

HALL - GURNEY

Formation Testing Service Report

BORELL

Area Name

Hershberger

Well No.

Test No.

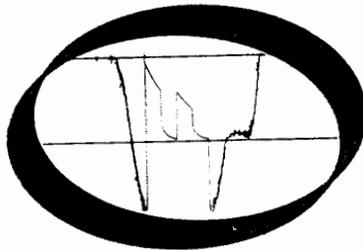
Borell #1

J. W. HERSHBERGER - OMEGA DRILLING COMPANY INC. WICHITA

Area Operator/Company Name

Operator's District

32-14-12 W



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Flow Time	1st 15	Min.	2nd 60	Min.	Date	10-11-67	Ticket Number	468273 S
Closed In Press. Time	1st 30	Min.	2nd 30	Min.	Kind of Job	OPEN HOLE	Halliburton District	HAYS
Pressure Readings	Field		Office Corrected		Tester	A. WEATHERBEE	Witness	MR. WAYNE WALSH
Depth Top Gauge	3144	Ft.	no	Blanked Off	Drilling Contractor	OMEGA DRILLING COMPANY		
BT. P.R.D. No.	374		12	Hour Clock	Elevation	1723' KB	Top Packer	3148'
Initial Hydro Mud Pressure	-		1703		Total Depth	3167'	Bottom Packer	3152'
Initial Closed in Pres.	-		1056		Interval Tested	3152'-3167' (2')	Formation Tested	ARBUCKLE
Initial Flow Pres.	-	1	75		Casing or Hole Size	7 7/8"	Casing Perfs. { Top	
	-	2	450				Bot.	-
Final Flow Pres.	-	1	435		Surface Choke	1/4"	Bottom Choke	3/4"
	-	2	838					
Final Closed in Pres.	-		1055		Size & Kind Drill Pipe	4 1/2" F.H.	Drill Collars Above Tester	1020' FLEX WEIGHT
Final Hydro Mud Pressure	-		1676		Mud Weight	10.2	Mud Viscosity	41
Depth Cen. Gauge		Ft.		Blanked Off	Temperature	90 °F Est.	Anchor Size & Length	ID 2 7/8" X 15' OD 5"
BT. P.R.D. No.				Hour Clock	Depths Mea. From	KELLY BUSHINGS	Depth of Tester Valve	3142' Ft.
Initial Hydro Mud Pres.					TYPE AMOUNT		Depth Back Pres. Valve	- Ft.
Initial Closed in Pres.					Cushion	-		
Initial Flow Pres.		1			Recovered	2040	Feet of Oil	
		2			Recovered	120	Feet of Oil cut mud	
Final Flow Pres.		1			Recovered		Feet of	
		2			Recovered		Feet of	
Final Closed in Pres.					Recovered		Feet of	
Final Hydro Mud Pres.					Oil A.P.I. Gravity	39 @ 68°	Water Spec. Gravity	-
Depth Bot. Gauge	3164	Ft.	YES	Blanked Off	Gas Gravity	-	Surface Pressure	- psi
BT. P.R.D. No.	294		12	Hour Clock	Tool Opened	9:45 AM	Tool Closed	12:00 NOON
Initial Hydro Mud Pres.	1701		1703		Remarks	Opened tool for 15 minute 1st flow with a		
Initial Closed in Pres.	1052		1056			strong blow. Closed tool for 30 minute initial		
Initial Flow Pres.	76	1	77			closed in pressure. Reopened tool for 60 minute		
	430	2	447			2nd flow with a strong blow. Closed tool for 30		
Final Flow Pres.	451	1	438			minute final closed in pressure.		
	828	2	839					
Final Closed in Pres.	1044		1055					
Final Hydro Mud Pres.	1669		1675					

BORELL
 Lease Name
 Well No. 1
 Test No. 3
 J.W. HERSHBERGER - OMEGA DRILLING COMPANY INC. WICHITA
 Lease Owner/Company Name
 County RUSSELL
 State KANSAS
 Owner's District

