

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 8/29/83
CUSTOMER: RAYMOND OIL COMPANY
WELL: 1 TEST: 1
ELEVATION (KB): 1985 FORMATION: KANSAS CITY
SECTION: 10 TOWNSHIP: 29S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #13547 RANGE: 4225 CLOCK: 12

TICKET #1810
LEASE: "B" FINCHAM
GEOLOGIST: STRILLING

INTERVAL TEST FROM: 4351 FT TO: 4379 FT TOTAL DEPTH: 4379 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4346 FT SIZE: 6 5/8 IN PACKER DEPTH: 4351 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER #1
MUD TYPE: STARCH VISCOSITY: 38
WEIGHT: 9.2 WATER LOSS (CC): 9.2
CHLORIDES (P.P.M.): 36000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? YES REVERSED OUT? NO
DRILL COLLAR LENGTH: FT I.D.: IN
WEIGHT PIPE LENGTH: 1095 FT I.D.: 2.7 IN
DRILL PIPE LENGTH: 3235 FT I.D.: 3.8 IN
TEST TOOL LENGTH: 21 FT TOOL SIZE: 5 1/2 O.D. IN
ANCHOR LENGTH: 28 FT SIZE: 5 1/2 O.D. 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 F.H. IN

BLOW: STRONG BLOW THROUGHOUT FLOW PERIODS

RECOVERED: 90 FT OF: SLIGHT OIL & GAS CUT MUD
RECOVERED: FT OF: 20% OIL; 50% GAS; 10% WATER
RECOVERED: 120 FT OF: OIL & GAS CUT MUD
RECOVERED: FT OF: 35% OIL; 35% GAS; 10% WATER
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:
RECOVERED: FT OF:

REMARKS:

TIME SET PACKER(S): 3:55 P.M. TIME STARTED OFF BOTTOM: 7:25 P.M.
WELL TEMPERATURE: 125 °F
INITIAL HYDROSTATIC PRESSURE: (A) 2256 PSI
INITIAL FLOW PERIOD MIN: 45 (B) 51 PSI TO (C) 72 PSI
INITIAL CLOSED IN PERIOD MIN: 60 (D) 690 PSI
FINAL FLOW PERIOD MIN: 45 (E) 88 PSI TO (F) 95 PSI
FINAL CLOSED IN PERIOD MIN: 60 (G) 577 PSI
FINAL HYDROSTATIC PRESSURE (H) 2247 PSI

WESTERN TESTING CO., INC.
GAS FLOW REPORT

DATE: 8/29/83
CUSTOMER: RAYMOND OIL COMPANY
WELL: 1
ELEVATION (KB): 1985
SECTION: 10
RANGE: 15W
GAUGE SN #13547

TEST: 1
FORMATION: KANSAS CITY
TOWNSHIP: 29S
COUNTY: PRATT
RANGE: 4225

TICKET #1810
LEASE: "B" FINCHAM
GEOLOGIST: STRILLING
STATE: KANSAS
CLOCK: 12

TIME GAUGE (MIN)	TESTER TYPE	ORIFICE SIZE	PRESSURE (PSI)	FLOW DESCRIPTION
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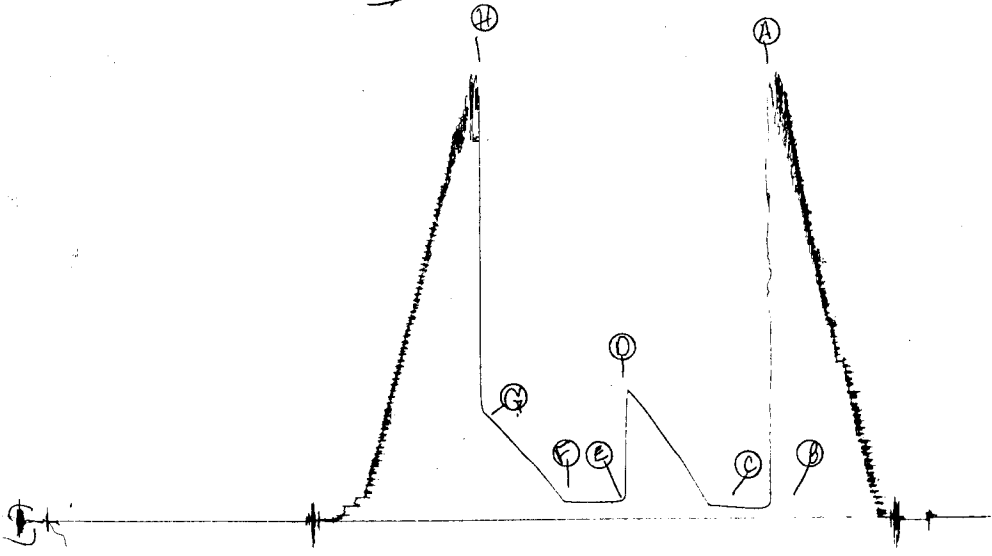
PRE FLOW

