

PHONE
316 / 824-7340

DEAN'S TESTERS INC.

P. O. BOX 1182
LIBERAL, Ka. 67901

Formation Lower Morrow Type Test Bottom Hole Date May 31, 1984

Anchor Length and Size 38' x 4 1/2" Total Depth 6360'

Packer Depths 6317' & 6322' Below Straddle

Equipment Run 2 Packers, Jars, Safety Joint, Circulating sub

Lengths: Tool 69' D. P. 5710 ID 3.8" Wt. P. 581 ID 2.25"

Mud Type Chemical Vls 63 Wt 9.1 Wtr. Loss 8 Cl 900 ppm

Recorders: Depth 6333' Make Kuster Cap 6500 Ser. No. 13374 Inside
Depth 6358' Make Kuster Cap 6400 Ser. No. 13373 Outside
Depth Make Cap Ser. No. Below Straddle

Pressures:

Tool on Bottom @ 12:00 A M. Initial Hydrostatic 3116 psi
Initial Flow 45 Min. IFP 98 psi to 45 psi
Initial Shut-In 59 Min. ISIP 285 psi
Final Flow 90 Min. FFP 104 psi to 52 psi
Final Shut-In 181 Min. FSIP 757 psi
Tool off Bottom @ 6:15 A M. Final Hydrostatic 3003 psi Temp. 140

Blow: Weak to Good with 2" off bottom of bucket during Initial Flow.
Weak with 3" on Final Flow.

Recovery: 120' Drilling Mud

Gas Flow:

Sampler Data:

Pressure PSI
Gas cu. ft.
Total Fluid cc
Oil cc
Water cc
Mud cc
Oil Gravity °F.
Gas/Oil Ratio

Remarks:

Tester Joe Peckham

SEP 13 1984

Witnessed by: Edwin H Grieves

OCT 2 8 1984
CONFIDENTIAL

State Geological Survey
WICHITA BRANCH

8
TWP. 35S
RGE. 36W
COUNTY Stevens
STATE Kansas
TICKET NO. 2122
Douglas Energy
OPERATOR
Gooch #1-8
WELL NAME & NO.
TEST # 1
TEST INTERVAL 6322' - 6360'

Pressure Break Down

Test ticket no. 2122 Recorder no. 13374 Capacity 6500 Rec. Depth. 6333'

		Given	Computed
Initial Flow pressure	98 to 45	45	45
Initial Closed in pressure	285	60	59
Final Flow pressure	104 to 52	90	90
Final Closed-in pressure	757	180	181
Initial Hydrostatic pressure	3116		
Final Hydrostatic press.	3003		
Temp			

Initial Flow Press.

Minutes	Press
0	98
5	88
10	88
15	104
20	75
25	59
30	55
35	49
40	45
45	45
50	
55	
60	
65	
70	
75	
80	
85	
90	
95	
100	
105	
110	
115	
120	

Initial Closed in Press.

Minutes	Press
0	45
3	49
6	55
9	65
12	78
15	88
18	101
21	111
24	121
27	134
30	150
33	160
36	173
39	186
42	203
45	216
48	232
51	249
54	262
57	278
59-60	285
63	
66	
69	
72	
75	
78	
81	
84	
87	
90	
93	
96	
99	
102	
105	
108	
111	
114	
117	
120	

