

Formation Testing Service Report

APACHE COP

OCT 14 1970

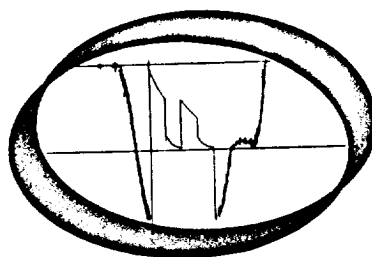
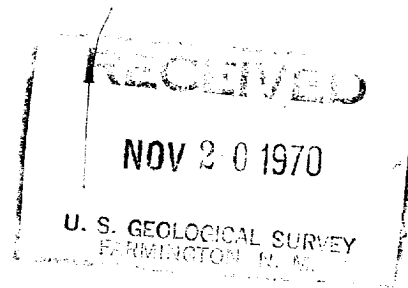
LEASE NAME
NAVAJO TRIBAL 52

WELL NO.
1-21

TEST NO.
1

TESTED INTERVAL
6197' - 6419'

LEASE OWNER/COMPANY NAME
APACHE CORPORATION



HALLIBURTON SERVICES
DUNCAN, OKLAHOMA

Legal Location
Sec. - Twp. - Rng.

21 - 26N - 19W

Lease Name

Well No.

Test No.

Tested Interval

Field Area
WILDCAT

County

SAN JUAN

State

NEW MEXICO

Lease Owner/Company Name

FLUID SAMPLER DATA				Date	Ticket Number	
Sampler Pressure _____ P.S.I.G. at Surface				10-6-70	217807	
Recovery: Cu. Ft. Gas _____				Kind of Job	OPEN HOLE	
cc. Oil _____				Halliburton District	FARMINGTON	
cc. Water _____				Tester	SMITH	
cc. Mud _____				Witness	LUIHMAN	
Tot. Liquid cc. _____				Drilling Contractor	MESA DRILLERS NM S	
Gravity _____ ° API @ _____ °F.				EQUIPMENT & HOLE DATA		
Gas/Oil Ratio _____ cu. ft./bbl.				Formation Tested	Barker Creek	
RESISTIVITY _____ CHLORIDE CONTENT _____				Elevation	6129' K.B. _____ Ft.	
Recovery Water _____ @ _____ °F. _____ ppm				Net Productive Interval	_____ Ft.	
Recovery Mud _____ @ _____ °F. _____ ppm				All Depths Measured From	Rotary Kelly Bushing	
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Total Depth	6419' _____ Ft.	
Mud Pit Sample _____ @ _____ °F. _____ ppm				Main Hole/Casing Size	7 7/8"	
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm				Drill Collar Length	481' I.D. 2 1/2"	
Mud Weight _____ 9.5 vis _____ 40 cp				Drill Pipe Length	5665' I.D. 3.826"	
				Packer Depth(s)	6194' - 6197' _____ Ft.	
				Depth Tester Valve	6152' _____ Ft.	
Cushion TYPE AMOUNT				Depth Back	Surface	
NONE				Pres. Valve	Choke	
				NONE	1/8" to 1"	
					Bottom Choke 3/4"	
Recovered 2281' Feet of drilling mud				Med. From Tester Valve		
Recovered _____ Feet of						
Recovered _____ Feet of						
Recovered _____ Feet of						
Recovered _____ Feet of						
Remarks Tool opened @ 11:23 PM for a 4 minute first flow with a good blow -						
which increased to a strong blow at 11:26. Rotated tool for a 60 minute						
first closed in pressure. Tool reopened with a good blow - which decreased						
throughout the test. Took a 180 minute second closed in pressure. TIGHT						
HOLE.. UTR = UNABLE TO READ..						
TEMPERATURE		Gauge No. 786	Gauge No. 730	Gauge No.	TIME	
		Depth: 6167' Ft.	Depth: 6415' Ft.	Depth: _____ Ft.		
		24 Hour Clock	12 Hour Clock	Hour Clock		
Est. _____ °F.		Blanked Off NO	Blanked Off YES	Blanked Off	Tool Opened 11:23 P.M. *****	
Actual 134° °F.					Tool Closed 4:58 A.M. *****	
Pressures		Pressures		Pressures		
	Field	Office	Field	Office	Field	Office
Initial Hydrostatic	3074.0	3092	3208.4	3092		
First Period Flow	Initial	992.0	UTR	1130.3	1273	
	Final	1018.8	983*	1130.3	1134	
	Closed in	2508.0	2517	2633.6	2639	
Second Period Flow	Initial	1059.0	1070	1183.6	1219	
	Final	1206.4	1219	1343.1	1332	
	Closed in	1541.5	1551	1675.5	1660	
Third Period Flow	Initial					
	Final					
	Closed in					
Final Hydrostatic	3047.0	3063	3048.0	3059		
*Questionable						

