



00788382

Slope Tests

458	1/2°
548	3/4°
639	3/4°
700	1/4°
820	1/4°
918	1/4°
999	1/2°
1120	1/4°
1240	1/2°
1331	1/2°
1450	3/4°
1540	3/4°
1661	3/4°
1750	3/4°
1840	1°
1933	1 1/4°
2022	1 3/4°
2112	1 3/4°
2294	2 1/4°
2385	2 1/4°
2476	2 3/4°
2566	3°
2654	3 1/2°
2745	3 1/2°
2834	3 1/4°
2925	2 1/4°
2985	2 1/4°
3076	2 3/4°
3166	2 1/4°
3287	2 1/4°
3409	2 3/4°
3497	3°
3587	3°
3681	3 3/4°
3773	4°
3863	4 1/2°
3940	4 3/4°
4042	5°
4270	5 1/2°
4372	6 3/4°
4492	6°
4575	6°
4673	5°
4750	6 1/4°
4822	6 1/4°
4900	6 1/4°
5066	5 1/4°
5158	4 3/4°
5280	6 3/4°
5360	7°
5464	7 1/4°
5515	7 1/4°
5575	7 3/4°
5645	7 3/4°
5770	7°
5859	6 1/2°

Victor R. Gallagher #3 Government Heye

Location: C NE SW, Section 17, T. 9 N., R. 78 W., Jackson County, Colorado

Elevation: 8193 Kelly bushing

Spud date: 8-27-59

Completion date: 10-6-59

Total Depth: 5965 (driller)
5962 (Schlumberger)

Formation Tops: (Schlumberger)

Pierre	Surface
Niobrara	4398
Frontier	5075
Mowry	5474
Muddy	5606
Thermopolis	5696
Dakota	5720
Fuson	5775
Lakota	5848
Morrison	5986 ?

Casing: 10 3/4" @ 367' w/200 sacks
7" @ 5960' w/500 sacks

Perforations: 4 jets per foot through the following intervals:
5934 - 5852
5788 - 5758
5738 - 5724
5720 - 5718
5698 - 5622
5620 - 5610

Well History

8/27/59 Spud in 8:00 p.m.
8/28/59 Drilling surface hole
8/29/59 Set 354' of 10 3/4" @ 367 with 200 sacks
8/30/59 WOC - Nipple up
8/31/59 373 - 696
9/1/59 696 - 1312
9/2/59 1312 - 1849
9/3/59 1849 - 2209
9/4/59 2209 - 2402
9/5/59 2402 - 2576
9/6/59 2576 - 2814
9/7/59 2814 - 3089
9/8/59 3089 - 3464
9/9/59 3469 - 3770
9/10/59 3770 - 3944
9/11/59 3944 - 4107
9/12/59 4107 - 4273
9/13/59 4273 - 4413
9/14/59 4413 - 4555
9/15/59 4555 - 4746
9/16/59 4746 - 4881
9/17/59 4881 - 5001
9/18/59 5009 - 5194
9/19/59 5194 - 5368
9/20/59 5368 - 5496
9/21/59 5496 - 5581
9/22/59 5581 - 5605
9/23/59 5605 - 5662
9/24/59 5662 - 5708 Core #1
9/25/59 5708 - 5747 Core #2
9/26/59 5747 - 5784 Core #2
9/27/59 5784 - 5827
9/28/59 5827 - 5902
9/29/59 5902 - 5965
5965 TD
9/30/59 logging
10/1/59 Drill Stem Test #1
10/2/59 Running casing - set 7" @ 5960' w/500 sacks
10/3/59 WOC
10/4/59 Perforating
10/5/59 Running tubing, rigging up for swabbing unit
10/6/59 Swabbing down, testing