Final Flow Press

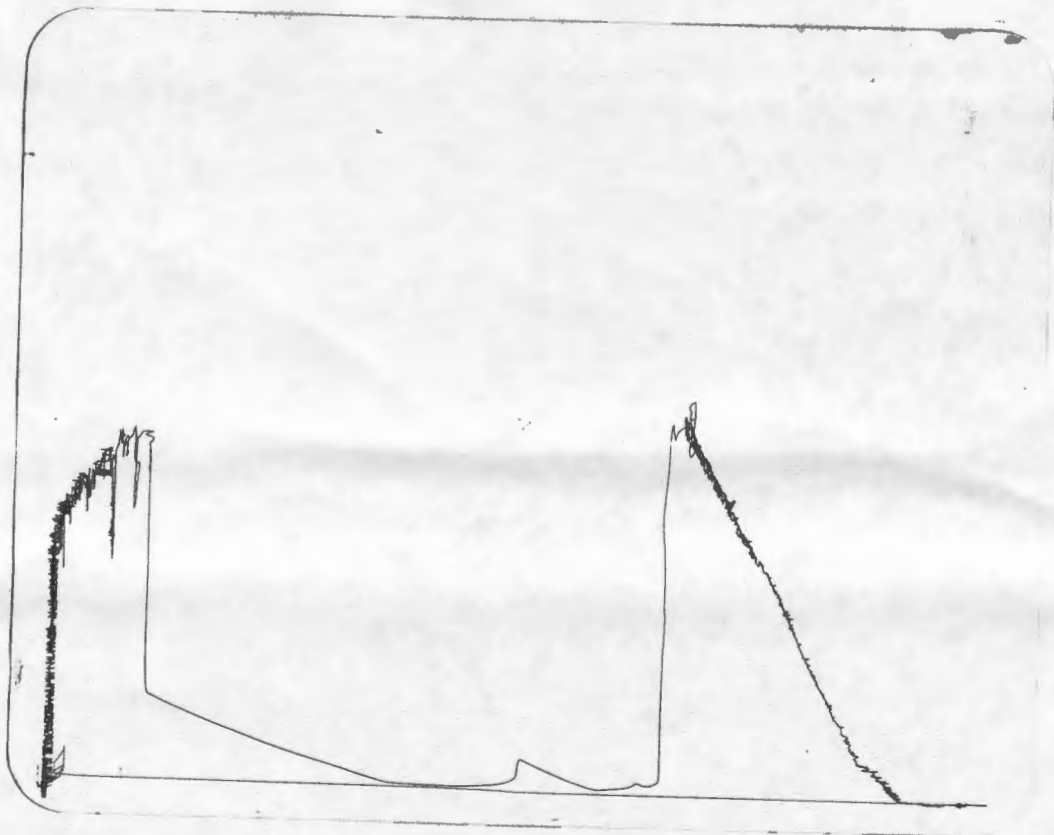
Minutes	Press
0	104
5	95
10	78
15	68
20	65
25	62
30	59
35	55
40	55
45	55
50	55
55	52
60	52
65	52
70	52
75	52
80	52
85	52
90	52
95	
100	
105	
110	
115	
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180	RE

Final Closed in Press.

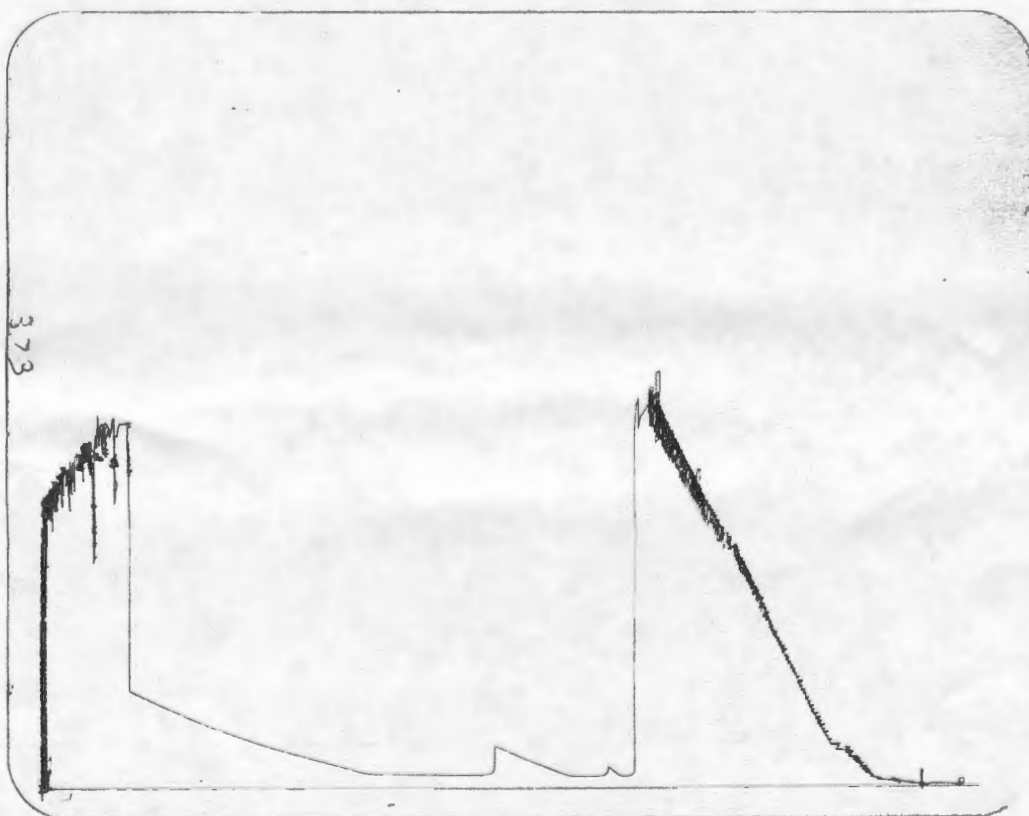
Minutes	Press
0	52
3	68
6	78
9	85
12	95
15	104
18	114
21	124
24	131
27	140
30	150
33	160
36	173
39	183
42	190
45	200
48	209
51	219
54	229
57	239
60	249
63	259
66	268
69	278
72	288
75	298
78	308
81	318
84	331
87	340
90	350
93	363
96	373
99	386
102	400
105	413
108	419
111	436
114	449
117	459
120	472

DT-4 Liberal Office Machines

cont.