SECOND FLOW

37				GAS TO SURFACE
40	MERLA	1/4	10"WTR	5320 CFPD
45		1/4	6"WTR	4120 CFPD

GAS BOTTLE SN #:
DATE BOTTLE FILLED:
DATE TO BE INVOICED: 8/29/83

TK# 1810
I.



WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 8/31/83
CUSTOMER: RAYMOND OIL COMPANY
WELL: 1 TEST: 2
ELEVATION (KB): 1985
SECTION: 10
RANGE: 15W COUNTY: PRATT
GAUGE SN #13547 RANGE: 4225

TICKET #1811
LEASE: "B" FINCHAM
GEOLOGIST: S. STRILLING
FORMATION: MISSISSIPPI
TOWNSHIP: 29S
STATE: KANSAS
CLOCK: 12

INTERVAL TEST FROM: 4496 FT TO: 4517 FT TOTAL DEPTH: 4517 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4491 FT SIZE: 6 5/8 IN PAKER DEPTH: 4496 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PAKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER #1
MUD TYPE: STARCH VISCOSITY: 43
WEIGHT: 9.6 WATER LOSS (CC): 9.2
CHLORIDES (P.P.M.): 37000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? YES REVERSED OUT? NO
DRILL COLLAR LENGTH: FT I.D.: IN
WEIGHT PIPE LENGTH: 1095 FT I.D.: 2.7 IN
DRILL PIPE LENGTH: 3380 FT I.D.: 3.8 IN
TEST TOOL LENGTH: 21 FT TOOL SIZE: 5 1/2 O.D. IN
ANCHOR LENGTH: 21 FT SIZE: 5 1/2 O.D. 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 F.H. IN

BLOW: STRONG BLOW THROUGHOUT FLOW PERIODS
GAS TO SURFACE IN 40 MINUTES ON PREFLOW

RECOVERED: 190 FT OF: FOGGY GASSY OIL
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:

TIME SET PACKER(S): 7:35 A.M.

TIME STARTED OFF BOTTOM: 11:05 A.M.

WELL TEMPERATURE: 126 °F

INITIAL HYDROSTATIC PRESSURE:

INITIAL FLOW PERIOD MIN: 45

INITIAL CLOSED IN PERIOD MIN: 60

FINAL FLOW PERIOD MIN: 40

FINAL CLOSED IN PERIOD MIN: 60

FINAL HYDROSTATIC PRESSURE

(A) 2372 PSI
(B) 57 PSI TO (C) 80 PSI
(D) 1495 PSI
(E) 65 PSI TO (F) 101 PSI
(G) 1442 PSI
(H) 2341 PSI

WESTERN TESTING CO. INC.
GAS FLOW REPORT

DATE: 8/31/83
 CUSTOMER: RAYMOND OIL COMPANY
 WELL: 1 TEST: 2
 ELEVATION (KB): 1985 FORMATION: MISSISSIPPI
 SECTION: 10 TOWNSHIP: 29S
 RANGE: 15W COUNTY: PRATT STATE: KANSAS
 GAUGE SN #13547 RANGE: 4225 CLOCK: 12

TIME GAUGE (MIN)	TESTER TYPE	ORIFICE SIZE	PRESSURE (PSI)	FLOW DESCRIPTION
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PRE FLOW

