303
22			63	1336			63	1306
23							66	1309
24							69	1312
25							72	1314
26							75	1316
27							78	1318
28							81	1320
29							84	1322
30							87	1324

PRESSURE BREAKDOWN - CONT. TICKET #18989

PT	FIRST FLOW MIN	FIRST FLOW PRESSURE	INITIAL SHUT-IN MIN	INITIAL SHUT-IN PRESSURE	SECOND FLOW MIN	SECOND FLOW PRESSURE	FINAL SHUT-IN MIN	FINAL SHUT-IN PRESSURE
31							90	1326
32							93	1327
33								
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WESTERN TESTING CO.
GAS FLOW REPORT

DATE: 6-8-83 TICKET #18969
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: #1 TEST: 5 GEOLOGIST: GREG EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK:

TIME GAUGE (MIN)	TESTER TYPE	ORIFICE SIZE	PRESSURE (PSI)	FLOW DESCRIPTION
			PRE FLOW	
11				GAS TO SURFACE
15	MERLA	1/2	2.5 PSIG	53400 CFPD
20		1/2	2.0 PSIG	47700 CFPD
25		1/2	2.0 PSIG	47700 CFPD
30		1/2	1.5 PSIG	41000 CFPD
35		1/2	1.0 PSIG	33900 CFPD
40		1/2	1.0 PSIG	33900 CFPD
45		1/2	1.0 PSIG	33900 CFPD
			SECOND FLOW	
5	MERLA	1/4	5.5 PSIG	21800 CFPD
10		1/4	5.5 PSIG	21800 CFPD
15		1/4	5.5 PSIG	21800 CFPD
20		1/4	6.0 PSIG	22900 CFPD
25		1/4	5.0 PSIG	20700 CFPD
30		1/4	5.0 PSIG	20700 CFPD
35		1/4	5.0 PSIG	20700 CFPD
40		1/4	5.0 PSIG	20700 CFPD
45		1/4	5.0 PSIG	20700 CFPD

GAS BOTTLE SN #: 601
DATE BOTTLE FILLED: 6/8/83
DATE TO BE INVOICED: 6/8/83

Liquid Production

B.T. Gauge Numbers			Ticket Number	18969	
		PRESSURE			
Initial Hydrostatic		2395	Elevation	2064 GL.	ft.
Final Hydrostatic		2387	Indicated Production 1st Flow	.56	bbls. day
	Time		Indicated Production Total Flow	.99	bbls. day
1st Flow Initial	----	40			
1st Flow Final	45	43	Weight Pipe ~~Drill Collar~~ Length	~~27~~ 3.2	ft.
Initial Closed In Pressure	60	1336	Weight Pipe ~~Drill Collar~~ I.D.	1093	in.
2nd Flow Initial	----	57	Drill Pipe Factor	.0142	bbls. ft.
2nd Flow Final	45	67	Hole Size	7.875	in.
Final Closed In Pressure	90	1327	Footage Tested	11	ft.
Extrapolated Static Pressure Initial		1393 - 1147	Mud Weight	9.7	lbs. gal.
Extrapolated Static Pressure Final		1389 - 1024	Viscosity, Oil or Water		cp
Slope psi/cycle Initial		246.001	Oil API Gravity		—
Slope psi/cycle Final		365.468	Water Specific Gravity		—

Remarks:

SUMMARY

Gauge No. Depth

Product	Equation	INITIAL	FINAL	Units
Production	$Q = \frac{1440\ R}{t}$	18.143	31.751	bbls., day.
Transmissability	$\frac{Kh}{\mu} = \frac{162.6\ Q}{m}$	11.992	14.144	$\frac{\text{md. ft.}}{\text{cp}}$
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	47.970	56.579	md. ft.
Average Effective	$K = \frac{Kh}{h}$	4.797	5.657	md.
Permeability	$K_1 = \frac{Kh}{h_1}$			md.
Damage Ratio	$DR = .183\ \frac{Ps - Pf}{m}$	1:004	.662	—
Theoretical Potential w/Damage Removed	$Q_1 = Q\ DR$	18.221	DR Less than one	bbls. day
Approx. Radius of Investigation	$b \backsimeq \sqrt{Kt}$ or $\sqrt{Kt_0}$	14.692	15.956	ft.
	$b_1 \backsimeq \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	—	—	ft.
Potentiometric Surface *	$Pot. = El - GD + 2.319\ Ps$	—	—	ft.

