

Heap Leach Optimization CASE STUDY



THE CHALLENGE

- The customer needed to find a way to reduce the residual humidity content in the heap leach tails
- The customer thus wanted to:
 - Identify ore properties as a basis for an optimum blending strategy before construction of the heaps
 - Improve the construction of the heaps ensuring even distribution of fine materials
 - Optimize materials handling to minimize moisture build-up during leaching

THE SOLUTION

- The heap leach app predicts particle size before the material is stacked and gives a view on the composition of the stacked materials (minerology, particle size etc.)
- It recommends the optimum irrigation strategy with focus on moisture levels in all areas of the heap not reaching saturation
- Provides root cause analysis why certain stacked materials to have higher residual moisture than others
- Obtain early warnings of Chlorine concentration increases to avoid Contamination in SX-EW.



THE RESULTS

- 27% reduction in fines through better fines management
- Root cause analysis available for residual moisture in final gravels
- Reduced environmental leakage events



Efficient Water Usage



Higher Recovery



Health & Safety

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BASF Intelligent Mine helped a large copper mine in Chile to reduce fines by 27%

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* Assumptions for energy savings: energy consumption for SW RO desalination plant is 4.4 kWh/m³ of water produced; energy savings due to less pumping of water is calculated with $U_{pot} = \text{mass of water} \times g \times \text{Height}$; the assumed efficiency of the pumps is 80%