Initial Hydrostatic _____ 3116 _____ psi
 IFP _____ 98 _____ psi to _____ 45 _____ psi
 ISIP _____ 285 _____ psi
 FFP _____ 104 _____ psi to _____ 52 _____ psi
 FSIP _____ 757 _____ psi
 Final Hydrostatic _____ 3003 _____ psi



3.73

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SEP 13 1984

CONSERVATION DIVISION
 WICHITA, KANSAS

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PHONE
316 / 624-7340

DEAN'S TESTERS INC.

P. O. BOX 1182
LIBERAL, Ks. 67901

Formation Chester Type Test Bottom Hole Misrun Date June 2, 1984
Anchor Length and Size 36' x 4 1/2" Total Depth 6600'
Packer Depths 6559' & 6564' Below Straddle
Equipment Run 2 Packers, Jars, Safety Joint, Circulating sub

Lengths: Tool 67' D. P. 5953' ID. 3.8" Wt. P. 580 ID. 2.25"
Mud Type Chemical Vis. 43 Wt. 9.0 Wtr. Loss 9.6 Cl. 1300 ppm

Recorders: Depth 6570' Make Kuster Cap. 6500 Ser. No. 13374 Inside
Depth 6598' Make Kuster Cap. 6400 Ser. No. 13373 Outside
Depth _____ Make _____ Cap. _____ Ser. No. _____ Below Straddle

Pressures:

Tool on Bottom @ <u>5:00</u> <u>A</u> <u>M.</u>	Initial Hydrostatic <u>3123</u> <u>psi</u>
Initial Flow <u>30</u> <u>Min.</u>	IFP <u>plugged</u> <u>psi</u>
Initial Shut-in <u>60</u> <u>Min.</u>	ISIP <u>plugged</u> <u>psi</u>
Final Flow <u>30</u> <u>Min.</u>	FFP <u>plugged</u> <u>psi</u>
Final Shut-in <u>60</u> <u>Min.</u>	FSIP <u>1276</u> <u>psi</u>
Tool off Bottom @ <u>8:00</u> <u>A</u> <u>M.</u>	Final Hydrostatic <u>3058</u> <u>psi</u> Temp. <u>144</u>

Blow: Weak to Strong on Initial Flow. None on Final.

Recovery: 300' Mud

Gas Flow:

Sampler Data:

Pressure _____ PSI
Gas _____ cu. ft.
Total Fluid _____ cc
Oil _____ cc
Water _____ cc
Mud _____ cc
Oil Gravity _____ °F.
Gas/Oil Ratio _____

Remarks:

Tool plugged & slid approximately 3'.

CONFIDENTIAL

Tester Joe Peckham

SEP 13 1984

Witnessed by: Edwin Grieves

State Geological Survey
WICHITA BRANCH

SEC.

8

TWP.

35S

RGE.

36W

COUNTY

Stevens

STATE

Kansas

TICKET NO.

