

Stillwater Mine | Ore Tracking Case Study

Sibanye-Stillwater

Nye, Montana, USA

Transition from HDPE beading of muck to TopVu RFID muck tracking.

In late 2018 Stillwater Mine decided to establish a system to track/intercept mis-shipments of muck underground (ore being shipped as waste, or waste shipped as ore).

At the time, we were using HDPE beads which we would deploy into the rock piles. Mill personnel would notify us whenever they saw these plastic beads coming through the trash screen separator. This process had the ability to act as an indicator of mis-ship, but only after the waste had made it through the mill.



Mill trash screen separator overflow where we check for beads.

After a successful test of the TopVu RFID tracking system on one of our underground rail dumps, we moved to implementation of the system on the surface muck streams.



Example of underground rail dump installation.

To get the best coverage of our product, we installed ore tracking checkpoints at three different locations on surface:

- 1.) Our silo ore belt where product skipped up the shaft to be milled as ore travels.
- 2.) Our upper West and East side ore belt where gravity-fed product from above surface elevation is brought after being hauled out to surface via train.
- 3.) Our waste belt where product that has been deemed uneconomic to mill travels.

These surface installations act as a detection point close to the product's destination. We are about to install more checkpoints at our rail dumps, so we can find out what's happening earlier. This allows us the opportunity to stop, and if necessary, divert any mis-shipments.

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Time has passed since our early implementation of TopVu RFID muck tracking, and we have now transitioned to their Gen.2 software. This allows for app-based real time alerts of mis-shipments. We make sure these alerts are sent to all parties involved, all the way up to operations upper management. Should a large mis-shipment be detected, they have the ability to make the call to shut down the flow of muck. If it's ore going out as waste, that's a big catch. We can now recover ounces that would have been completely lost.

Additionally, evidence of waste rock being introduced to the ore stream can also help with reconciliation and explain why we got a lower than expected overall grade at the mill.

Brian P. Crowley

*Sr. Production Geologist Supervisor
Stillwater Mine*

Ashleigh Gordon

*Production Geologist
Stillwater Mine*



Silo ore belt TopVu installation (skipped ore muck from the shaft).



Upper West and East side ore belt installation (muck from above surface elevation hauled by train).



11 Mary Street, Unit T
Sudbury, ON P3C 1B4
1.705.419.2555
www.topvu.ca