

Legal Location
 Sec. - Twp. - Rng.
 Field Area
 County
 State
 KANSAS

Flow Time	1st 5 Min.	2nd 60 Min.	Date	5-10-62	Ticket Number	314906 - S
Closed in Press. Time	1st 60 Min.	2nd 60 Min.	Kind of Job	OPEN HOLE	Halliburton District	WINFIELD
Pressure Readings	Field	Office Corrected	Tester	MR. REYNOLDS	Witness	MR. CALVIN
Depth Top Gauge	2110 Ft.	NO Blanked Off	Drilling Contractor	WHITE & ELLIS DRILLING INCORPORATED		
BT. RANGE	3000	3.376 Hour	Elevation	1400' G.L.	Top Packer	-
P.R.D. No.	297	12 Clock	Total Depth	2135'	Bottom Packer	2126'
Initial Hydro Mud Pressure	1092	1075	Interval Tested	2126'-2135' (9')	Formation Tested	COTTAGE GROVE
Initial Closed in Pres.	670	668	Casing or Hole Size	7 7/8"	Casing Perfs. { Top Bot.	-
Initial Flow Pres.	10	2 15	Surface Choke	1/4"	Bottom Choke	5/8"
Final Flow Pres.	18	2 16	Size & Kind Drill Pipe	4 1/2" X.H.	Drill Collars Above Tester	-
Final Closed in Pres.	600	588	Mud Weight	9.7	Mud Viscosity	38
Final Hydro Mud Pressure	1092	1054	Temperature	107 °F Est. °F Actual	Anchor Size & Length	ID 2 3/8" X 9' OD 4 1/2"
Depth Cen. Gauge	Ft.	Blanked Off	Depths Meas. From	GROUND LEVEL	Depth of Tester Valve	2108' Ft.
BT. P.R.D. No.		Hour Clock	Cushion	-	Depth Back Pres. Valve	2103' Ft.
Initial Hydro Mud Pres.			Recovered	15 Feet of	Oil cut mud with scum	Meas. From Tester Valve
Initial Closed in Pres.			Recovered	Feet of	of free oil	
Initial Flow Pres.	1	2	Recovered	Feet of		
Final Flow Pres.	1	2	Recovered	Feet of		
Final Closed in Pres.			Recovered	Feet of		
Final Hydro Mud Pres.			Oil A.P.I. Gravity	-	Water Spec. Gravity	-
Depth Bot. Gauge	2128 Ft.	YES Blanked Off	Gas Gravity	-	Surface Pressure	- psi
BT. RANGE	3500	3.821 Hour	Tool Opened	6:06 PM	A.M. P.M.	Tool Closed 8:11 PM A.M. P.M.
P.R.D. No.	585	12 Clock	Remarks	Tool opened with no blow for first 3 mins.		
Initial Hydro Mud Pres.	1093	1080	Last 2 minutes had very weak blow. Closed tool for			
Initial Closed in Pres.	672	672	60 minute initial closed in pressure. Reopened			
Initial Flow Pres.	18 1	13	tool with no blow for first 50 minutes and then			
Final Flow Pres.	18 1	13	weak blow for last 10 minutes. Took a 60 minute			
Final Closed in Pres.	592	595	final closed in pressure.			
Final Hydro Mud Pres.	1093	1061				