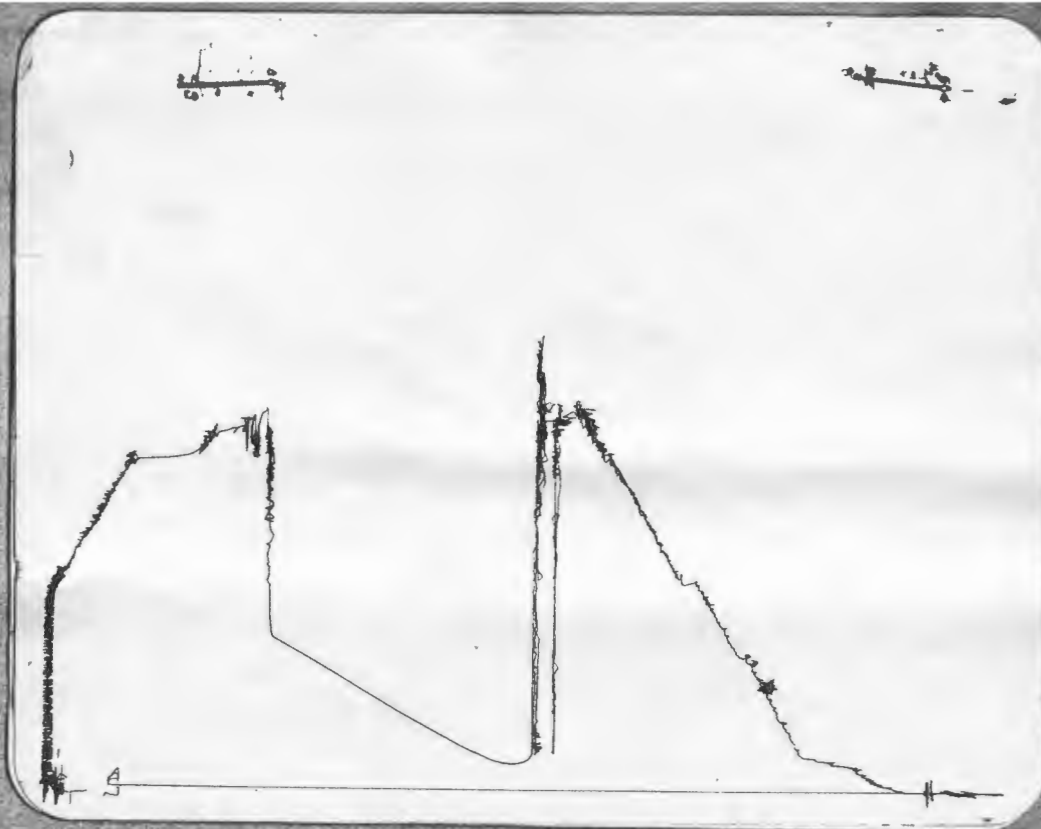
2123

OPERATOR
Douglas Energy Co. Inc.

WELL NAME & NO.
Gooch #1-8

TEST #
2

TEST INTERVAL
6564' - 6600'



SEP 13 1964

PHO
318 /

Form

Anch

Pack

Equip

Length

Mud

Rec

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Blot

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Gas

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Gas

Total f

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N

Oil Gr

Gas / C

Tester

DT-30

PHONE
316 / 624-7340

DEAN'S TESTERS INC.

P. O. BOX 1182
LIBERAL, Ks. 67901

Formation Chester Type Test Bottom Hole Date June 3, 1984
Anchor Length and Size 36' x 4 1/2" Total Depth 6600'
Packer Depths 6559' & 6564' Below Straddle
Equipment Run 2 Packers, Jars, Safety Joint, Circulating sub

Lengths: Tool 67' D. P. 5953' ID 3.8" Wt. P. 580 ID 2.25"
Mud Type Chemical Vis. 43 Wt. 9.0 Wtr. Loss 9.6 Cl. 1300 ppm

Recorders: Depth 6575' Make Kuster Cap. 6500 Ser. No. 13374 Inside
Depth 6598' Make Kuster Cap. 6400 Ser. No. 13373 Outside
Depth _____ Make _____ Cap. _____ Ser. No. _____ Below Straddle

Pressures:

Tool on Bottom @ <u>5:15 A</u> M.	Initial Hydrostatic <u>3173</u> psi
Initial Flow <u>30</u> Min.	IFP <u>80</u> psi to <u>80</u> psi
Initial Shut-In <u>60</u> Min.	ISIP <u>312</u> psi
Final Flow <u>120</u> Min.	FFP <u>90</u> psi to <u>90</u> psi
Final Shut-In <u>210</u> Min.	FSIP <u>870</u> psi
Tool off Bottom @ <u>12:45 P</u> M.	Final Hydrostatic _____ psi Temp. <u>144</u>

Blow: Weak to Strong on Initial Flow. Weak to Good to Fair on Final.

Recovery:

65' Drilling Mud 1800 PPM CL

Gas Flow:

Sampler Data:

Pressure _____ PSI
Gas _____ cu. ft.
Total Fluid _____ cc
Oil _____ cc
Water _____ cc
Mud _____ cc
Oil Gravity _____ °F.
Gas/Oil Ratio _____

Remarks:

Hit bridge at 1950'.

Tester Joe Peckham

Witnessed by:

Edwin

SEP 13 1984

OCT 26 1984
CONFIDENTIAL
WICHITA BRANCH

Douglas Energy Co., Inc.
OPERATOR

Gooch #1-8
WELL NAME & NO.

3
TEST #

6564' - 6600'
TEST INTERVAL

SEC. 8
TWP. 35S
RGE. 36W
COUNTY Stevens
STATE Kansas
TICKET NO. 2124

Pressure Break Down

Test ticket no. 2124 Recorder no. 13373 Capacity 6400 Rec. Depth. 6598'

Initial Flow pressure	<u>80</u> to <u>80</u>	Time	Given <u>30</u>	Computed <u>30</u>
Initial Closed in pressure	<u>312</u>		<u>60</u>	<u>60</u>
Final Flow pressure	<u>90</u> to <u>90</u>		<u>120</u>	<u>120</u>
Final Closed-in pressure	<u>870</u>		<u>240</u>	<u>210</u>
Initial Hydrostatic pressure	<u>3173</u>	Final Hydrostatic press.	<u> </u>	Temp <u>144</u>

Initial Flow Press.

