

FLUID SAMPLE DATA				Date 9-10-78		Ticket Number 431977	
Sampler Pressure 15 P.S.I.G. at Surface				Kind of Job OPEN HOLE TEST		Halliburton District LIBERAL	
Recovery: Cu. Ft. Gas .65				Tester AUSTIN		Witness HUBER	
cc. Oil				Drilling Contractor ZENITH DRILLING COMPANY PW			
cc. Water				EQUIPMENT & HOLE DATA			
cc. Mud 500 cc				Formation Tested			
Tot. Liquid cc.				Elevation Ft.			
Gravity * API @ *F.				Net Productive Interval 15' Ft.			
Gas/Oil Ratio cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY				Total Depth 6090' Ft.			
CHLORIDE CONTENT				Main Hole/Casing Size 7 7/8"			
Recovery Water @ *F. ppm				Drill Collar Length 180' I.D. 2.25"			
Recovery Mud @ *F. ppm				Drill Pipe Length 5860' I.D. 3.826"			
Recovery Mud Filtrate @ *F. ppm				Packer Depth(s) 6069' - 6075' Ft.			
Mud Pit Sample @ *F. ppm				Depth Tester Valve 6052' Ft.			
Mud Pit Sample Filtrate @ *F. ppm							
Mud Weight 9 vis 43 sec							
TYPE		AMOUNT		Depth Back Surface		Bottom	
Cushion				Ft. Pres. Valve		Choke 1/4" 3/4"	
Recovered		20 Feet of mud.					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks							
- SEE PRODUCTION TEST DATA SHEET -							
TEMPERATURE		Gauge No. 6753		Gauge No. 6754		Gauge No.	
		Depth: 6055 Ft.		Depth: 6086 Ft.		Depth: Ft.	
		12 Hour Clock		12 Hour Clock		Hour Clock	
Est. *F.		Blanked Off NO		Blanked Off YES		Blanked Off	
6085' @						Tool A.M.	
Actual 145 *F.						Opened 1415 P.M.	
						Opened A.M.	
						Bypass 1800 P.M.	
		Pressures		Pressures		Pressures	
		Field	Office	Field	Office	Field	Office
Initial Hydrostatic		2876	2887		2931		
First Period	Flow Initial	29	23		57		
	Flow Final	29	26		34		
	Closed in	316	343		333		
Second Period	Flow Initial	29	25		46		
	Flow Final	29	28		37		
	Closed in	1722	1788		1791		
Third Period	Flow Initial						
	Flow Final						
	Closed in						
Final Hydrostatic		2876	2881		2896		

Legal Location
Sec. - Twp. - Rng. 11 - 35 - 33HOWLAND
Lease NameWell No. 2-145
Test No.b0/5 - b090
Tested IntervalField Area
E. LIBERALCounty
SEWARDState
KANSASDEKEN LUKFUKALUN
Lease Owner/Company Name

Casing perms. _____ Bottom choke _____ Surf. temp. _____ °F Ticket No. 431977
 Gas gravity _____ Oil gravity _____ GOR _____
 Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
 INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

[illegible]

Gauge No. 6753			Depth 6055'					Clock No. 3301			12 hour	Ticket No. 431977			
First Flow Period			First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t + \theta}{\theta}$	PSIG Temp. Corr.
0	.000	23	.000		26	.000	25	.000		28					
1	.092	26	.200		343	.403	28	.0664		872*					
2								.1195		1282					
3								.1726		1519					
4								.2257		1645					
5								.2788		1709					
6								.3319		1742					
7								.3851		1761					
8								.4382		1770					
9								.4913		1776					
10								.5444		1780					
11								.5975		1783					
12								.6506		1785					
13								.7037		1786					
14								.7568		1786					
15								.8100		1788					

Gauge No. 6754			Depth 6086'			Clock No. 3462			12 hour			
0	.000	57	.000	34	.000	46	.000	37				
1	.103	34	.189	333	.407	37	.0673	887*				
2							.1211	1291				
3							.1750	1523				
4							.2288	1644				
5							.2827	1707				
6							.3365	1745				
7							.3903	1764				
8							.4442	1774				
9							.4980	1778				
10							.5519	1784				
11							.6057	1787				
12							.6595	1788				
13							.7134	1790				
14							.7672	1791				
15							.8210	1791				

