Hand Sanitizer and Primary Recovery

Have you ever used hand sanitizer? You typically must push down on the nozzle for hand sanitizer to come out and when you stop pushing, the hand sanitizer stops coming out. The process of artificial lift systems in primary oil recovery works very similarly.

Artificial lift systems are machines and processes that bring oil from a reservoir to the surface of the ground for companies to sell and make a profit on; in this analogy the surface would be the tip of the nozzle and the oil and gas would be the hand sanitizer within the bottle. These processes use valves that go down to the reservoir, in this example the bottom of the hand sanitizer bottle. Work is necessary to bring out oil and gas from the reservoir to the surface. The hand sanitizer bottle does this by changing work from the nozzle being pumped into pressure. Both in a reservoir and in this bottle, liquids flow from high pressure to low pressure. After pumping the nozzle a couple times, hand sanitizer comes out and stops once work stops being putting in. This would also occur in a field at a reservoir if work stopped being put into the artificial lift systems being used to extract oil onto the ground.

As we’ve seen, artificial lift systems used to bring oil and gas to the surface work similarly to hand sanitizer bottles getting hand sanitizer from inside the bottle to the nozzle when the person pushes down on it. There are many methods to extract oil and gas from a reservoir just like there are many ways to get what is in a bottle to come out in a systematic way.

Figure 1 - Hand sanitizer bottle (artificial lift system) (“How do,” 2001)
References