Minutes	Press
0	80
5	80
10	80
15	80
20	80
25	80
30	80
35	
40	
45	
50	
55	
60	
65	
70	
75	
80	
85	
90	
95	
100	
105	
110	
115	
120	

Initial Closed in Press.

Minutes	Press
0	80
3	90
6	106
9	122
12	141
15	158
18	174
21	187
24	200
27	212
30	219
33	232
36	241
39	254
42	261
45	267
48	277
51	287
54	296
57	303
60	312
63	
66	
69	
72	
75	
78	
81	
84	
87	
90	
93	
96	
99	
102	
105	
108	
111	
114	
117	
120	

Final Flow Press

Minutes	Press
0	90
5	90
10	90
15	90
20	90
25	90
30	90
35	90
40	90
45	90
50	90
55	90
60	90
65	90
70	90
75	90
80	90
85	90
90	90
95	90
100	90
105	90
110	90
115	90
120	90
125	
130	
135	
140	
145	
150	
155	
160	
165	
170	
175	
180	

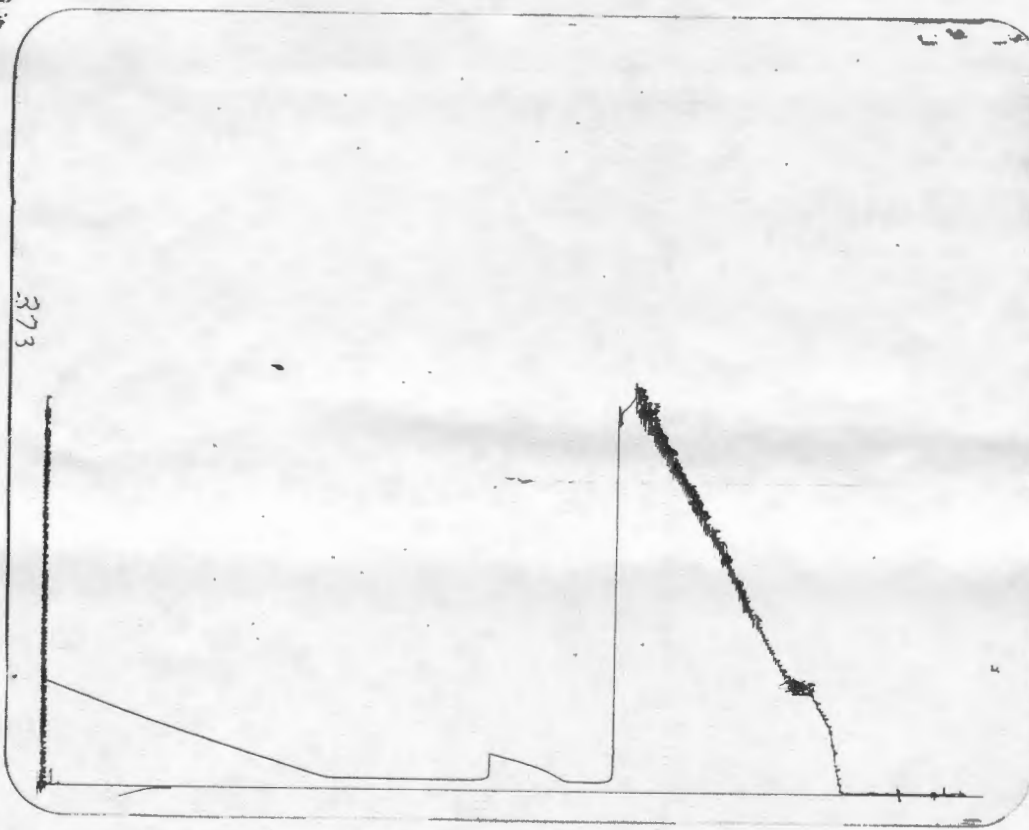
Final Closed in Press.

Minutes	Press
0	90
3	100
6	106
9	119
12	125
15	135
18	148
21	158
24	170
27	180
30	193
33	203
36	216
39	222
42	235
45	245
48	254
51	267
54	274
57	283
60	293
63	306
66	316
69	325
72	338
75	348
78	358
81	370
84	377
87	390
90	403
93	412
96	422
99	435
102	441
105	454
108	467
111	474
114	483
117	496
120	509