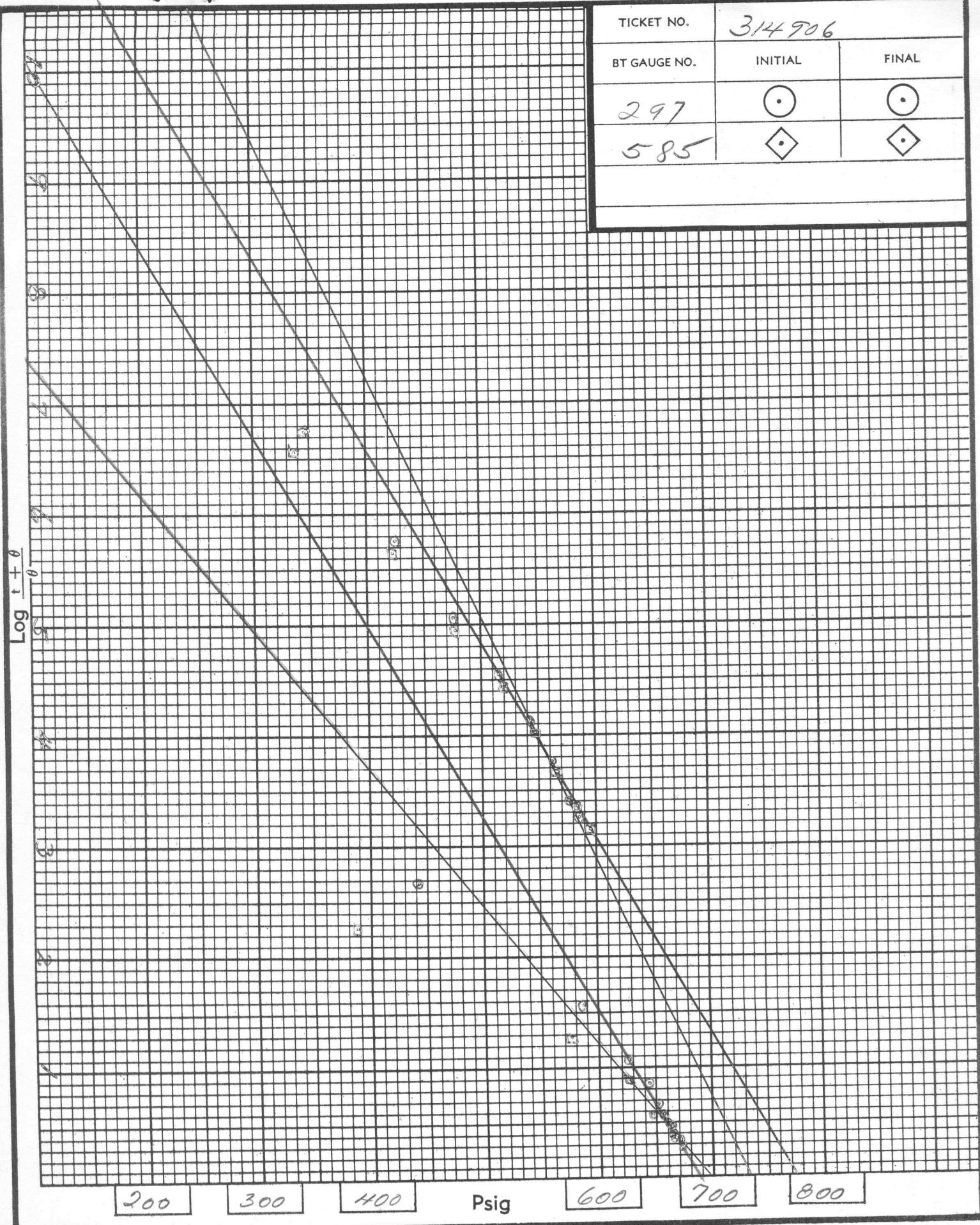
FORMATION TEST DATA

Gauge No. 297			Depth 2110			Clock 12 hour			Ticket No. 314906		
First Flow Period			Initial Closed In Pressure			Second Flow Period			Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\phi}{\phi}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\phi}{\phi}$	PSIG Temp. Corr.	
P ₀	.000	7	.000	---	11	.000	15	.000	---	16	
P ₁	.036	11	.0419	.269	442	.443	16	.043	1.084	64	
P ₂			.0838	.155	581			.086	.817	210	
P ₃			.1257	.109	627			.129	.673	344	
P ₄			.1676	.084	644			.172	.578	424	
P ₅			.2095	.068	653			.215	.508	477	
P ₆			.2514	.058	659			.258	.455	516	
P ₇			.2933	.050	663			.301	.413	542	
P ₈			.3352	.044	665			.344	.378	563	
P ₉			.3771	.039	666			.387	.349	576	
P ₁₀			.4190	.035	668			.430	.325	588	

Gauge No. 585			Depth 2128			Clock 12 hour					
P ₀	.000	13	.000	---	13	.000	30	.000	---	22	
P ₁	.029	13	.0418	.228	389	.422	22	.0423	1.066	57	
P ₂			.0836	.129	576			.0846	.801	191	
P ₃			.1254	.090	627			.1269	.658	337	
P ₄			.1672	.069	648			.1692	.564	423	
P ₅			.2090	.056	658			.2115	.495	479	
P ₆			.2508	.047	663			.2538	.443	520	
P ₇			.2926	.041	667			.2961	.401	548	
P ₈			.3344	.036	670			.3384	.367	568	
P ₉			.3762	.032	671			.3807	.339	583	
P ₁₀			.4180	.029	672			.4230	.315	595	
Reading Interval			6						6 Minutes		
REMARKS:											

