

DRILL STEM TESTS

No. 1, 9-17-51, 2 hour Halliburton Drill Stem Test from 9093'-9140' with 5/8" choke at 9063'. Used 2 packers at 9085' & 9093'. Bombs at 9068' & 9137'. Tool opened 11:22 AM 9-17-51. Gas to surface in 12 minutes - 6600 cu. ft. - Good blow of air throughout test. Recovered 7000' 36.0 gravity clean oil - Hydrostatic Pressure 1444#, 15 minute BHP 3284#.

Gulf Chamberlain
No. 2, 9-19-51, 2 hour Halliburton Drill Stem Test from 9139'-9180' with 5/8" choke at 9104'. Used 2 packers at 9130' & 9139'. Bombs at 9113' & 9178'. Tool opened 9:50 AM 9-19-51. Gas to surface in 14 minutes - 6200 cu. ft. - Recovered 3630' fluid, 180' oil and gas cut mud - 60% oil, 3090' 41.0 gravity clean oil, 360' sulphur water. Hydrostatic Pressure 4170#. Flowing Pressure 110 to 785#, 15 minute BHP 2985#.

No. 3, 9-20-51, 2 hour Halliburton Drill Stem Test 9180'-9220' with 5/8" choke at 9146'. Used 2 packers at 9172' & 9180'. Bombs at 9155' & 9217'. Tool opened 11:28 AM 9-20-51. Gas to surface in 60 minutes - 2600 cu. ft. Recovered 630' fluid, 450' oil and gas cut drilling mud - 60% oil, 180' sulphur water, Hydrostatic Pressure 4200#. Flowing Pressure 195-340#, 15 minute BHP 2535#.

No. 4, 4-18-52, 1 hour 30 minute Halliburton Drill Stem Test from 12,559'-12,612' with 5/8" choke at 12,527'. Used 2 packers at 12,551' & 12,559'. Bombs at 12,528' & 12,608'. Tool opened at 6:10 AM on 4-18-52, no gas to surface - Medium blow of air throughout test - Recovered 465' fluid, 195' oil and gas cut drilling mud, very slight oil stain, 270' salty sulphur water - Hydrostatic Pressure 5875# - Flowing Pressure 0-250# - 15 minute BHP 4400#.

No. 5, 4-19-52, 1 hour 30 minute Halliburton Drill Stem Test from 12,509'-12,612' with 5/8" choke at 12,477'. Used 2 packers at 12,501' & 12,509'. Bombs at 12,478' & 12,610'. Tool opened 8:20 AM - No gas to surface - Medium blow of air throughout test - Recovered 440' fluid, all gas cut mud - Gas cut 40% with trace oil and slight salty taste. Hydrostatic Pressure 5875# - Flowing Pressure 100# - 15 minute BHP 200#.

No. 6, 4-21-52, 1 hour 30 minute Halliburton Drill Stem Test from 12,611'-12,662' with 5/8" choke at 12,579' - Used 2 packers at 12,603' & 12,611' - Bombs at 12,585' & 12,659' - Tool opened 5:15 AM 4-21-52 - No gas to surface - Very light blow of air first 15 minutes and dead remainder of test - Recovered 235' fluid, all drilling mud with slight salty taste - No oil or water show - Hydrostatic Pressure 45-140# - 15 minute BHP 0#.

No. 7, 4-23-52, 1 hour 30 minute Halliburton Drill Stem Test from 12,673'-12,712' with 5/8" choke at 12,638' - Used 2 packers at 12,664' & 12,673' - Bombs at 12,642' & 12,709' - Tool opened 6:50 AM 4-23-52 - Light blow of air 10 minutes and dead remainder of test - Recovered 40' drilling mud, no show gas, oil or water - Hydrostatic Pressure 5885# - Flowing Pressure and 15 minute BHP 0#.

THEOREM 1.1

Let $f: \mathbb{R}^n \rightarrow \mathbb{R}^m$ be a function. If f is continuous at $a \in \mathbb{R}^n$, then f is continuous at a in the sense of the ϵ - δ definition.

Proof. Let $\epsilon > 0$ be given. Since f is continuous at a , there exists a $\delta > 0$ such that if $\|x - a\| < \delta$, then $\|f(x) - f(a)\| < \epsilon$. This is exactly the ϵ - δ definition of continuity at a .

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