40				GAS TO SURFACE
45	MERLA	3/4	5"WTR	31600 CFPD

SECOND FLOW

5	Merla	1/2	9" wtr	18800 CFPD
15		1/2	6" wtr	15400 CFPD
25		1/2	5" wtr	14100 CFPD
35		1/2	4" wtr	12500 CFPD
45		1/2	4" wtr	12500 CFPD

Liquid Production

B.T. Gauge Numbers			Ticket Number		1811
Initial Hydrostatic			PRESSURE		Elevation
			2372		1980 G.L. - ft.
Final Hydrostatic			2341		1st Flow
			57		524 bbls. day
1st Flow	Initial	-----			Indicated Production
	Final	45	80		
					1.346 bbls. day
Initial Closed In Pressure			60		Weight pipe Drill Collar Length
			1495		1095 ft.
2nd Flow	Initial	-----	65		Weight pipe Drill Collar I.D.
	Final	40	101		2.7 in.
Final Closed In Pressure			60		Drill Pipe Factor
			1442		.0142 bbls. ft.
Extrapolated Static Pressure			Initial		Hole Size
			1528-1390		7.875 in.
			Final		Footage Tested
			1472-1337		21 (4) ft.
Slope psi/cycle			Initial		Mud Weight
			1528 138.348		9.6 lbs. gal.
			Final		Viscosity, Oil or Water
			134.92		cp
					Oil API Gravity
					Water Specific Gravity

Remarks:

SUMMARY

		Gauge No.		
		Depth	INITIAL	FINAL
Production	Equation $Q = \frac{1440 R}{t}$		16.83	48.478
Transmissibility	$\frac{Kh}{\mu} = \frac{162.6 Q}{m}$		19.774	58.389
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$		98.874	291.947
Average Effective Permeability	$K = \frac{Kh}{h}$		24.718	72.986
	$K_1 = \frac{Kh}{h_1}$		---	---
Damage Ratio	$DR = .183 \frac{P_s - P_f}{m}$		1.920	1.858
Theoretical Potential w/Damage Removed	$Q_1 = Q DR$		32.226	90.095
Approx. Radius of Investigation	$b \approx \sqrt{Kt}$ or $\sqrt{Kt_0}$		33.351	54.032
	$b_1 \approx \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$		---	---
Potentiometric Surface	$Pot. = EI - GD + 2.319 P_s$	*		

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.

Liquid Production

B.T. Gauge Numbers			Ticket Number	#1811
Initial Hydrostatic		PRESSURE	Elevation	1980 G.L. ft.
		2372		
Final Hydrostatic		2341	Indicated Production	1st Flow .524 bbls. day
1st Flow	Initial	57	Total Flow	1.346 bbls. day
	Final	80		
		45	Weight Pipe Drill Collar Length	1095 ft.
Initial Closed In Pressure		60	Weight Pipe Drill Collar I.D.	2.7 in.
		1495		
2nd Flow	Initial	65	Drill Pipe Factor	.0142 bbls. ft.
	Final	40	Hole Size	7.875 in.
		101		
Final Closed In Pressure		60	Footage Tested	21 (4) ft.
		1442		
Extrapolated Static Pressure	Initial	1528 - 1390	Mud Weight	9.6 lbs. gal.
	Final	1472 - 1337	Viscosity, Oil or Water	cp
Slope psi/cycle	Initial	138.348	Oil API Gravity	—
	Final	139.92	Water Specific Gravity	—