500-510	Shale - lt. gray, Calc. plus some shaley lime
510-520	Siltstone, sdy, Calc. cementation, lt. gray
520-580	Siltstone, lt. gray, occasional calcite
580-590	Sand 20%, very tite, slight limonite stain
590-620	Siltstone, lt. gray, sl. trace lm.
620-640	Shale, silty, trace calcite
640-670	Shale and siltstone
670-680	Shale and sandy siltstone
680-780	Shale and siltstone - trace loose sand grains in samples
780-940	Shale, med. dk. gray, siltstone streaks, bentonite common
940-1050	Sand - silty to med. gr., scattered black grains, carb at base, bent.
1050-1100	Shale and siltstone, med. gray, some sandy
*1100-1400	Siltstone, gray, sandy streaks
1400-1610	Shale and siltstone - lt. med. gray
1610-1630	Siltstone - lt. gray
1630-1730	Sandy siltstone - lt. gray
1730-1740	Sandy siltstone, as above; trace sand
1740-1750	Sand 50%, med. gray/green and black grains, tightly cemented
1750-1760	Sand 40%, as above
1760-1770	Sand 90% as above
1770-1780	Siltstone med. gray, sand 10% as above
1780-1830	Siltstone as above with trace of sand
1830-1870	Siltstone - slightly more sandy than above
1870-1890	Siltstone - less sandy
1890-1900	Shale - med. gray, silty
1900-1990	Shale and siltstone as above
1990-2100	Siltstone
2100-2110	Shale - med. gray
2110-2180	Shale and siltstone
2180-2200	Shale and siltstone - more sandy
2200-2320	Shale and siltstone, with trace tite sand, scattered black grains
2320-2380	Shale and siltstone, as above
2380-2400	Shale and siltstone, as above - more sandy
2400-2530	Siltstone - some sandy streaks
2530-2540	Siltstone as above; trace calcite
2540-2750	Siltstone as above - sandy streaks
2750-2760	Shale med. gray - light gray bentonite
2760-2770	Shale as above - trace sand
2770-2780	Shale as above - trace calcite
2780-2940	Shale as above - silty streaks
2940-2990	Shale - appears to be darker gray than above
2990-3000	Shale; 10% silty sandstone
3000-3120	Shale, as above, occasional trace of sand
3120-3130	Shale, as above; bentonite
3130-3260	Shale, as above
3260-3270	Shale, as above; bentonite
3270-3500	Shale as above
3500-3630	Shale, med. gray silty
3630-3670	Shale, lighter gray?, more silty than above
3670-3710	Shale as above, trace sand, glauc.
3710-3720	Shale as above, trace glauc. sand - calcite
3720-3730	Shale as above, trace sand as above.
3730-3760	Shale as above - 10% sand, med. grain, glauc.
3760-3770	Shale as above - trace sand
3770-3790	Shale as above - 10% white bentonite
3790-3800	Shale as above - decrease in bentonite
3800-3810	Shale as above - 10% white bentonite
3810-3860	Shale as above
3860-3880	Shale as above - 10% sand, glauc., Calc. cementation
3880-3890	Shale as above - trace sand
3890-3920	Shale and siltstone - med. to light gray
3920-3930	Shale and siltstone - trace sand, speckled
3930-3940	Shale and siltstone - 10% sand as above
3940-3950	Shale and siltstone - trace sand as above
3950-4400	Shale - silty - light to med. gray, occasional trace calcite
4400-4600	Shale, med. gray w/tan Calc. specks
4600-4650	Shale as above - less speckled shale, increase in lt. gray

VICTOR R. GALLAGHER #3 Gov't Hoyo - Sample Description (Continued)