Reading Interval

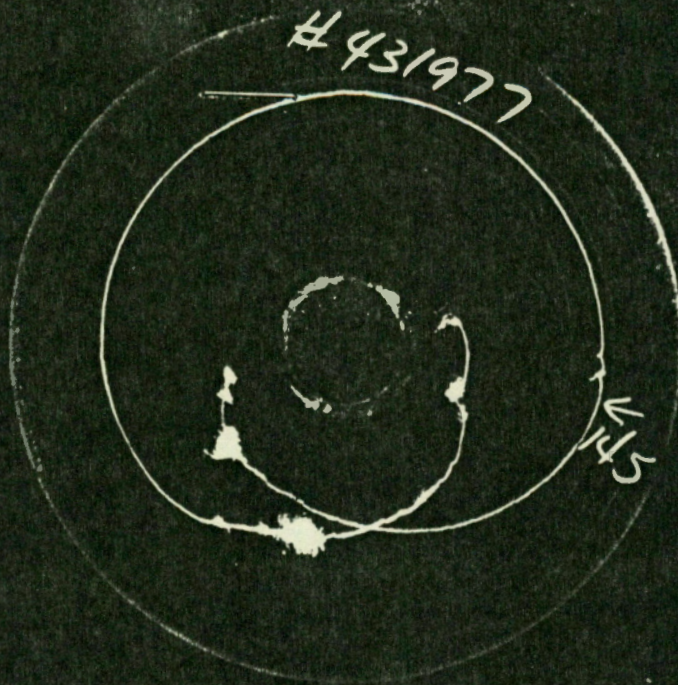
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Minutes

REMARKS: * = 10 minute interval.

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing	6"	2.25"	1'	
Reversing Sub				
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	5860'	
Drill Collars	6 1/4"	2.25"	180'	
Handling Sub & Choke Assembly	4 1/2"	3.826"	5'	
Dual CIP Valve	5"	.75"	7'	6045'
Dual CIP Sampler	5"	.75"	5'	6052'
Hydro-Spring Tester				
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	2.87"	4'	6055'
Hydraulic Jar	5"	1.00"	5'	
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.53"	6'	6069'
Distributor				
Packer Assembly	6 3/4"	1.53"	6'	6075'
Flush Joint Anchor	5"	2.36"	8'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5"		1'	
Blanked-Off B.T. Running Case	5"	3.06"	4'	6086'
Total Depth				6090'

TEMPERATURE RECORDER CHART



10° each circle

OF_3 = Theoretical Open Flow Potential with/ Damage

OF_4 = Theoretical Open Flow Potential with/Damage Removed Min. MCF/D

P_s = Extrapolated Static Pressure Psig.

P_f = Final Flow Pressure Psig.