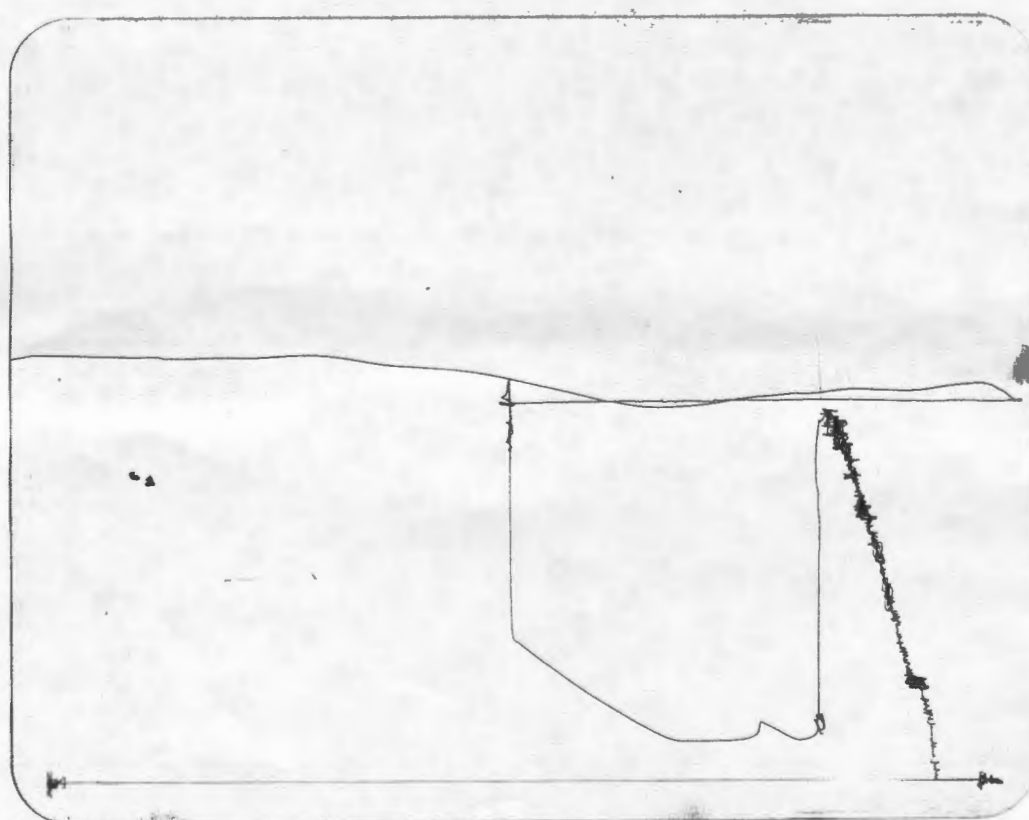
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STATE CORPORATION COMMISSION

SEP 13 1984

cont.



Initial Hydrostatic _____ 3173 _____ psi
 IFP _____ 80 _____ psi to _____ 80 _____ psi
 ISIP _____ 312 _____ psi
 FFP _____ 90 _____ psi to _____ 90 _____ psi
 FSIP _____ 870 _____ psi
 Final Hydrostatic _____ _____ psi



PHONE
316 / 62

Format

Anchor

Packer I

Equipm

Lengths

Mud Ty

Reco

Pres

To

Inl

Inl

Flr

Flr

To

Blow

Recc

Gas

Sam

Pressur

Gas

Total F

Ol

W

M

Oil Gr

Gas/C

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DT-10

SEP 13 1984

CONSERVATION DIVISION

**STATE OF KANSAS - CORPORATION COMMISSION
PRODUCTION TEST & GOR REPORT**

Conservation Division

Form C-5 Revised

TYPE TEST: Initial ☒ Annual ☐ Workover ☐ Reclassification ☐ TEST DATE: 8-24-84

Company: Douglas Energies Lease: Gooch TEST DATE: 8-23-84 Well No.: 1-8

County: Stevens Location: C-NW 1/4 Section: 8 Township: 35 Range: 36 Acres:

Field: Reservoir: Pipeline Connection: Chester None-New Well

Completion Date: 7-28-84 Type Completion (Describe): Single Plug Back T.D.: 6750 Packer Set At: 6548

Production Method: Type Fluid Production: API Gravity of Liquid/Oil: 43

Flowing ☒ Pumping ☐ Gas Lift ☐ Oil, Gas & Water ☐ Casing Size: 5 1/2 Weight: 17.0 I.D.: 4.892 Set At: 6971 Perforations: 6594 To: 6593

Tubing Size: 2 7/8 Weight: 6.40 I.D.: 2.441 Set At: 6548 Perforations: To

Pretest: Starting Date: Time: Ending Date: Time: Duration Hrs.:

Test: Starting Date: 8-23-84 Time: 10:40 am Ending Date: 8-24-84 Time: 10:40 am Duration Hrs.: 24

OIL PRODUCTION OBSERVED DATA

Producing Wellhead Pressure: Separator Pressure: Choke Size: 64/64

Casing: 0 Tubing: 232

Hbbls./In.	Tank		Starting Gauge			Ending Gauge			Net Prod. Bbbls.	
	Size	Number	Feet	Inches	Barrels	Feet	Inches	Barrels	Water	Oil
Pretest:										
Test:	300	Test Tank	5	4 3/4	108 13	12	9 1/4	255 92	147 79	148
Test:									27	