- 5560-5570 Shale, med. gray, Silic., very hard - trace sand, gray vfg.
 5570-5580 Shale, as above
 5580-5590 Shale, as above - some gray silty sand - tr. gray, tan qtzitic sd.
 5590-5595 trip - cavings!
 5595-5600 Shale, as above - trace tan sand, vfg tightly cemented, some qtzitic, no fluor
 or cut.
 5600-5605 (trip 5603) Cavings - trace tan hd sand as above
 5605-5610 Trace sand as above
 5610-5615 Sand 10% tan vfg. fairly friable, pass low par., sl fluor?
 5615-5620 Sand 15% as above
 5620-5625 Sand 10% as above
 5625-5630 Sand 5% - as above - some very hard
 5630-5635 Sand 5% - some larger grain size, with sl fluor - fair par?
 5635-5640* Sand 5-10% - med. gr. sub ang., pass stain?, sl. fluor, fair par.
 5640-5645* Sand - 5% - 10% as above
 5645-5650* Sand - 5% as above
 5650-5655* Shale - med. gray - sand scarce
 5655-5660* Shale - med. gray, some silty, no sand
 5645-5650 Shale - med. dk. gray - trace sand
 5650-5655 Shale - med. dk. gray - 5% sd, mfg, buff, friable, sl fluor.; bentonite pyrite
 5655-5660 Shale, as above - 5% sd. as above
 5660-5665 Shale, gray, tr. siltstone - trace sand, as above
 5665-5670 Shale gray, silty to sandy - trace - 5% sand as above - bentonite
 5670-5675 Shale, as above - trace sand as above - bentonite
 5675-5680 Shale, as above; 20% lt. gray silty sd. - trace sand as above
 5680-5685 Shale, gray silty -
 5685-5690 Shale and Siltstone - trace sand as above - bentonite
 5690-5695 Sand 10% - gray tan, tightly cemented
 5695-5700 Siltstone and shale, some sandy - trace sand, tan, tightly cemented -
 15 min circ sand 10%, tan, sl. fluor.
 5700-5708 Core #1
 5710-5715 Shale and Siltstone, med - light gray, trace hard gray sand
 5715-5720 Shale and siltstone, as above becoming more sandy
 5720-5725 Shale and Siltstone, as above, increase in sand
 5725-5730 Sand 30% - tan - gray, vfg, u tite, interstitial clay, fluor
 5730-5756 Core #2
 5756-5760 Cavings
 5760-5765 Sand 10% - tite, pass - low par - 90% dk shale
 5765-5770 Sand 10% as above, some qtzitic - 90% shale
 5770-5775 Shale, med. dk. gray, trace sand as above
 5775-5780 Sand 15% - pass fair par - 85% shale as above
 5780-5785 Sand 10% - 90% shale - bentonite
 5785-5790 Sand 30% - bentonite
 5790-5795 Sand 30% - bentonite
 5795-5800 Sand 5% - blue green, bentonite (anhydrite)
 5800-5805 Shale med. dk, trace sand - blue green bentonite or anhydrite
 5805-5810 Shale, trace sand, blue green bent. 10%
 5810-5815 Shale, sl. trace sand, trace blue green bent.
 5815-5820 Shale & Siltstone, lt. gray - trace sand - reddish to buff
 5820-5825 Shale, trace redd shale - 10% green anhydrite
 5825-5830 Shale and Siltstone, trace red shale, trace sand
 5830-5835 Shale and Siltstone, as above
 5835-5840 Shale and Siltstone, as above
 5840-5845 Shale and Siltstone, as above
 5845 (Kelly Correction) Shale as above/trace red shale
 5845-5850 Shale - trace red, trace green anh., trace sand
 5850-5855 Shale and Siltstone, light med. gray - trace red, trace green anh.
 5855-5860 Shale and Siltstone, as above, white bentonite, tr. sand
 5860-5865 Shale, as above, increase in red and green anh.
 5865-5870 Shale - red and green prominent
 5870-5875 Shale - trace red and green, trace sand
 5875-5880 Shale, as above
 5880-5885 Shale, very little red and green, trace sand
 5885-5890 Sand 10% - med. grain, sub ang, sl. stain
 5890-5895 Shale, trace sand, as above; Chert pebbles
 5895-5900 Shale; trace sand as above, some v. titely cemented
 5900-5905 Sand 60%, slight fluor, pass stain, fair par

4650-4690 Shale - becoming lighter gray - slickensides
4690-4760 Shale - silty - med. to light gray
4760-4770 Shale as above - pyrite
4770-4780 Shale as above
4780-4800 Shale and siltstone - pyritic
4800-4810 Shale and siltstone - decrease in siltstone
4810-4830 Shale and siltstone - (30% speck shale, cavings?)
4830-4870 Shale, silty med. gray - pyritic, slickensides
4870-4880 Shale, silty Carb. specks - trace sand, green and black specks
4880-4890 Shale as above - no sand
4890-4980 Shale, med. to light gray - pyritic
4980-4990 Shale as above - 10% silty sand, glauc., Carb. specks
4990-5000 Shale as above - trace sand, as above
5000-5010 Shale as above - 5% sand, as above
5010-5020 Shale as above - trace sand as above
5020-5030 Shale - little more silty - trace sand - trace calcite
5030-5070 Shale, silty as above
5070-5080 Siltstone, sandy, Carb. specks and streaks
5080-5100 Siltstone and shale - med. light gray
5100-5110 Sand, 60%, silty, glauc., Carb.
5110-5120 Siltstone, sandy, light gray
5120-5130 Sand 50% light gray, tite, glauc.
5130-5140 Sand 30% as above
5140-5150 Sand 30% as above
5150-5160 Sand 10% as above; shale, 90% med. gray
5160-5170 Sand 10% as above; shale 90% as above
5170-5180 Shale and siltstone - med. gray, trace sand
5180-5190 Shale and siltstone, as above
5190-5200 Shale and siltstone, as above
5200-5210 Shale and siltstone, as above
5210-5220 Shale and siltstone, as above - trace sand
5220-5230 Shale and siltstone as above
5230-5240 Shale and siltstone - trace Calcite - slickensides
5240-5250 Shale and siltstone - 20% silty sand
5250-5260 Shale and siltstone
5260-5270 Shale and siltstone - trace Calcite
5270-5280 Shale and siltstone
5280-5290 Shale and siltstone
5290-5300 Shale, med. gray silty - siltstone, light gray
5300-5310 Shale and siltstone as above - 20% sand, tite, glauc.
5310-5320 Shale and siltstone - 10% sand as above
5320-5330 Shale and siltstone - trace sand as above
5330-5340 Shale and siltstone - 10% sand
5340-5350 Shale and siltstone - trace sand
5350-5360 Shale and siltstone
5360-5370 Shale and siltstone - becoming more silty
5370-5380 Shale - darker gray, more brittle
5380-5390 Shale - 50% darker as above; 50% light gray
5390-5400 Shale, med. light gray, silty
5400-5410 Shale, darker gray, sil. (60%); 40% light gray silty
5410-5420 Shale - 40% dark, sil. ; 60% light gray, silty
5420-5430 Shale - 40% dk. - 60% light
5430-5440 Shale as above
5440-5450 Shale - as above
5450-5460 Shale - increase in darker shale
5460-5470 Shale - med. dk. gray, brittle, sl. Calc. - trace sd, salt & pepper
5470-5480 Shale as above
5480-5490 Shale as above
5490-5500 Shale as above
5500-5510 Shale as above - trace Calcite - trace ten lime
5510-5520 Shale as above
5520-5530 Shale as above - 10% sand, tannish gray, glauc.
5530-5540 Shale as above - 10% sand as above
5540-5550 Shale - dk. gray to brownish gray - more silty - 10% sand aa
5550-5560 Trip - Cavings!

