LATEST GENERATION OF SOAP STICK LAUNCHER WITH FUTURE AUTOMATION

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ABSTRACT

In a few short years the delivery of chemical products has been one of the fastest growing technologies in the oil and gas industries. From acid sticks, corrosion inhibitors, and specialty soap sticks, an evolution of several generations of chemical delivery has evolved into near total automation that has proven to be safe, efficient, and cost effective.

From dismantling equipment and using laundry detergents to automated chemical stick launchers, the new generations dispenses chemicals according to the gas wells needs and predetermined chemical protocol for individual gas wells. Oil and gas producers have available to them, the future of solid chemical launchers and automation for increased production and reduction of costly man hours.

DISCUSSION

The addition of laundry powder introduced from the well head was the first method of increasing gas well production. Imagine climbing a 10 foot ladder, dismantling the well head, climbing the ladder again while balancing laundry detergent, then decide how much to put in, try to pour into well head, then, well maybe you don't think you have added enough, you crawl down the ladder, get more detergent, crawl back up the ladder, pour into the well head, then put the well head back together. Oh, I forgot the temperature is 20º and the wind is blowing 30 mph. Not a very safe nor efficient method of unloading fluid levels. Then you had to worry about corrosion control, paraffin control and all the other malady's that are know known to decrease production and costly workovers.

But give credit where credit is due. These enterprising companies are truly the founders and first generation operators of dewatering systems.

Manual dropping of soap sticks, top loading soap stick launchers, vane turret automated soap stick launchers, and ground mounted automated launchers and finally the SCADA control ground loading models are, respectfully, the generations of soap stick launchers and automation.

The first widely used methods of delivering soap sticks were done manually. Field personnel would have to fabricate a lubricator device consisting of an 18" nipple with two ball valves. Then climb a ladder to the well head and install the lubricator. The technician would close the bottom ball valve and carefully bleed of the pressure using the top ball valve. A solid chemical stick then would be inserted and valves were opened and closed. The technician would have to repeat the procedure as many times as needed for every chemical stick required and when the chemical stick dissolved and the product was delivered, the effect was diminished until the technician gauged the well the following day .See figure 2 This method was and is partially effective, however is costly in man hours and had great safety concerns. Field personnel had to climb up to 10' ladders and bleed off well head pressure using plain ball valves. At this time no preventive action was available concerning, working at heights and preventing well blow out. The latest generations of soap stick launchers are designed with safety and continuous deloading of marginal wells. The technology is based on being able to load a large volume of solid chemical sticks from the ground, eliminating the need of technicians having to climb ladders or dismantle parts of the well head. Using a unique safety check valve and boom arm is one of the primary features of this autoloader. One of the primary features of this autoloader is its unique safety check valve for the prevention of well blow out. See figure 1. Due to this unique safety check valve you can also lock it out so you can remove lodged soap sticks without dismantling machine.

Telemetry systems are programmed to drop a chemical stick on a time schedule, thus continuously dewatering the well according to its individual needs, and increasing production and optimization of chemical use. Using the patented check valve allows capabilities of shutting wells in for predetermined times and automatically restarting the well.

As shown in figure 3, marginal wells mcf production show a dramatic increase in production due to the continuous induction of chemical.

The latest generation of soap stick launcher and automation incorporate all the safety features from the previous launcher now with a 100 chemical stick rack and the SCADA system.

By having the ability to ground load up to one hundred chemical sticks this system with the SCADA program. Producers with remote or offshore wells, now have continuous dewatering of the well without daily, weekly or even monthly physical monitoring of wells. With the 100 chemical stick rack soap, acid, corrosion inhibitors, paraffin inhibitors, and scale inhibitors can be alternated in the rack for a virtual maintance free chemical program.

Supervisory Control and Data Acquisition (SCADA) systems on all test wells increased production by 35 percent over manually dropping chemical stick. See figure 4.

CONCLUSION

From laundry detergent to a virtual maintance free solid chemical stick auto launcher, without using dangerous ladders, and decrease in physically handling chemicals, marginal wells benefit greatly by the new technology. Environmental issues have now make solid chemical stick applications more attractive to producers due to no liquids spills, bulk tanks or containments. Cost analysis autoloaders and automation typically show a 3 day to 30 day payout due to increase mcf, and cost analysis does not include saved man hours.

Figure 1 - Patented Safety Check Valve

Test Well Using Manual Application of Soap Sticks

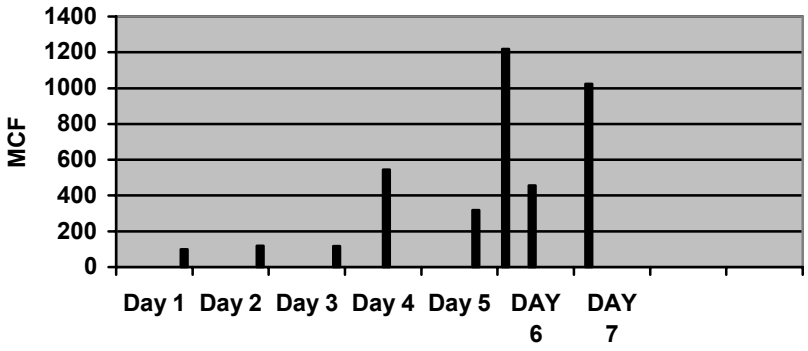

Figure 2 - Test Well Manual Applications

Test Well Using Auto Launcher with Telemetry

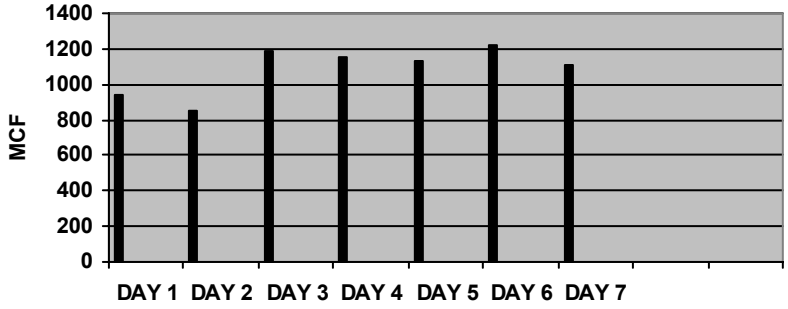

Figure 3 - Test Well With Auto Launcher With Telemetry

Test Well With Auto Launcher And Scada System

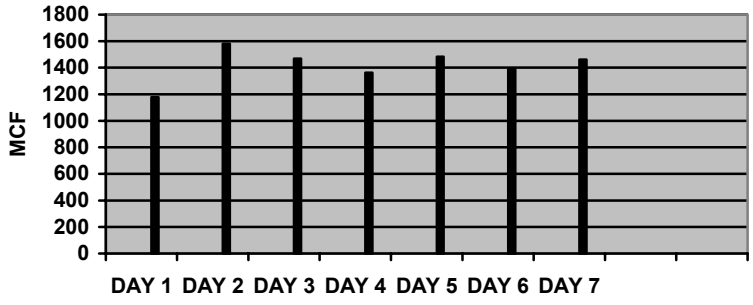

Figure 4 - Test Well With Auto Launcher and SCADA System