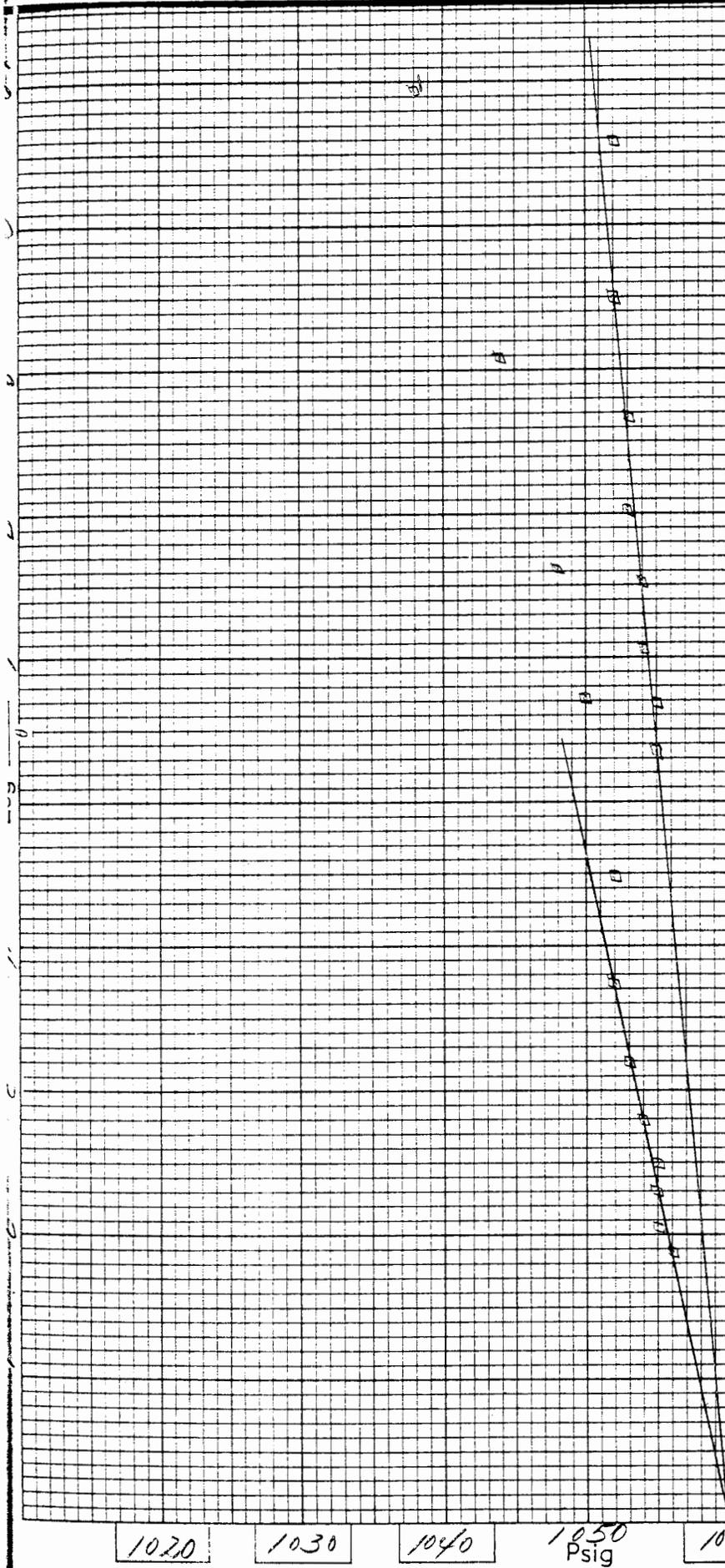
FORMATION TEST DATA

SPECIAL PRESSURE DATA

EXTRAPOLATED PRESSURE GRAPH

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TICKET NO.	468273	
BT GAUGE NO.	INITIAL	FINAL
374		
294		



EXTRAPOLATED PRESSURE GRAPH

INTERPRETATIONS AND CALCULATIONS

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Liquid Production

B.T. Gauge Numbers		374	294	Ticket Number		468273
Initial Hydrostatic		PRESSURE	PRESSURE	Elevation		1723 ft.
		1703	1703			
Final Hydrostatic		1676	1675	Indicated Production		1st Flow -- bbls. day
1st Flow	Initial	Time	75	77	Total Flow 400 bbls. day	
	Final	15	435	438	Drill Collar Length 1020 ft.	
Initial Closed In Pressure		30	1056	1056	Drill Collar I.D. Flex No. 2.76 in.	
2nd Flow	Initial	---	450	447	Drill Pipe Factor 0.01422 bbls. ft.	
	Final	60	838	839	Hole Size 7 7/8 in.	
Final Closed In Pressure		30	1055	1055	Footage Tested 2.0 Vec ft.	
Extrapolated Static Pressure		Initial	1060	1060	Mud Weight 10.2 lbs. gal.	
		Final	1060	1060	Viscosity, Oil on Water x 5.0 cp	
Slope of curve P 10		Initial	-	-	Oil API Gravity Corrected to 60° F 38.2	
		Final	1052	1051	Water Specific Gravity --	

Remarks: Initial closed in pressures and initial flow not used in calculations in view of the short first flow.