Remarks: _____

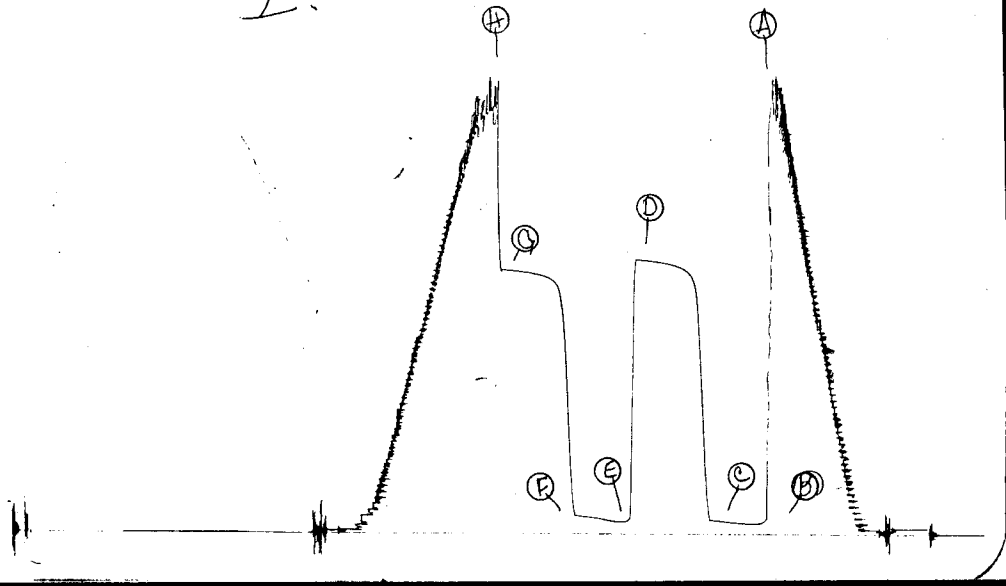
SUMMARY

Gauge
No.
Depth

Product	Equation	INITIAL	FINAL	Units
Production	$Q = \frac{1440 R}{t}$	16.783	48.478	bbls. day
Transmissibility	$\frac{Kh}{\mu} = \frac{162.6 Q}{m}$	19.774	58.389	md. ft. cp
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$	98.874	291.947	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$	24.718	72.986	md.
	$K_1 = \frac{Kh}{h_1}$	-----	-----	md.
Damage Ratio	$DR = .183 \frac{P_s - P_f}{m}$	1.920	1.858	—
Theoretical Potential w/Damage Removed	$Q_1 = Q DR$	32.226	90.095	bbls. day
Approx. Radius of Investigation	$b \approx \sqrt{Kt}$ or $\sqrt{Kt_0}$	33.351	54.032	ft.
	$b_1 \approx \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$			ft.
Potentiometric Surface *	$Pot. = EI - GD + 2.319 P_s$			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.

TR # 1811
I.



WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 9/1/83
CUSTOMER: RAYMOND OIL COMPANY
WELL: 1 TEST: 3
ELEVATION (KB): 1985 FORMATION:
SECTION: 10 TOWNSHIP: 29S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #13547 RANGE: 4225 CLOCK: 12

INTERVAL TEST FROM: 4559 FT TO: 4574 FT TOTAL DEPTH: 4574 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4554 FT SIZE: 6 5/8 IN PACKER DEPTH: 4559 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER #1
MUD TYPE: STARCH VISCOSITY: 43
WEIGHT: 9.6 WATER LOSS (CC): 9.2
CHLORIDES (P.P.M.): 37000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO
DRILL COLLAR LENGTH: FT I.D.: IN
WEIGHT PIPE LENGTH: 1095 FT I.D.: 2.7 IN
DRILL PIPE LENGTH: 3443 FT I.D.: 3.8 IN
TEST TOOL LENGTH: 21 FT TOOL SIZE: 5 1/2 O.D. IN
ANCHOR LENGTH: 15 FT SIZE: 5 1/2 O.D. 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 F.H. IN

BLOW: WEAK BLOW THROUGHOUT FIRST FLOW PERIOD.
NO BLOW ON SECOND FLOW PERIOD.

RECOVERED: 10 FT OF: DRILLING MUD
RECOVERED: FT OF:
RECOVERED: FT OF:
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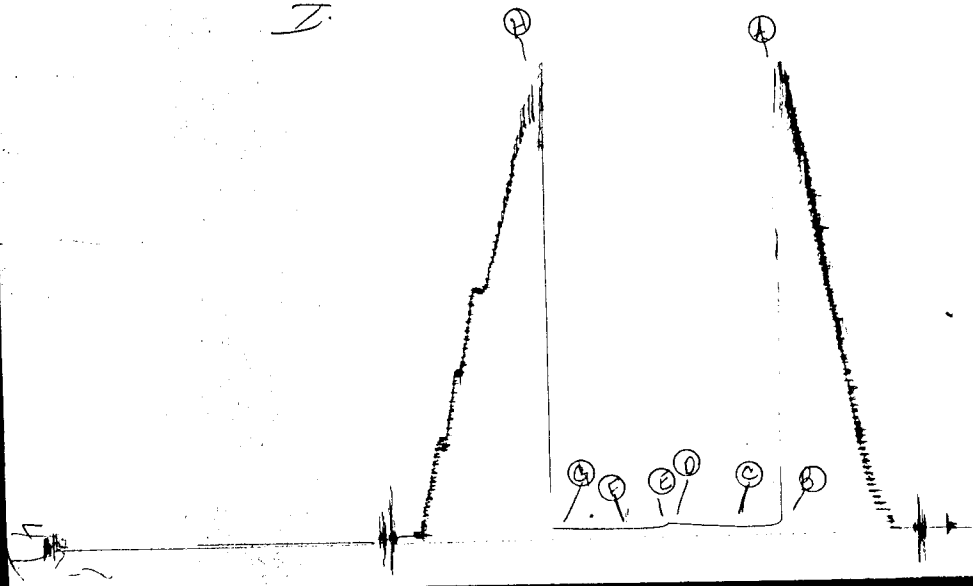
REMARKS:

