

DRILL STEM TESTS:

- DST #1: From 10,750' to 10,820', 1" x 5/8" chokes, tool open 3 hours, weak air blow throughout the test. Recovered 840' slightly gas cut mud and 90' very slightly oil and gas cut mud, no formation water. 30 minute initial shut in pressure 95#, flowing pressure initial 164#, final 329#, 1 hour final shut in pressure 400#, hydrostatic pressure 5219#, bottom hole temperature 146 deg.
- DST #2: Pennsylvanian from 12,566' to 12,574', 5/8" bottom hole choke, bottom 2500' drill pipe charged with nitrogen to a pressure of 1000 Psi and adjustable surface choke. opened tool, tool plugged immediately. Pulled out of hole, bled down nitrogen in bottom 2500' drill pipe to 100 psi at which pressure gas showed. Recovered 290' gas cut mud. Hydrostatic pressure 7460#.
- DST #3: From 12,566' to 12,575', 5/8" bottom choke, 3/4" adjustable surface choke, bottom 2500' of drill pipe charged with nitrogen to a pressure of 1000 psi. Opened tool, nitrogen to surface in 7 minutes, gas to surface in 60 minutes, tool open 1 hour 15 minutes and packer failed. Measured gas for 15 minutes, maximum rate 1,250 MCF/D and steadily increasing, 3/4" choke, drill pipe pressure 75#. Pulled tool, 1000 psi below nitrogen valve. 5 barrels condensate in drill pipe below valve and estimated 12 barrels gas cut drilling mud below condensate. 30 minute initial shut in pressure 6760#, flowing pressure initial 1380#, final 1600#. Hydrostatic pressure 7260#, bottom hole temperature 230 deg.
- DST #4: From 12,573' to 12,600', 5/8" bottom, 3/4" adjustable surface choke, bottom 2500' of drill pipe charged with Nitrogen to a pressure of 1000#, tool open 3 hours, air to surface in 15 minutes, gas to surface in 55 minutes at rate of 490 MCF/D at 70# tubing pressure, 3/4" choke. Recovered 2 barrels condensate, 1-1/2 barrels gas and condensate cut mud, 180' gas and slightly condensate and slightly salty water cut mud below circulating sub. 30 minute initial shut in pressure 6820#, flowing pressure initial 1180#, final 1420#, 1 hour final shut in pressure 6040#, hydrostatic pressure 7260#.
- DST #5: From 13,075' to 13,120', 5/8" x 1" chokes, 3000' nitrogen blanket charged to pressure of 1000 psi. Tool open 2-1/2 hours, no air blow to surface. Waited 1-1/2 hours, closed and reopened tool, waited 1 hour, no air blow to surface. Bled off nitrogen pressure, recovered very small amount of gas after bleeding nitrogen pressure to 0#, 67' of gas cut mud, no oil or water. 30 minute initial shut in pressure 700# increasing, flowing pressure initial 1160#, final 1160#, 1 hour final shut in pressure 3600# increasing. Hydrostatic pressure 7980#, bottom hole temperature 232 deg.
- DST #6: From 13,665' to 13,750', 5/8" x 1/4" chokes, 4200' of nitrogen blanket charged to 1100 psi. Opened tool and packer failed immediately. Recovered 1300' gas cut drilling mud, hydrostatic pressure 10,000#, bottom hole temperature 223 deg.
- DST #7: From 13,640' to 13,751' with 5/8" x 1/4" chokes with 4200' nitrogen blanket charged to 1100 psi. Opened tool and packer failed immediately. Recovered 630' heavily gas cut mud, hydrostatic pressure 10,000#. Bottom hole temperature 160 - 170 deg.
- DST #8: Attempted test in Mississippian from 14,060' to 14,185', 5/8" x 1" chokes, no water blanket. Plug in circulating sub at 13,980' failed when tool opened, pulled out of hole, left 1-1/4" packer rubbers in hole.
- DST #9: Attempted test in Mississippian from 13,900' to 14,185', packer failed. Recovered 2070' drilling mud, no test.
- DST #10: Mississippian from 13,900' to 14,185', 5/8" x 1" chokes, no water blanket, tool open 4 hours, had strong air blow when tool opened, gas to surface in 8 minutes. First hour flowed at rate of 32,000 cubic feet per day, after 80 minutes, flowed at rate of 25,000 cubic feet per day. At end of 4 hour test rate of 35,500 cubic feet per day. Recovered 532' heavily gas cut drilling mud, no show of oil or formation water. 30 minute initial shut in pressure 6070#, flowing pressure initial 310#, final 255#, 1 hour final shut in pressure 255#, hydrostatic pressure 6275# to 6260#, bottom hole temperature 188 deg.