



# Case Study

## Pumping Drill Cuttings in Alaska

*National Oilwell, North Slope, Alaska*

### The Challenge

Severe abrasion due to cuttings

High pump repair costs

Large solids clogging pump

### The Discflo Solution

Discflo has no close tolerances to handle solids content

“Non-impingement pumping” reduces abrasion

Saved \$1000s in pump repair and downtime costs

In 1994, National Oilwell was asked to evaluate a problem a drilling company was having with their drilling rig on the North Slope of Alaska. The company had been operating progressive cavity pumps to pump drill cuttings, which result from the oil drilling activity ranging several thousand feet beneath the arctic tundra. The resulting “cuttings” consisted of rock, gravel, sand, water, residual drilling mud and some remarkably well preserved wood from an ancient forest buried one thousand feet below the surface. Solids content of 1.75" or less averaged 50-55%, with the balance being predominantly water. The most damaging material came from the first 1000ft of drilling when the rig was cutting through unconsolidated solids very fast.

In years past, virtually all drilling by-products were diverted into a pit and the solids used to back fill the hole, solving the disposal problem. However environmental considerations required more ecologically sound disposal and therefore more handling of the waste. During the design period for the rig, someone had specified several progressive cavity pumps. This decision ended up costing the company \$1000/day in repairs!

National Oilwell spent some time on location evaluating their system and then started searching for a solution. After considering then dismissing the ‘traditional’ types of pumps, they stumbled across the Discflo system, a pump with a totally unique operating mechanism that works on the principle of boundary layer-viscous drag. “It caught my attention because of a flying background and interest in the physics of flight. How could I be so stupid not to have thought of this?” said one of their engineers. “We presented the Discflo concept to the drilling people and it seemed to stick like a monkey’s hand in a cookie jar. They installed a model 403-2D norchrome on test during “surface hole” and were very pleased with the results.”

They deliberately set the pump up to run under worst case scenario conditions, to include fluid velocities somewhat higher than the more desirable 11-12ft per second for abrasive conditions such as these. When the drilling company disassembled the pump after a couple of weeks running, they couldn’t believe how little damage there was. They redesigned their system around the Discflo technology and ordered several more pumps. This was a difficult pumping problem solved by a remarkably simple technology.



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**Call Discflo now to find out how our pumps can solve your problems.**