GAS PRODUCTION OBSERVED DATA

Orifice Meter Connections: Orifice Meter Range:

Pipe Taps: Flange Taps: Differential: Static Pressure:

Measuring Device	Run-Prover-Tester Size	Orifice Size	Meter-Prover-Tester Pressure			Diff. Press. (hw) or (hd)	Gravity Gas (Gg)	Flowing Temp. (t)
			In. Water	In. Merc.	Psig or (Pd)			
Orifice Meter								
Critical Flow Prover								
Orifice Well Tester	2"	1/2			50		.600	60

GAS FLOW RATE CALCULATIONS (R)

Coeff. MCFD (Fb)(Fp)(OWTC)	Meter-Prover Press. (Psia)(Pm)	Extension $\sqrt{hw \times Pm}$	Gravity Factor (Fg)	Flowing Temp. Factor (Ft)	Deviation Factor (Fpv)	Chart Factor (Fd)
89.7			1.00	1.00	0	0

Gas Prod. MCFD: 89.7 Oil Prod. Bbbls./Day: 148 Gas/Oil Ratio (GOR) = 606 Cubic Ft. per Bbl.

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct. Executed this the 24th day of August 1984.

CONFIDENTIAL

Ken B. Bailey

Universal Testing Inc.

For Office Use Only

For State

For Company

State Geological Survey



DOWNHOLE DATA, INC.
P.O. Box 14562
Oklahoma City, Oklahoma 73113

COMPANY: Douglas Energy. FIELD: _____ LEASE: Gooch #1-8 (Gas) WELL # _____

DATE: 7/14/84 COUNTY: Stevens STATE: Kansas FORMATION: Upper Morrow

CHRONOLOGICAL WELL DATA

DATE	TIME HRS. - MIN.	WELL STATUS	ELAPSED TIME HRS. - MIN.	WATER BWPB	OIL BOPB	ORIFICE PRESSURE	CSG. PRESS.	TGB. PRESS.	B.H.P. @ R.D.	B.H.P. @ M.P.
7/14/84	10:00	Shut In (for 48 hrs)	00:00	1'0"	3'9"		Pkr	1400		
	10:15	Flowing 12/64	00:15	1" PLATE		19		1381		
	10:30	"	00:30			18		1362		
	10:45	"	00:45			18		1343		
	11:00	"	01:00			18		1302		
	11:00	Flowing 14/64	00:00							
	11:15	"	00:15	1'0"	3'9"	44		1260		
	11:30	"	00:30			40		1237		
	11:45	"	00:45			40		1190		
	12:00	"	01:00			38		1150		
	12:00	Flowing 16/64	00:00							
	12:15	"	00:15	1'2"	3'9½"	72		1103		
	12:30	"	00:30			69		1082		
	12:45	"	00:45			65		1054		
	13:00	"	01:00			64		1007		
	13:00	Flowing 18/64	00:00							
	13:15	"	00:15	1'4"	3'9½"	96		954		
	13:30	"	00:30			93		918		
	13:45	"	00:45			91		883		
	14:00	"	01:00	1'5"	3'10"	89		859		

CONFIDENTIAL

State Geological Survey

WICHITA BRANCH

OCT 26 1984

SEP 13 1984

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STATE OF KANSAS - CORPORATION COMMISSION
MULTIPOINT BACK PRESSURE TEST

FORM CG-1

TYPE TEST: ☒ Initial ☐ Annual ☐ Special		TEST DATE: 7/14/84	
COMPANY: Douglas Energy		LEASE: Gooch	
WELL NO. 1-8			
COUNTY: Stevens	LOCATION:	SECTION: 8	TWP: 35S
			RNG: 36W
FIELD:	RESERVOIR: Upper Morrow	PIPELINE CONNECTION: None	
COMPLETION DATE:	PLUG BACK TOTAL DEPTH: 6286	PACKER SET AT: 5892	
CASING SIZE: 5 1/2"	WT.: 15.5	ID: 4.950	SET AT: 6914
			PERF.: 5955
			TO: 5958
TUBING SIZE: 2-7/8"	WT.: 6.50	ID: 2.441	SET AT: 5892
			PERF.: 5964
			TO: 5977
TYPE COMPLETION (Describe): Dual (Oil-Gas)		TYPE FLUID PRODUCTION: Oil & Water	
PRODUCING THRU: Tubing		RESERVOIR TEMPERATURE F: 145	
		BAR PRESS - P _a : 14.4 Psia	
GAS GRAVITY - G _g : .656		% CARBON DIOXIDE:	% NITROGEN:
		API GRAVITY OF LIQUID: 42	
VERTICAL DEPTH (H): 5966		TYPE METER CONN.: Prover	
		(METER RUN) (PROVER) SIZE: 2"	
REMARKS:			

OBSERVED DATA

DURATION OF SHUT-IN 72 HR.

