

SANDTINEL CASE STUDY: MONTNEY GOLD CREEK

Author: Chris Johnston, E.I.T.

cjohnston@sandtinel.com

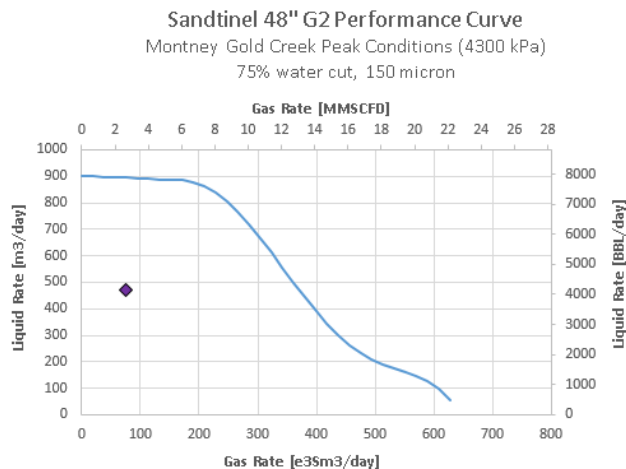
Sandtinel performed a 50-day field trial in 2019 for a partner in an initial drill-out in northern Alberta, Canada. This case was notable for the very large volumes of sand collected from four wells by four 48" Sandtinel Defender sand separator units over the course of a couple months.

The case details are listed below with the peak operating condition as recorded by the client.

PARAMETER	VALUE
Basin	Montney
Location	Gold Creek
Peak gas	75 e ³ Sm ³ /day (2.65 MMSCFD)
Peak liquids	469 m ³ /day (2950 BBL/d)
Water cut	75%
Operating pressure	4300 kPa (623 psi)
Test duration	50 days

The rates above were reported from one of the wells; all four wells saw similar operating conditions. Each well was equipped with a single 48" G2 Defender Sand Separator with an attached blowdown tank. One well, taken offline partially through the trial, produced over 15 cubic meters of sand. Each of the other three saw 35 m³, for a total of **120 m³ of sand removed** successfully by the four sand separators (estimated at **178,000 lb of sand** in 50 days). The use of the Sandtinel units meant that the client did not need to bypass sand separators in initial drill-out, and they were able to maintain high efficiency until the wells had dwindled to trace sand.

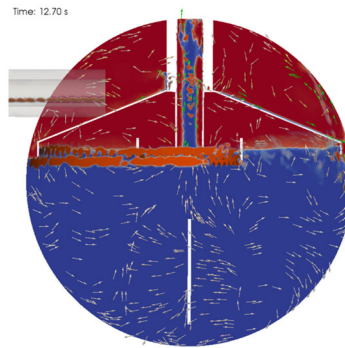
Sandtinel prepares high level operating curves which demonstrate the envelope of flow rates where our separators will be effective. These curves allow our partners to make strategic decisions about when to move and how to operate their sand separators. The G2 Defender performance curve is shown below.



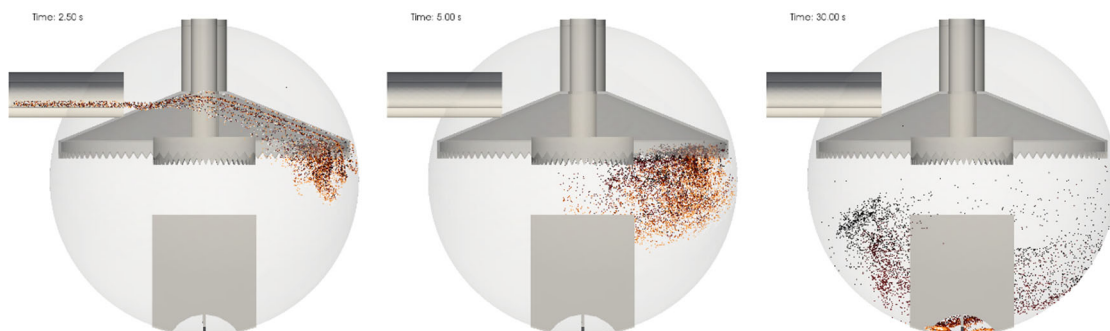
This operating curve shows the estimated envelope where the G2 Defender will provide best in class sand separation efficiency, beyond any other mechanical separator on the market. While inside this curve, our partner was guaranteed to be able to see at least 95% separation efficiency. However, reports from the field were that each Defender performed closer to **99% or even 100%**.

The efficient storage capacity of the G2 Defender at these operating conditions is at least **580 lb**. Until the sand reaches that level of build-up, it will not see any change in separation efficiency from empty. Sandtinel provides curves and storage capacity estimates to quantify the performance of our sand separators. Scale and load cell systems are available to help monitor the weight build-up of the separator in the field to make strategic decisions on dump frequency.

The operating curve predicted that there would be no carryover expected at the given condition. To confirm this, the condition was tested using a Computational Fluid Dynamics (CFD) simulation. The full results are available in a detailed CFD report by request, but the main conclusion was that the G2 was expected to have >99% sand separation efficiency down to a sand size of **100 mesh** (150 microns in diameter). A cross-sectional image below shows the flow pattern inside of the sand separator, including Sandtinel's trademarked Vapor Lock effect to maximize separation.



Images are shown below from the dynamic sand simulation, which models the flow of sand.



Overall this field trial was a complete success. The Sandtinel units were able to reduce erosion and chargebacks for our client, while allowing them to operate with the **lowest emissions** and **lowest back pressure** of any sand separator to maximize overall production. For more information on this field trial, contact a Sandtinel representative today!