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INTERPRETATIONS AND CALCULATIONS

Gas Production

B.T. Gauge Numbers			Ticket Number		18969
		Pressure			
Initial Hydrostatic		2395	Elevation		2064 GL . ft.
Final Hydrostatic		2387	Production Rate	Intial	33,900 m cu. ft.
	Time			Final	20.700 m cu. ft.
1st Flow Initial	----	40			
1st Flow Final	45	43	Hole Size		7.875 in.
Initial Closed In Pressure	60	1336	Footage Tested		11 ft.
2nd Flow Initial	----	57	Mud Weight		9.7 lbs. gal.
2nd Flow Final	45	67	Gas Viscosity		cp
Final Closed In Pressure	90	1327	Gas Gravity		—
Extrapolated Static Pressure Initial		1393 - 1147	Gas Compressibility		—
Extrapolated Static Pressure Final		1389 - 1024			
Slope Psi^2/cycle Initial		246.001			
Slope Psi^2/cycle Final		365.468			

Remarks:

SUMMARY

BT Gauge Number Depth 998

Product	Equation	Initial	Final	Units
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$	43.186	18.708	$\frac{md.\ ft.}{cp}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	.277	.336	md. ft.
Average Effective	$K = \frac{Kh}{h}$	.077	.033	md.
Permeability	$K_1 = \frac{Kh}{h_1}$		—	md.
Indicated Flow Capacity	$(Kh)_3 = \frac{3200\ Q_g\ \mu\ ZT\ Log(0.472\ b/r_w)}{P_s^2 - P_f^2}$	.214	.076	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}}\ \frac{Kh}{(Kh)_3}$	3.616	4.412	—
Indicated Flow Rate	$OF_1 = \frac{Q_g}{P_s^2 - P_f^2}\ P_s^2$	33,932	20,748	MCFD
		33,916	20,724	MCFD
Theoretical Potential Rate	$OF_3 = OF_1\ DR$ Max.	122,728	91,555	MCFD
	$OF_4 = OF_2\ DR$ Min.	122,670	91,449	MCFD
Approx. Radius of Investigation	$b \leftrightarrows \sqrt{Kt}$ or $\sqrt{Kt_0}$	1.870	1.231	ft.
	$b_1 \leftrightarrows \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	—	—	ft.
Potentiometric Surface *	$Pot. = (EI - GD) + (2.319\ Ps)$	687.367	678.091	ft.

INTERPRETATIONS AND CALCULATIONS

TKT # 18969

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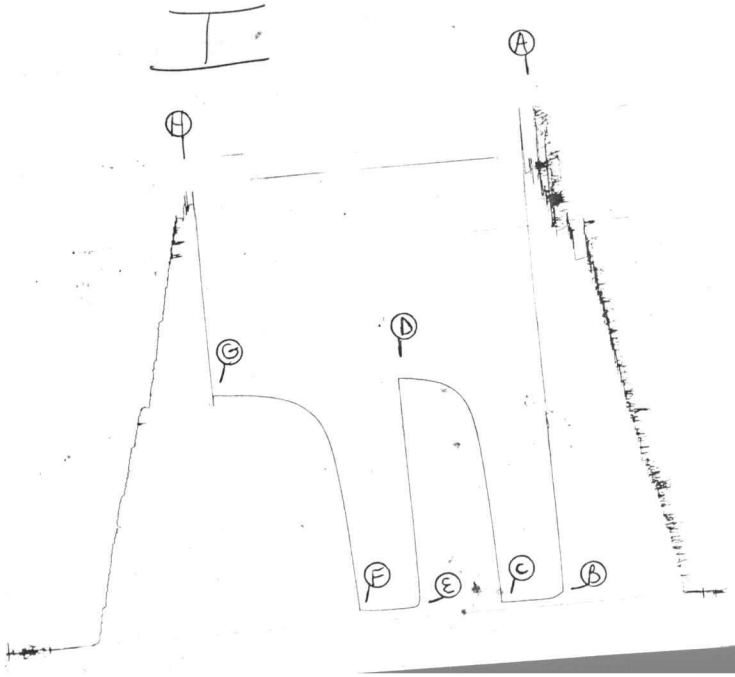