TIME SET PACKER(S): 4:20 A.M.

TIME STARTED OFF BOTTOM: 7:20 A.M.

WELL TEMPERATURE: 127 °F
INITIAL HYDROSTATIC PRESSURE: (A) 2383 PSI
INITIAL FLOW PERIOD MIN: 30 (B) 50 PSI TO (C) 44 PSI
INITIAL CLOSED IN PERIOD MIN: 54 (D) 75 PSI
FINAL FLOW PERIOD MIN: 30 (E) 52 PSI TO (F) 48 PSI
FINAL CLOSED IN PERIOD MIN: 60 (G) 59 PSI
FINAL HYDROSTATIC PRESSURE (H) 2364 PSI

TKT # 1812
D



WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 9-2-83
CUSTOMER: RAYMOND OIL CO. INC.
WELL: 1 TEST: 4
ELEVATION (KB): 1985 FORMATION: VIOLA
SECTION: 10 TOWNSHIP: 29S
RANGE: 15W COUNTY: PRATT STATE: KS
GAUGE SN #13547 RANGE: 4225 CLOCK: 12

TICKET #1813
LEASE: "B" FINCHAM
GEOLOGIST: S.S.

INTERVAL TEST FROM: 4584 FT TO: 4624 FT TOTAL DEPTH: 4624 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4579 FT SIZE: 6 5/8 IN PAKER DEPTH: 4584 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PAKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER DRILLING
MUD TYPE: STARCH VISCOSITY: 41
WEIGHT: 9.5 WATER LOSS (CC): 7.4
CHLORIDES (P.P.M.): 35000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO
DRILL COLLAR LENGTH: FT I.D.: IN
WEIGHT PIPE LENGTH: 1095 FT I.D.: 2.7 IN
DRILL PIPE LENGTH: 3468 FT I.D.: 3.8 IN
TEST TOOL LENGTH: 21 FT TOOL SIZE: 5 1/2 OD IN
ANCHOR LENGTH: 40 FT SIZE: 5 1/2 OD 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 FH IN

BLOW: WEAK BLOW THROUGHOUT FIRST FLOW PERIOD.
NO BLOW ON SECOND FLOW PERIOD.