P_{ot} = Potentiometric Surface (Fresh Water *) Feet

Q = Average Adjusted Production Rate During Test bbls/day

Q_1 = Theoretical Production w/Damage Removed bbls/day

Q_g = Measured Gas Production Rate MCF/D

R = Corrected Recovery bbls

r_w = Radius of Well Bore Feet

t = Flow Time Minutes

t_o = Total Flow Time Minutes

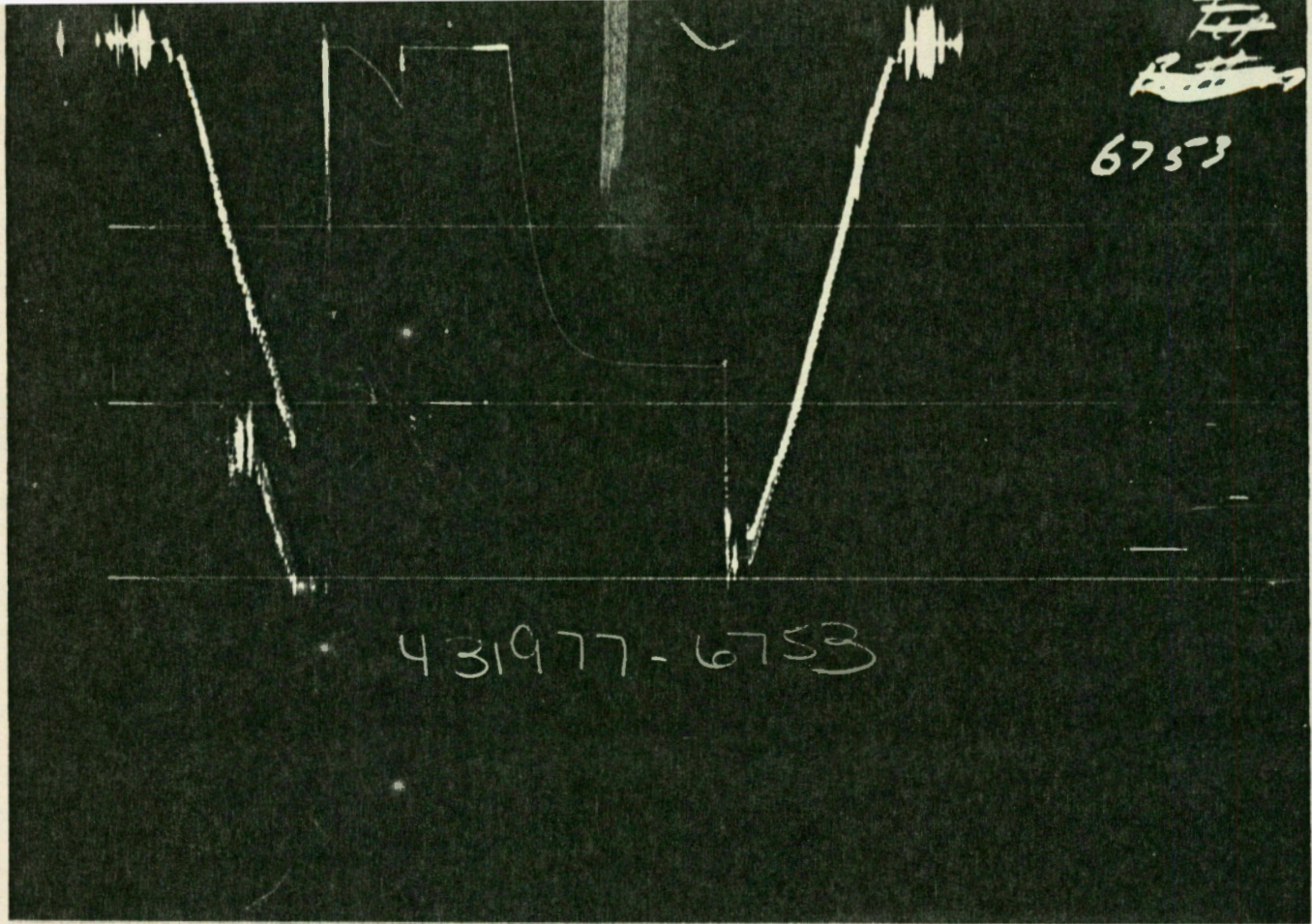
T = Temperature Rankine °R

Z = Compressibility Factor —

μ = Viscosity Gas or Liquid CP

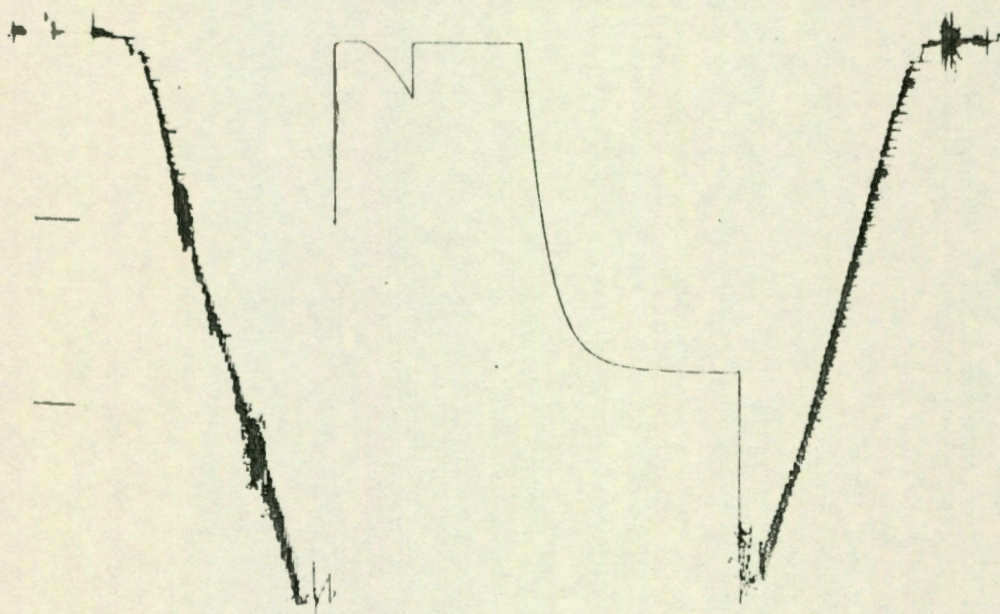
Log = Common Log

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given,
Fresh Water Corrected to 100° F.



PRESSURE

TIME



431977-6754

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