

FLUID SAMPLE DATA				Date 11-14-77		Ticket Number 281687	
Sampler Pressure <u>75</u> P.S.I.G. at Surface Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water <u>2250</u> cc. Mud _____ Tot. Liquid cc. <u>2250</u> Gravity _____ ° API @ _____ ° F. Gas/Oil Ratio _____ cu. ft./bbl. RESISTIVITY CHLORIDE CONTENT Recovery Water <u>.50</u> @ <u>83</u> ° F. _____ ppm Recovery Mud <u>1.09</u> @ <u>33</u> ° F. _____ ppm Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm Mud Pit Sample <u>3.12</u> @ <u>74</u> ° F. _____ ppm Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm Mud Weight <u>9.1</u> vis <u>60</u> sec				Kind of Job OPEN HOLE Tester HOEFER Witness MOORE Drilling Contractor FOUR CORNERS DRILLING COMPANY NM EQUIPMENT & HOLE DATA S		Legal Location Sec. - Twp. - Rng. _____ Lease Name _____ Well No. <u>1</u> Test No. <u>1</u> Tested Interval _____	
				Formation Tested <u>Dakota</u> Elevation <u>6815'</u> Ft. Net Productive Interval <u>14'</u> Ft. All Depths Measured From <u>Kelly Bushing</u> Total Depth <u>5456'</u> Ft. Main Hole/Casing Size <u>8 3/4"</u> Drill Collar Length <u>516'</u> I.D. <u>2.50"</u> Drill Pipe Length <u>4888'</u> I.D. <u>3.826"</u> Packer Depth(s) <u>5436' - 5442'</u> Ft. Depth Tester Valve <u>5414'</u> Ft.		Field Area _____ Mea. From Tester Valve _____ WILDCAT County _____ State _____ SANDOVAL NEW MEXICO	
TYPE AMOUNT Cushion NONE		Depth Back Pres. Valve NONE		Surface Choke <u>3/4" ADJ.</u>		Bottom Choke <u>3/4"</u>	
Recovered <u>60'</u> Feet of <u>water cut mud</u>							
Recovered <u>780'</u> Feet of <u>water</u>							
Recovered _____ Feet of _____							
Recovered _____ Feet of _____							
Recovered _____ Feet of _____							
Remarks <u>SEE PRODUCTION TEST DATA SHEET...</u>							
TEMPERATURE		Gauge No. <u>6040</u> Depth: <u>5419'</u> Ft.		Gauge No. <u>6039</u> Depth: <u>5452'</u> Ft.		Gauge No. _____ Depth: _____ Ft.	
Est. _____ ° F.		Blanked Off <u>NO</u>		Blanked Off <u>YES</u>		Blanked Off _____	
Actual <u>130</u> ° F.		Pressures		Pressures		Pressures	
	Field	Office	Field	Office	Field	Office	
Initial Hydrostatic	<u>2623</u>	<u>2629</u>	<u>2649</u>	<u>2658</u>			
First Period Flow	Initial	<u>54</u>	<u>48</u>	<u>68</u>	<u>49</u>		
	Final	<u>134</u>	<u>147</u>	<u>163</u>	<u>167</u>		
	Closed in	<u>2245</u>	<u>2243</u>	<u>2268</u>	<u>2266</u>		
Second Period Flow	Initial	<u>147</u>	<u>178</u>	<u>177</u>	<u>188</u>		
	Final	<u>401</u>	<u>418</u>	<u>435</u>	<u>435</u>		
	Closed in	<u>2245</u>	<u>2245</u>	<u>2281</u>	<u>2269</u>		
Third Period Flow	Initial						
	Final						
	Closed in						
Final Hydrostatic	<u>2556</u>	<u>2606</u>	<u>2621</u>	<u>2629</u>			

Casing perf. _____ Bottom choke _____ Surf. temp. _____ °F Ticket No. 281687
Gas gravity _____ Oil gravity _____ GOR _____
Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED.

[illegible]

Gauge No.		6040		Depth		5419'		Clock No.		14121		12 hour		Ticket No.		281687	
First Flow Period		Closed In Pressure		Second Flow Period		Closed In Pressure		Third Flow Period		Closed In Pressure		Third Flow Period		Closed In Pressure		Third Flow Period	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"
0	.000 48	.000		147	.000	.000	178	.000		418							
1	.0250 49*	.0138		1884**	.0613	.0609	234***	.0609		2108***							
2	.0438 75	.0345		2109	.1295	.1151	290	.1151		2164							
3	.0625 100	.0552		2165	.1976	.1692	332	.1692		2188							
4	.0813 122	.0759		2193	.2657	.2234	360	.2234		2203							
5	.1000 147	.0965		2209	.3339	.2775	388	.2775		2214							
6		.1172		2222	.4020	.3317	418	.3317		2219							
7		.1379		2230				.3858		2224							
8		.1586		2235				.4400		2228							
9		.1793		2239				.4941		2232							
10		.2000		2243				.5482		2235							
11								.6024		2238							
12								.6565		2241							
13								.7107		2242							
14								.7648		2243							
15								.8190		2245							

Gauge No.		6039		Depth		5452'		Clock No.		12118		hour		24	
First Flow Period		Closed In Pressure		Second Flow Period		Closed In Pressure		Third Flow Period		Closed In Pressure		Third Flow Period		Closed In Pressure	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t+\theta}{\theta}$
0	.000 49	.000		167	.000	.000	188	.000		435					
1	.0135 68*	.0068		1927**	.0308	.0305	250***	.0305		2128***					
2	.0236 92	.0169		2128	.0651	.0576	306	.0576		2185					
3	.0338 120	.0270		2188	.0993	.0847	346	.0847		2211					
4	.0439 145	.0372		2216	.1335	.1118	376	.1118		2226					
5	.0540 167	.0473		2234	.1678	.1389	408	.1389		2235					
6		.0574		2246	.2020	.1660	435	.1660		2243					
7		.0676		2253		.1931		.1931		2249					
8		.0777		2258		.2202		.2202		2254					
9		.0879		2262		.2474		.2474		2257					
10		.0980		2266		.2745		.2745		2260					
11						.3016		.3016		2262					
12						.3287		.3287		2265					
13						.3558		.3558		2266					
14						.3829		.3829		2268					
15						.4100		.4100		2269					

Reading Interval 3 3 10 8

REMARKS: * INTERVAL = 4 MINUTES, ** INTERVAL = 2 MINUTES, *** INTERVAL = 9 MINUTES. **** INTERVAL = 9 MINUTES.

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	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	2.50"	1'	
Water Cushion Valve				
Drill Pipe	4½"	3.826"	4888'	
Drill Collars	6½"	2.50"	516'	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5"	.89"	8'	5406'
Hydro-Spring Tester	5"	.75"	5'	5414'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.50"	4'	5419'
Hydraulic Jar	5"	1.75"	5'	
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	7 3/4"	1.53"	-	5436'
Distributor				
Packer Assembly	7 3/4"	1.53"	6'	5442'
Flush Joint Anchor				
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 3/4"	2.50"	8'	
Blanked-Off B.T. Running Case	5 3/4"	3.50"	4'	5452'
Total Depth				5456'

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_{e1}	= 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.

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