Gauge No.		786		Depth		6167'		Clock No.		6585		24 hour		Ticket No.		217807			
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"		PSIG Temp. Corr.	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.		
0 .000		.000		.000	1070	.000		.000	1219										
1 UNABLE TO		.0193		.0509	1160	.0612		.0612	1346										
2 READ..		.0386		.1018	1190	.1224		.1224	1406										
3		.0579		.1527	1204	.1836		.1836	1444										
4		.0772		.2036	1210	.2448		.2448	1471										
5		.0965		.2545	1216	.3060		.3060	1491										
6		.1158		.309	1219*	.3672		.3672	1507										
7		.1351			2507	.4284		.4284	1520										
8		.1544			2511	.4896		.4896	1532										
9		.1737			2513	.5508		.5508	1543										
10		.193			2517	.612		.612	1551										
11																			
12																			
13																			
14																			
15																			

Gauge No.		730		Depth		6415'		Clock No.		4491		hour		12	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$
0 .000	1273	.000		.000	1219	.000		.000	1332						
1 .029	1134	.0417		.1035	1279	.1250		.1250	1457						
2		.0834		.2070	1307	.2500		.2500	1516						
3		.1251		.3105	1319	.3750		.3750	1555						
4		.1668		.4140	1324	.5000		.5000	1581						
5		.2085		.5175	1328	.6250		.6250	1601						
6		.2502		.628	1332*	.7500		.7500	1618						
7		.2919				.8750		.8750	1632						
8		.3336				1.0000		1.0000	1640						
9		.3753				1.1250		1.1250	1652						
10		.417				1.2500		1.2500	1660						
11															
12															
13															
14															
15															
Reading Interval		6		15		18								Minutes	
REMARKS: * INTERVAL = 16 MINUTES.															

	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	6"	3"	1'	
Water Cushion Valve				
Drill Pipe	- 4 1/2"	3.826"	5665'	
Drill Collars	-	2 1/2"	481'	
Handling Sub & Choke Assembly	-			
Dual CIP Valve	-			
Dual CIP Sampler	-			
Hydro-Spring Tester	5"	3/4"	4'	6152'
Multiple CIP Sampler	5"		3'	
Extension Joint	5"	1"	4'	
AP Running Case	5"	3"	4'	6167'
Hydraulic Jar	5"	1"	5'	
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover	-			
Packer Assembly	7"	3"	6'	6194'
Distributor				
Packer Assembly	7"	3"	4'	6197'
Flush Joint Anchor	5 3/4"	3"	10'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars	6 1/2"	2 1/2"	197'	
Flush Joint Anchor	5 3/4"	3"	11'	
Blanked-Off B.T. Running Case	5 3/4"	3"	4'	6415'

NOMENCLATURE

b	= Approximate Radius of Investigation	Feet
b_1	= Approximate Radius of Investigation (Net Pay Zone h_1)	Feet
$D.R.$	= Damage Ratio	—
E_l	= Elevation	Feet
GD	= B.T. Gauge Depth (From Surface Reference)	Feet
h	= Interval Tested	Feet
h_1	= Net Pay Thickness	Feet
K	= Permeability	md
K_1	= Permeability (From Net Pay Zone h_1)	md
m	= Slope Extrapolated Pressure Plot ($Psi^2/cycle$ Gas)	psi/cycle
OF_1	= Maximum Indicated Flow Rate	MCF/D
OF_2	= Minimum Indicated Flow Rate	MCF/D
OF_3	= Theoretical Open Flow Potential with/Damage Removed Max.	MCF/D
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_{or}	= 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.