SPECIAL PRESSURE DATA

TICKET NO.	314906	
BT GAUGE NO.	INITIAL	FINAL
297		
585		



EXTRAPOLATED PRESSURE GRAPH

Liquid Production

B.T. Gauge Numbers			297	585	Ticket Number	314906
			PRESSURE	PRESSURE	Elevation	1400 ft.
Initial Hydrostatic			1075	1080		
Final Hydrostatic			1054	1061	Indicated Production	1st Flow - bbls. day
						Total Flow 4.7 bbls. day
1st Flow	Initial	Time -----	7	13	Drill Collar Length	
	Final	5	11	13		
Initial Closed In Pressure			60	668	672	Drill Collar I.D.
						0 in.
2nd Flow	Initial	-----	15	30	Drill Pipe Factor	
	Final	60	16	22	Hole Size	
Final Closed In Pressure			60	588	595	Footage Tested
						9 ft.
Extrapolated Static Pressure	Initial		690	700	Mud Weight	
	Final		733	774	Viscosity, Oil or Water	
						5.0 cp
Slope psi/cycle	Initial		-100	105	Oil API Gravity	
	Final		105	202	Water Specific Gravity	
						35 Est. —
						- —

Remarks: _____

SUMMARY

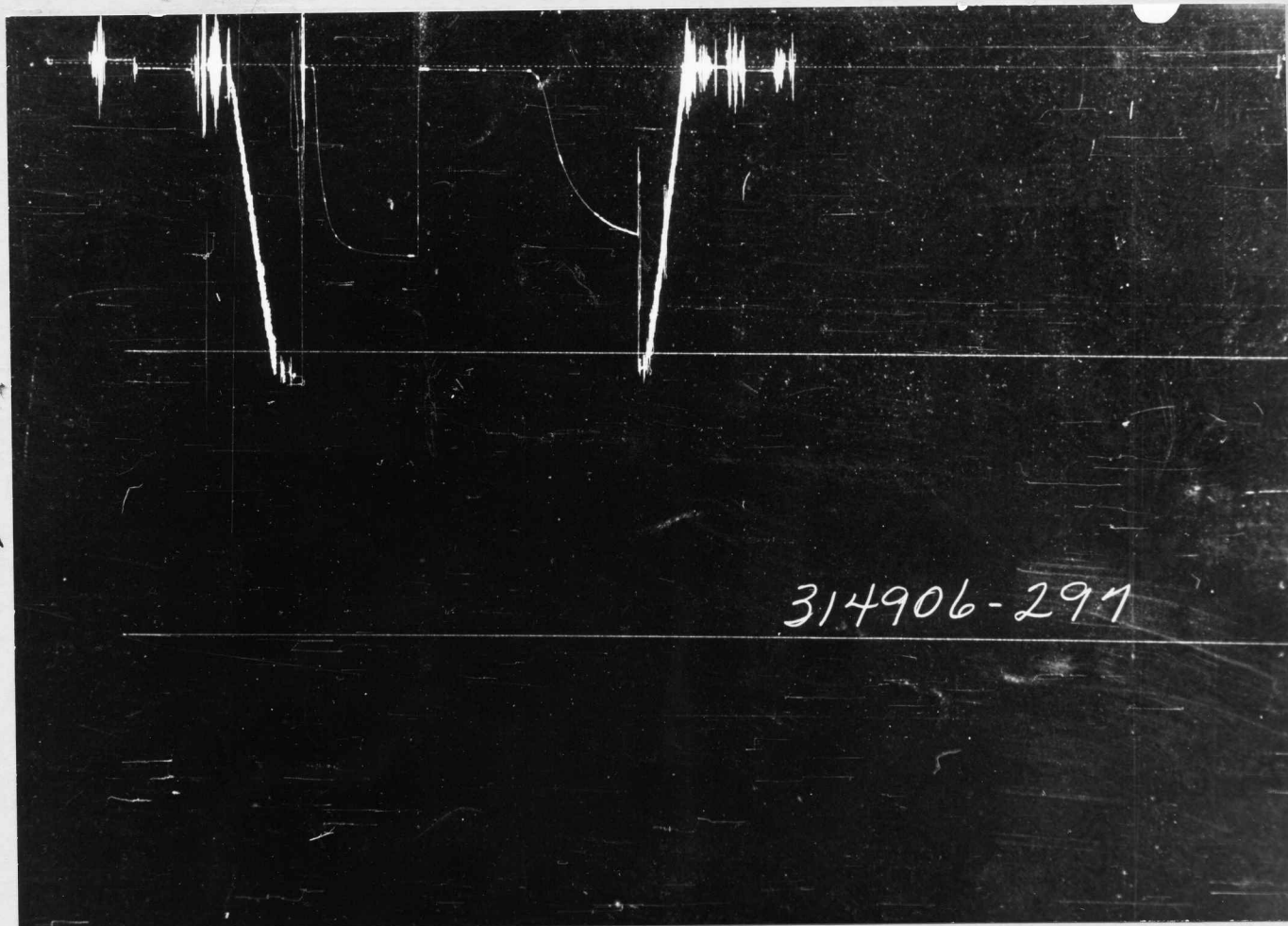
Gauge No. 297
Depth 2110'