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 6/9/83 TICKET #18970
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 6 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4636 FT TO: 4646 FT TOTAL DEPTH: 4646 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4631 FT SIZE: 6 5/8 IN PACKER DEPTH: 4636 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 42
WEIGHT: 9.5+ WATER LOSS (CC): 9.2
CHLORIDES (P.P.M.): 40000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO

DRILL COLLAR LENGTH:		FT	I.D.:		IN	
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN	
DRILL PIPE LENGTH:	3523	FT	I.D.:	3.8	IN	
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN	
ANCHOR LENGTH:	10	FT	SIZE:	5 1/2	IN	
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		IN

BLOW: VERY WEAK BLOW-DEAD IN 10 MINUTES.
FLUSHED TOOL TWICE ON INITIAL FLOW PERIOD.
DEAD ON FINAL FLOW PERIOD. FLUSHED TOOL
TWICE- WEAK BLOW- DEAD IN 28 MINUTES.

RECOVERED: 75 FT OF: GASSY DRILLING MUD
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:

REMARKS: HIT BRIDGE AT 4100 FT. AND HOLE SLUFFING
FROM 4100 FT. TO TOTAL DEPTH.
SLID TOOL 5 FT.

TIME SET PACKER(S): 4:30 AM TIME STARTED OFF BOTTOM: 6:30 AM
WELL TEMPERATURE: 132 'F

INITIAL HYDROSTATIC PRESSURE:		(A) 2446	PSI	
INITIAL FLOW PERIOD	MIN: 35	(B) 79	PSI TO (C) 79	PSI
INITIAL CLOSED IN PERIOD	MIN: 33	(D) 89	PSI	
FINAL FLOW PERIOD	MIN: 30	(E) 79	PSI TO (F) 79	PSI
FINAL CLOSED IN PERIOD	MIN: 33	(G) 137	PSI	
FINAL HYDROSTATIC PRESSURE		(H) 2436	PSI	

WESTERN TESTING CO. INC.
PRESSURE DATA

DATE: 6/9/83 TICKET #18970
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 6 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

(A) INITIAL HYDROSTATIC PRESSURE:	2446	PSI
(B) FIRST INITIAL FLOW PRESSURE:	79	PSI
(C) FIRST FINAL FLOW PRESSURE:	79	PSI
(D) INITIAL CLOSED-IN PRESSURE:	89	PSI
(E) SECOND INITIAL FLOW PRESSURE:	79	PSI
(F) SECOND FINAL FLOW PRESSURE:	79	PSI
(G) FINAL CLOSED-IN PRESSURE:	137	PSI
(H) FINAL HYDROSTATIC PRESSURE:	2436	PSI
WELL TEMPERATURE:	132	'F

OPEN TOOL: 4:30 AM

	TIME - GIVEN	TIME - ACTUAL
FIRST FLOW PRESSURE:	30 MIN	35 MIN
INITIAL CLOSED-IN PRESSURE:	30 MIN	33 MIN
SECOND FLOW PRESSURE:	30 MIN	30 MIN
FINAL CLOSED-IN PRESSURE:	30 MIN	33 MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	79	0	79	0	79	0	79
2	5	79	3	79	5	79	3	79
3	10	79	6	79	10	79	6	81
4	15	75	9	79	15	79	9	86
5	20	72	12	79	20	79	12	94
6	25	72	15	79	25	79	15	101
7	30	79	18	80	30	79	18	107
8	35	79	21	81			21	117
9			24	82			24	124
10			27	83			27	129
11			30	85			30	133
12			33	89			33	137
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TKT # 18970

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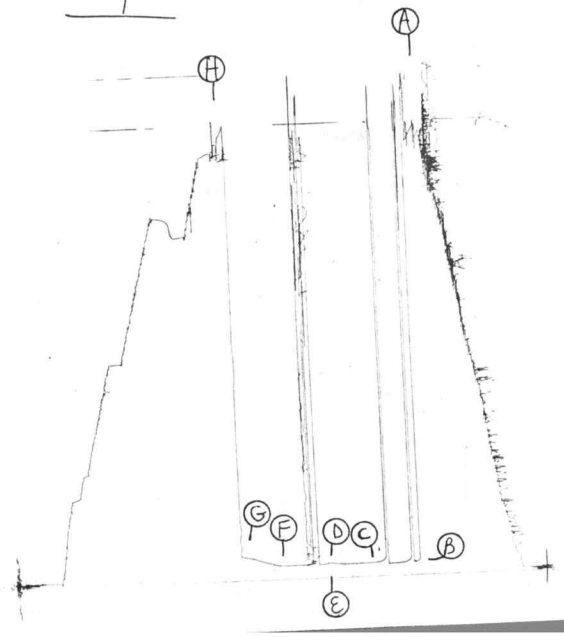

