

In the case of wells where drilling methods resulting in the recovery of cores are employed, the recorded owner or operator shall cause samples to be taken of the drillings carried up by the flush water, at similar prescribed intervals, and shall keep and preserve all cores obtained, in properly constructed and marked core boxes, which will be furnished by the Supervisory Engineer upon application, and such cores shall be available for inspection and examination by the Supervisory Engineer or any officer acting for him. Such cores shall only be broken up for detailed geological examination in the lessee's laboratory, provided the Supervisory Engineer is furnished with a full report of such examination. The final disposal of cores to be at the discretion of the Supervisory Engineer.

28. If the lessee of a petroleum and natural gas location, acquired under the regulations, upon which boring operations are being conducted by him or on his behalf, encounters in such operations a flow of oil, gas or water in the well, he shall immediately notify the Supervisory Engineer, or an officer acting for him, of the character, extent and quantity of such flow.

29. It shall be the duty of any lessee or operator of a location producing, or reasonably presumed to contain petroleum or natural gas, upon which a well has been or may be drilled, to properly case such well or wells, with suitable metal casing, in accordance with methods duly approved by the Supervisory Engineer, and to use every effort and endeavour in accordance with the most approved methods to effectively shut off water overlying or underlying the oil or gas bearing strata, and to test the efficiency of such shut off, and to effectually prevent any water from penetrating such oil or gas bearing strata.

No well shall be drilled through or below any oil, gas or water stratum, without sealing off such stratum, or the contents thereof, after passing through the sand either by the mud laden fluid process, or by casing, or by cement, or by packers, regardless of the volume or thickness of said sand, unless authorized so to do by the Supervisory Engineer.

Whenever during drilling or production, water makes its appearance in an oil or gas well, the lessee or operator shall at once notify the Supervisory Engineer, with as full details as are available, and shall take and preserve in a clean and enclosed vessel, a quantity of not less than one gallon of water to be placed at the disposal of the Supervisory Engineer for analysis, should the latter so determine, and shall, if so required, afford such facilities as may be necessary for sampling the water by the Supervisory Engineer, or other officer appointed by him.

When it appears to the Supervisory Engineer that any water is penetrating oil or gas bearing strata, he may order a test of water shut off, and designate a day upon which the same shall be made; such order shall be in writing, and shall be served upon the owner or operator of said well at least five days prior to the day designated in said order as the day upon which said shut off test shall be made.

Upon receipt of such order it shall be the duty of the lessee or operator to make said tests in the manner and at the time prescribed in said order.

30. It shall be the duty of the owner or operator of any well referred to in these regulations to notify the Supervisory Engineer, or an officer named by the Superintendent General, of the time at which the owner or operator shall test the shut off of water in any such well. Such notice shall be received by the Supervisory Engineer or such officer at least five days before the test is made. The Supervisory Engineer, or an officer acting for him, shall be present at such test, and shall submit a report, in writing, of the result, to the Superintendent General, a duplicate copy of which shall be sent to the owner or operator. If any test shall be unsatisfactory to the Supervisory Engineer, he shall so notify the owner or operator in said report, and shall, within five days after the completion of such test, order additional tests of such work as he deems necessary to properly shut off the water in such well, and in such order designate a day upon which the owner or operator shall again test the shut off of water in such well, which day may, upon the application of the owner, be changed from time to time, in the discretion of the Supervisory Engineer.

31. It shall be the duty of the lessee or operator engaged in drilling a well on a petroleum and natural gas location, to keep a careful and accurate log of the well so drilled, such log to show the character and depth of the formation passed through or encountered in the drilling of such well, and particularly to show the depth and thickness of the water-bearing strata, the level to which the water rises in the well, together with the amount and character of the water encountered from time to time (so far as ascertained) and to show at what point such water was shut off, if at all, and if not, to so state in such log, and show completely the amounts, kinds, and size of casing used, and to show the depth at which oil or gas-bearing strata were encountered, the thickness of the productive horizon, with the amounts of production in each case. In addition, the depth and character of strata and whether all the water overlying or underlying any such oil-bearing stratum was successfully and permanently shut off, so as to prevent percolation or penetration into any oil or gas-bearing stratum. Such log shall be kept in the office of the owner or operator and shall be, at all times open to the inspection of the Superintendent General, or of any officer named by him. Upon the completion of any well, or upon the suspension of operations upon any well for a period of thirty days, a copy of the said log, in duplicate, and in such form as the Superintendent General shall direct, shall be filed within ten days after such completion, or after the expiration of the thirty-day period, with the Supervisory Engineer, and a like copy shall be filed upon the completion of any additional work in the deepening of any such well.

32. Whenever natural gas in commercial quantities or a gas-bearing stratum known to contain natural gas in such quantity, is encountered in any well drilled for oil or natural gas under these regulations, such gas shall be confined to its original stratum until such time as the same can be produced and utilized without waste, and all such strata shall be adequately protected from infiltrating waters.

33. During the drilling of a well in any field where it is not known that high pressure does not exist, the casing in the well shall be so anchored and provided with a proper control head, that imme-