RATE NO.	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIEP. (h _w) (h _d)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING WELLHEAD PRESS.		TUBING WELLHEAD PRESS.		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _t)(P _c) psia	psig	(P _w)(P _t)(P _c) psia		
SHUT IN								1400	1414.4	72	
1	1	18		70	60			1330	1316.4	1	*
2	1	38		70	60			1231	1216.6	1	*
3	1	64		70	60			1056	1070.4	1	*
4	1	89		70	60			845.9	860.3	1	*
5	* Tester didn't work - produced 4 bbl. during test										

RATE OF FLOW CALCULATIONS

RATE NO.	COEFFICIENT (F _p) (F _p) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m \times h_w}$	GRAVITY FACTOR F _g	FLOWING TEMP FACTOR F _t	DEVIATION FACTOR F _{dv}	RATE OF FLOW Q Mcfd	GOR	q _m
1	17.53	32.4		1.235	.9905	1.000	695		
2	17.53	52.4		1.235	.9905	1.000	1124		
3	17.53	78.4		1.235	.9905	1.000	1681		
4	17.53	103.4		1.235	.9905	1.000	2217		
5									

PRESSURE CALCULATIONS

RATE NO.	P _t psia	P _c psia	P _w psia	(P _c) ² THOUSANDS	(P _w) ² THOUSANDS	PLOTING POINTS		100 $\left[\frac{P_w - P_a}{P_c - P_a} \right]$
						(P _c) ² - (P _w) ² THOUSANDS	Q Mcfd	
1		1414.4	1316.4	2000.53	1732.91	267.61	695	
2		1414.4	1216.6	2000.53	1480.01	520.52	1124	
3		1414.4	1070.4	2000.53	1145.76	854.77	1681	
4		1414.4	860.3	2000.53	740.03	1260.50	2217	
5								

INDICATED WELLHEAD OPEN FLOW 3950 Mcfd @ 14.65 psia "r" = .864

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Executed this the 16 day of July, 1984.

Witness (if any):

For Company

Checked by

SEP 13 1984

WORK SHEET FOR CALCULATING EQUIVALENT STATIC WELLHEAD PRESSURE

LEASE Gooch WELL NO. 1-8 FIELD _____ COUNTY Stevens DATE 7/14/84

% CO₂ _____ G_m 6603 P_{cr} 670 T_{cr} 378 FLOW STRING 2-7/8" = 2.441

% N₂ _____ H 5966 G_{mH} 3945.91 L/H 1.00 I.D. 2.441

RATE										
LINE	TRIAL	1	2	3	4					
1	Q _m , M ² cfd	.695	1.124	1.681	2.217					
2	T _w	520	520	520	520					
3	T _e	605	605	605	605					
4	T _e	562.5	562.5	562.5	562.5					
5	Z _e	.811	.821	.838	.868					
5a	T _e Z _e	456.19	461.81	471.38	488.25					
6	G _m H/T _e Z _e	8.6498	8.5441	8.3711	8.0817					
7	e ^s	1.383	1.378	1.369	1.354					
8	(1 - e ^{-s})	.277	.274	.270	.261					
9	P _t or P _c	1316.4	1216.6	1070.4	860.3					
10	P _t ² or P _c ² (thous.)	1732.91	1480.01	1145.76	740.12					
11	F _c	.010495	.010495	.010495	.010495					
12	F ₁ = F _c T _e Z _e / 540	.0089	.0091	.0092	.0095					
13	F ₁ Q _m	.0062	.0101	.0154	.0210					
14	Y = (F ₁ Q _m) ² L/H	.0000	.0001	.0002	.0004					
15	R ² = Y (1 - e ^{-s})	.0000	.0000	.0001	.0001					
16	P _w ² = P _t ² + R ²	1732.91	1480.01	1145.76	740.12					
17	P _s ² = e ^s P _w ² (thous.)	2395.61	2034.45	1568.55	.112.12					
17a	or P _f ² = e ^s P _c ² (thous.)	--	--							
18	P _s or P _f	1548.09	1428.10	1252.42	1001.06					
19	P _e	1432.25	1322.35	1161.41	930.68					
20	P _r	142.14	1.97	1.73	1.39					
21	T _r	1.49	1.49	1.49	1.49					
22	Z _e	.811	.821	.838	.868					

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$P^2 - P_0^2$

10^3

10^3

10^3

$C_0 = M \cdot P$

$P_0^2 = 2000.53$

$M = .864$

$P = 39.50$

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