



Efficiency of Tailings Sand Cat Operations

Angela Kupper, Ph.D., P.Eng.
Principal Geotechnical Engineer

Key Issues

- Low efficiency / high costs building cell for Zone U
- Too much wash out on cells
- Too much time preparing cells + need to place CBL (rock on beach to support cell construction)
- Lack of beach

Main recommendations:

1. Increase the width of the cells. Tentatively increase the cell width to 20 m with the objective of decreasing flow velocity and flow depth. Cell length seems adequate for now.
2. Track pack the cell perpendicular to the flow (as opposed to working the cell up and down). Berms (dry dykes) could be raised as cell compaction proceeds – reduce downtime
3. Build and install a spillbox to reduce downtime
4. Potential for installing spigots upstream of the cell to improve feed (by reducing water and slimes) or manage feed consistency into the cell - decrease volumes/velocities.
5. Prepare a tailings plan / mass balance consistent with the water balance.
 - a. Tailings plan needs to verify availability of sand to build the required cell and beach to support the cell raises.
 - b. Tailings plan could include planning for focus on cell construction in the summer and beach placement in the winter.
 - c. Cell construction could be optimized by having 2 cells on each side of the dam and possibly night shift; one cell could be prepared while the other one is being built; one side of the dam can be draining while the other is being built/prepared.
 - d. Cell construction would likely take 2 “passes”: built 1.5m in one cell, come back over with an additional 1.5m.
6. Collect data on material parameters (gradation, cell deposit density, beach angles, etc), mill operation (gradation, slurry solids content) and cell operation (volumes, time, cost, etc). Data would be used to calibrate (and improve) tailings plan to actual performance and to develop performance improvement changes in the field.
7. Train field supervisors and operators. Bring them up to speed with the technical objectives of the cell construction and the desired outcome.