

Gas Production

B.T. Gauge Numbers			1639	1638	Ticket Number	896919
Initial Hydrostatic			7226	7313	Elevation	- ft.
Final Hydrostatic			CTE	CTE	1st Flow	- MCF
1st Flow	Initial	Time	1371	1805	Production Rate	2500* MCF
	Final	20	1439	1460	2nd Flow	3100* MCF
	Closed In Pressure	64	6871	6887	3rd Flow	7.875 in.
2nd Flow	Initial	Time	1336	1322	Hole Size	10 ft.
	Final	151	1095	1083	Footage Tested	11.7 lbs./gal.
	Closed In Pressure	364	6849	6865	Mud Weight	.030 cp
3rd Flow	Initial	Time	732	770	Gas Viscosity	.6
	Final	133	1172	1162	Gas Gravity Estimated	1.52
	Closed In Pressure	290 **	6822	6841	Gas Compressibility	168 °F
Extrapolated Static Pressure	1st		6894	6907	Temperature	
	2nd		6871	6884		
	3rd		6856	6877		
Slope P/10	1st		6714	6730		
	2nd		6749	6763		
	3rd		6751	6772		

POSSIBLE DEPLETION.....

Remarks:

Calculations based on flow rates given by Mr. Ken Nelson, Texas International Petroleum Company.

**Chart time expired on both gauges

NOTE: Charts indicate that downhole flowing pressures not stabilized during the second and third flow periods....

SUMMARY		B.T. Gauge No. 1639 Depth 11673'			B.T. Gauge No. 1638 Depth 11806'			UNITS
PRODUCT	EQUATION	FIRST	SECOND	THIRD	FIRST	SECOND	THIRD	
Transmissability	$\frac{Kh}{\mu} = \frac{1637 Q_e ZT}{m}$		2351	3390		2365	3380	md. ft. cp
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$		70.5	101.7		70.9	101.4	md. ft.
Average Effective	$K = \frac{Kh}{h}$		-	-		-	-	md.
Permeability	$K_1 = \frac{Kh}{h_1}$		7.05	10.17		7.09	10.14	md.
Indicated Flow Capacity	$(Kh)_2 = \frac{3200 Q_e \mu ZT \text{ Log}(0.472 b/r_w)}{P_s^2 - P_r^2}$		8.66	12.1		8.62	12.02	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \frac{Kh}{(Kh)_2}$		8.14	8.39		8.23	8.43	—
Indicated	$OF_1 = \frac{Q_e}{P_s^2 - P_r^2} \frac{P_s^2}{P_r^2} \quad \text{Max.}$		2565	3193		2563	3191	MCFD
Flow Rate	$OF_2 = \frac{Q_e}{\sqrt{P_s^2 - P_r^2}} \frac{P_s}{P_r^2} \quad \text{Min.}$		2532	3146		2531	3145	MCFD
Theoretical	$OF_3 = OF_1 DR \quad \text{Max.}$		20900	26814		21094	26905	MCFD
Potential Rate	$OF_4 = OF_2 DR \quad \text{Min.}$		20633	26420		20832	26518	MCFD
Approx. Radius of Investigation	$b \approx \sqrt{Kt} \text{ or } \sqrt{Kt_0}$		-	-		-	-	ft.
	$b_1 \approx \sqrt{K_1 t} \text{ or } \sqrt{K_1 t_0}$		35.1	55.9		35.1	55.8	ft.
Potentiometric Surface *	$Pot = (EI - GD) + (2.319 Ps)$		4261	4226		4158	4142	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.