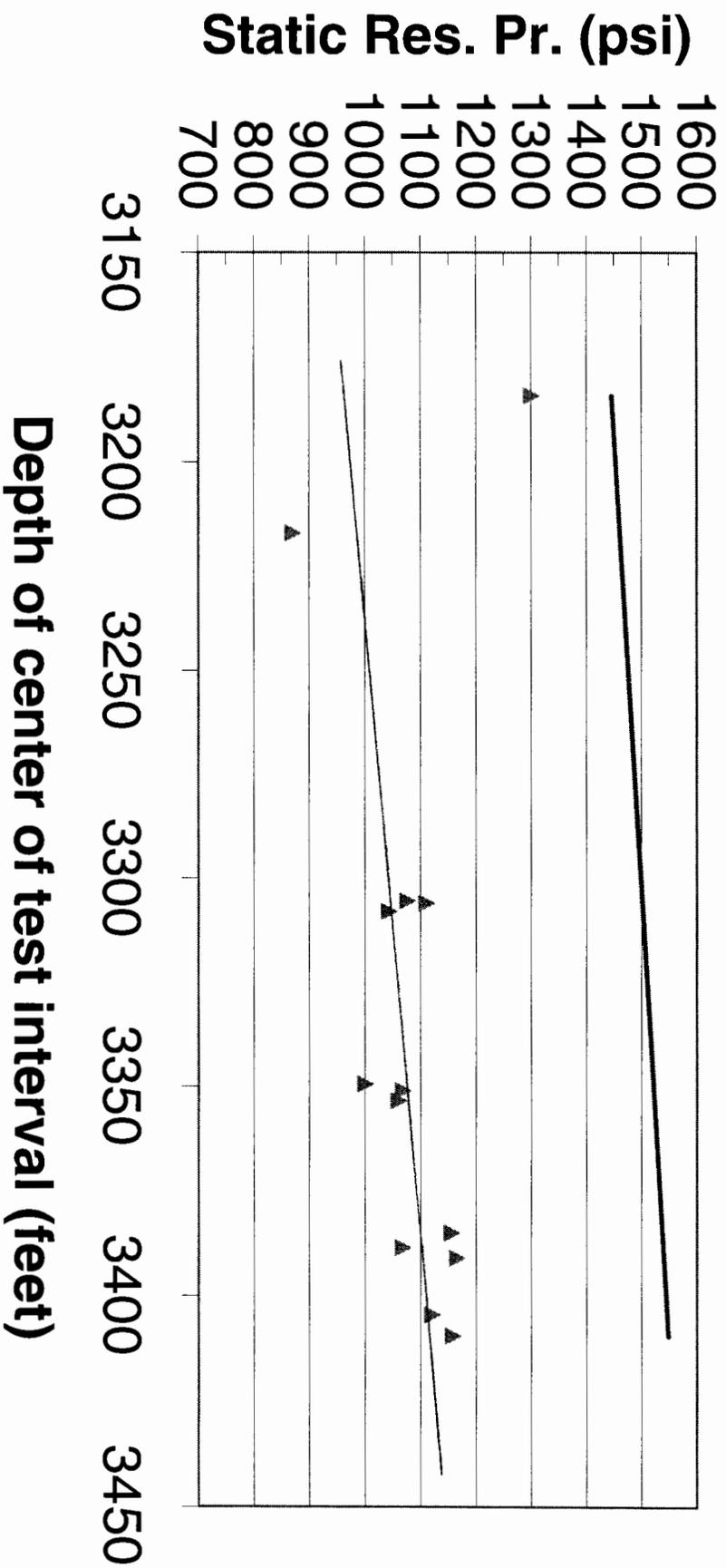
SUMMARY

Gauge No. 374	Gauge No. 294
Depth 3144'	Depth 3164'

Product	Equation	Initial	Final	Initial	Final	Units
Production	$Q = \frac{1440 R}{t}$		400.3		400.3	bbls. day
Transmissibility	$\frac{Kh}{\mu} = \frac{162.6 Q}{m}$		8135.8		7231.8	md. ft. / cp
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$		40678.9		36159.0	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$		--		--	md.
	$K_1 = \frac{Kh}{h_1}$		20339.4		18079.5	md.
Damage Ratio	$DR = .183 \frac{P_s - P_f}{m}$		5.0		4.5	--
Theoretical Potential / Damage Removed	$Q_1 = Q DR$		2032.7		1798.7	bbls. day
Approx. Radius of Investigation	$b \approx \sqrt{Kt}$ or $\sqrt{Kt_0}$		--		--	ft.
	$b_1 \approx \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$		1235		1164.5	ft.
Potentiometric Surface *	Pot. = EI - GD + 2.319 Ps		1037		1017.1	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.

Static Reservoir Pressure Arbuckle wells



▲ Static Res. Pr. — Hyd. Head