Gauge No. 585
Depth 2128'

Product	Equation	Initial	Final	Initial	Final	Units
Production	$Q = \frac{1440 R}{t}$		4.7		4.7	bbls. day
Transmissability	$\frac{Kh}{\mu} = \frac{162.6 Q}{m}$		1.7		1.3	md. ft. cp
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$		8.3		6.7	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$		.92		.74	md.
	$K_i = \frac{Kh}{h_i}$		-		-	md.
Damage Ratio	$DR = .183 \frac{P_s - P_f}{m}$		.3		.3	—
Theoretical Potential w/Damage Removed	$Q_1 = Q DR$		4.7		4.7	bbls. day
Approx. Radius of Investigation	$b \approx \sqrt{Kt}$ or $\sqrt{Kt_0}$		7.7		7.0	ft.
	$b_1 \approx \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$		-		-	ft.
Potentiometric Surface *	$Pot. = EI - GD + 2.319 P_s$		989.8		1066.9	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 evaluations based thereon, Halliburton is merely expressing its opinion. You agree that Halliburton makes no warranty express or implied as to the accuracy of such calculations or opinions, and that Halliburton shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

PRESSURE



TIME



Each Horizontal Line Equal to 1000 p.s.i.

LEASE NAMEJ. ANDERSON

NO.1

TEST2

COMPANY SINCLAIR OIL & GAS COMPANY

COUNTY COWLEY

STATE KANSAS

TICKET NO.

314907

BT GAUGE NO.