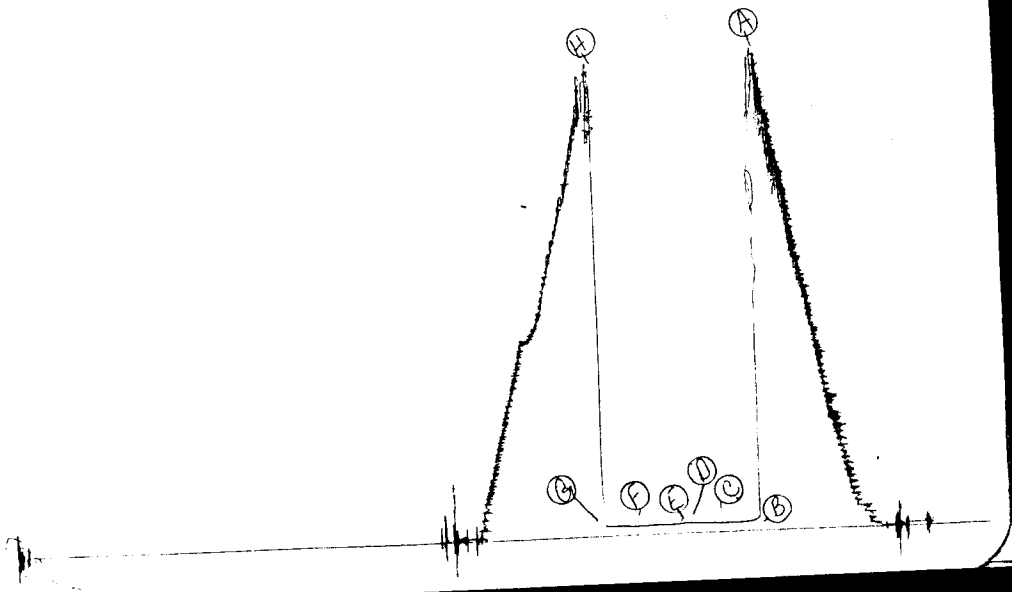
RECOVERED: 5 FT OF: DRLG MUD
RECOVERED: FT OF:
RECOVERED: FT OF:
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REMARKS:

TIME SET PACKER(S): 11:10 PM TIME STARTED OFF BOTTOM: 1:10 AM
WELL TEMPERATURE: 127 °F
INITIAL HYDROSTATIC PRESSURE: (A) 2336 PSI
INITIAL FLOW PERIOD MIN: 30 (B) 56 PSI TO (C) 56 PSI
INITIAL CLOSED IN PERIOD MIN: 24 (D) 63 PSI
FINAL FLOW PERIOD MIN: 25 (E) 57 PSI TO (F) 57 PSI
FINAL CLOSED IN PERIOD MIN: 30 (G) 60 PSI
FINAL HYDROSTATIC PRESSURE (H) 2315 PSI

TKT # 1813

I



WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE: 9/3/83
CUSTOMER: RAYMOND OIL COMPANY INC.
WELL: 1 TEST: 5
ELEVATION (KB): 1985 FORMATION: SIMPSON
SECTION: 10 TOWNSHIP: 29S
RANGE: 15W COUNTY: PRATT STATE: KANSAS
GAUGE SN #13547 RANGE: 4225 CLOCK: 12

INTERVAL TEST FROM: 4680 FT TO: 4740 FT TOTAL DEPTH: 4740 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4675 FT SIZE: 6 5/8 IN PACKER DEPTH: 4680 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: RED TIGER
MUD TYPE: STARCH VISCOSITY: 45
WEIGHT: 9.6 WATER LOSS (CC): 8.4
CHLORIDES (P.P.M.): 37000
JARS - MAKE: SERIAL NUMBER:
DID WELL FLOW? NO REVERSED OUT? NO
DRILL COLLAR LENGTH: FT I.D.: IN
WEIGHT PIPE LENGTH: 1095 FT I.D.: 2.7 IN
DRILL PIPE LENGTH: 3564 FT I.D.: 3.8 IN
TEST TOOL LENGTH: 21 FT TOOL SIZE: 5 1/2 OD IN
ANCHOR LENGTH: 60 FT SIZE: 5 1/2 OD 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 FH IN

BLOW: INITIAL FLOW PERIOD WEAK BLOW -
DIED IN 27 MINUTES.
FINAL FLOW PERIOD NO BLOW.

RECOVERED: 5 FT OF: DRILLING MUD
RECOVERED: FT OF:
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RECOVERED: FT OF:

REMARKS:

TIME SET PACKER(S): 12:00 AM TIME STARTED OFF BOTTOM: 2:00 AM
WELL TEMPERATURE: 128 °F
INITIAL HYDROSTATIC PRESSURE: (A) 2463 PSI
INITIAL FLOW PERIOD MIN: 30 (B) 48 PSI TO (C) 48 PSI
INITIAL CLOSED IN PERIOD MIN: 24 (D) 292 PSI
FINAL FLOW PERIOD MIN: 30 (E) 48 PSI TO (F) 48 PSI
FINAL CLOSED IN PERIOD MIN: 30 (G) 116 PSI
FINAL HYDROSTATIC PRESSURE (H) 2444 PSI

TKT # 1814
I