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 6/9/83 TICKET #18971
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 7 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4627 FT TO: 4646 FT TOTAL DEPTH: 4646 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4622 FT SIZE: 6 5/8 IN PACKER DEPTH: 4627 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 49
WEIGHT: 9.4 WATER LOSS (CC): 7.6
CHLORIDES (P.P.M.): 43000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO

DRILL COLLAR LENGTH:		FT	I.D.:		IN	
WEIGHT PIPE LENGTH:	1093	FT	I.D.:	3.2	IN	
DRILL PIPE LENGTH:	3513	FT	I.D.:	3.8	IN	
TEST TOOL LENGTH:	21	FT	TOOL SIZE:	5 1/2	IN	
ANCHOR LENGTH:	19	FT	SIZE:	5 1/2	IN	
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	IN	

BLOW: INITIAL FLOW PERIOD FAIR DEPLEATING BLOW-
DEAD IN 23 MINUTES.
FINAL FLOW PERIOD DEAD.

RECOVERED:	90	FT	OF: DRILLING MUD
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:
RECOVERED:		FT	OF:

REMARKS: SLID TOOL 12 FT TO BOTTOM.

TIME SET PACKER(S): 6:00 PM TIME STARTED OFF BOTTOM: 8:10 PM
WELL TEMPERATURE: 132 'F

INITIAL HYDROSTATIC PRESSURE:		(A) 2450	PSI	
INITIAL FLOW PERIOD	MIN: 40	(B) 80	PSI TO (C) 80	PSI
INITIAL CLOSED IN PERIOD	MIN: 30	(D) 114	PSI	
FINAL FLOW PERIOD	MIN: 30	(E) 80	PSI TO (F) 80	PSI
FINAL CLOSED IN PERIOD	MIN: 30	(G) 88	PSI	
FINAL HYDROSTATIC PRESSURE		(H) 2450	PSI	

WESTERN TESTING CO. INC.
PRESSURE DATA

DATE: 6/9/83 TICKET #18971
CUSTOMER: AINSWORTH OPERATING CO. LEASE: POOVEY
WELL: 1 TEST: 7 GEOLOGIST: G EMBERY
ELEVATION (KB): 2069 FORMATION: MISSISSIPPI
SECTION: 28 TOWNSHIP: 28S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

(A) INITIAL HYDROSTATIC PRESSURE:	2450	PSI
(B) FIRST INITIAL FLOW PRESSURE:	80	PSI
(C) FIRST FINAL FLOW PRESSURE:	80	PSI
(D) INITIAL CLOSED-IN PRESSURE:	114	PSI
(E) SECOND INITIAL FLOW PRESSURE:	80	PSI
(F) SECOND FINAL FLOW PRESSURE:	80	PSI
(G) FINAL CLOSED-IN PRESSURE:	88	PSI
(H) FINAL HYDROSTATIC PRESSURE:	2450	PSI
WELL TEMPERATURE:	132	°F

OPEN TOOL: 6:00 PM

	TIME - GIVEN		TIME - ACTUAL	
FIRST FLOW PRESSURE:	40	MIN	40	MIN
INITIAL CLOSED-IN PRESSURE:	30	MIN	30	MIN
SECOND FLOW PRESSURE:	30	MIN	30	MIN
FINAL CLOSED-IN PRESSURE:	30	MIN	30	MIN

PRESSURE BREAKDOWN

	FIRST FLOW		INITIAL SHUT-IN		SECOND FLOW		FINAL SHUT-IN	
PT	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE	MIN	PRESSURE
1	0	80	0	80	0	80	0	80
2	5	80	3	80	5	80	3	80
3	10	80	6	80	10	80	6	80
4	15	80	9	82	15	80	9	80
5	20	80	12	86	20	80	12	80
6	25	80	15	91	25	80	15	80
7	30	80	18	95	30	80	18	81
8	35	80	21	102			21	82
9	40	80	24	107			24	84
10			27	111			27	86
11			30	114			30	88
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