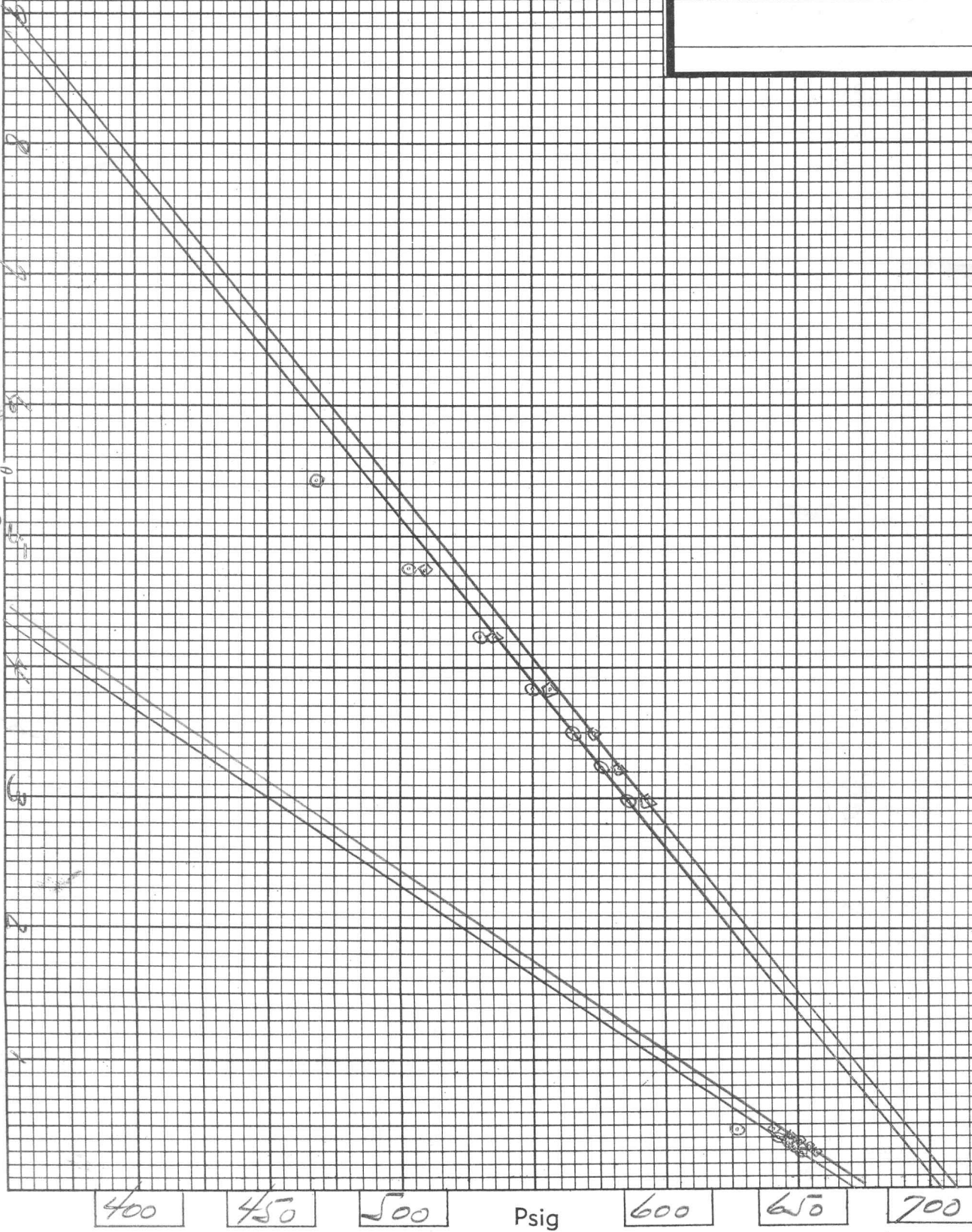
INITIAL

FINAL

297



585

 $\log \tau + \theta$ 

EXTRAPOLATED PRESSURE GRAPH

Liquid Production

B.T. Gauge Numbers		297	585	Ticket Number	314907
Initial Hydrostatic		PRESSURE 1088	PRESSURE 1094	Elevation	1400 ft.
Final Hydrostatic		1073	1081	Indicated Production	1st Flow bbls. day
1st Flow	Initial	Time ----- 10	22	Total Flow	18.9 bbls. day
	Final	5	13	21	Drill Collar Length ft.
Initial Closed In Pressure		60	651	656	Drill Collar I.D. in.
2nd Flow	Initial	----- 18	30	Drill Pipe Factor	0.0142 bbls. ft.
	Final	60	35	42	Hole Size in.
Final Closed In Pressure		65	586	593	Footage Tested ft.
Extrapolated Static Pressure	Initial	-	-	Mud Weight	9.7 lbs. gal.
	Final	704	710	Viscosity, Oil or Water	3.8 cp
Slope psi/cycle	Initial	-	-	Oil API Gravity	38 est. —
	Final	304	318	Water Specific Gravity	- —

Remarks: _____

SUMMARY

Gauge No. 297
Depth 2110'

Gauge No. 585
Depth 2128'

Product	Equation	Initial	Final	Initial	Final	Units
Production	$Q = \frac{1440 R}{t}$		18.9		18.8	bbls. day
Transmissability	$\frac{Kh}{\mu} = \frac{162.6 Q}{m}$		7.7		7.8	md. ft. cp
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$		29.2		29.5	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$		-		-	md.
	$K_I = \frac{Kh}{h_I}$		1.5		1.6	md.
Damage Ratio	$DR = .183 \frac{P_s - P_f}{m}$		0.3		0.3	—
Theoretical Potential w/Damage Removed	$Q_1 = Q DR$		18.9		18.9	bbls. day
Approx. Radius of Investigation	$b \approx \sqrt{Kt}$ or $\sqrt{Kt_0}$		-		-	ft.
	$b_1 \approx \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$		10.0		10.1	ft.
Potentiometric Surface *	$Pot. = EI - GD + 2.319 P_s$		922.6		918.5	ft.

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INTERPRETATIONS AND CALCULATIONS