CORES

Core #1 5700-5708 (barrel jammed)
 Recovered 8' Shale and Siltstone, light gray, very hard.
 No saturation. Dips of 50°-60° indicated.

Core #2 5731-5756 Recovered 25'
 3 1/2' tite sand, very hard, fractured, slight odor, fluorescence.
 9 1/2' sand, very clayey, hard, no visible laminations,
 no fractures.
 2' sand, very clayey, as above. fractured, slight odor and
 fluorescence.
 5' sand, clayey as above, no fractures, no visible porosity.
 5' sand as above, slight fluorescence, possibly little more porous
 than above.

<u>Depth</u>	<u>Permeability</u>	<u>Porosity</u>	<u>Oil saturation</u>	<u>Total water</u>	<u>Coring time</u>
5731-5732	less than .01	6.0	11.7	10.0	40 Min.
32-33	14.0	15.4	9.7	29.2	16 "
33- 34	.36	7.1	12.7	22.6	17 "
34- 35	.56	5.7	24.6	21.0	17 "
35- 36	less than .01	4.3	0.0	93.0	15 "
36- 37	0.0	3.9	0.0	84.5	11 "
37- 38	0.0	4.3	0.0	83.7	12 "
38- 39	0.0	2.8	0.0	92.8	14 "
39- 40	0.0	4.0	5.0	77.5	12 "
40- 41	0.0	2.8	0.0	89.3	14 "
41- 42	0.0	4.0	0.0	82.5	16 "
42- 43	0.0	2.7	0.0	92.5	16 "
43- 44	0.0	6.7	22.4	32.8	16 "
44- 45	0.0	3.6	0.0	91.6	13 "
45- 46	0.0	4.6	0.0	80.5	14 "
46- 47	0.0	4.3	4.7	88.4	13 "
47- 48	0.0	4.5	4.4	93.3	15 "
48- 49	0.0	5.3	3.8	86.7	16 "
49- 50	0.0	4.5	4.4	84.5	14 "
50- 51	0.0	4.0	5.0	67.5	14 "
51- 52	0.0	3.3	6.1	69.7	12 "
52- 53	0.0	3.2	6.3	59.4	11 "
53- 54	0.0	3.3	0.0	78.8	11 "
54- 55	0.0	4.9	0.0	77.5	9 "
55- 56	0.0	4.7	0.0	66.0	8 "

VICTOR R. GALLAGHER #3 Gov't Hoya - Sample Description (Continued)

5905-5910 Sand 15% as above
5910-5915 Sand 30% as above, Chert
5915-5920 Sand 50%, better porosity, Chert. abundant
5920-5925 Sand, trace, Chert, bentonite
5925-5930 Sand, trace as above, Chert, bentonite
5930-5935 Sand, trace as above, Chert abundant (Cong?)
5935-5940 Sand 10%, poorly sorted, some very tightly cemented
5940-5945 Shale and Siltstone, gray, sil., tr. sand, trace green anh
5945-5950 Shale and Siltstone, gray
5950-5955 Shale and Siltstone, gray
5955-5960 Shale and Siltstone, gray
5960-5965 Shale and Siltstone, gray

5965 TD

*Geolegraph wrong - Correction 5660 = 5645