Reference Case

An aggregate mine wash plant achieves profitable operations by changing chemistry

CarboNet

A Central Texas aggregate mine could not achieve 24-hour production requirements due to solids accumulation in wash equipment from recycled water. Adjusting the water treatment program allowed profitable operations to resume.

Background:
This wash plant treats sand and gravel using a closed-loop system. Wash equipment sprays the material to rinse away contaminants where it is screened and sorted. Water is recycled using a series of settling ponds.

Polymer is dosed to help settle solids in the wash water before it is clarified in a primary settling pond. The treated water flows into a secondary settling pond which feeds wash equipment.

Problem:
Solids carryover from the primary settling pond started accumulating in the secondary settling pond, eventually circulating back into the wash plant's equipment.

↳ **Wash equipment clogged by solids carryover**
Unsettled particulate from the ponds circulated into wash equipment and blocked nozzles used to spray material. Operators needed to pause for maintenance, shutting down production.

↳ **Settling ponds required more maintenance**
Operators had to excavate ponds more frequently to remove accumulated solids from transfer points.

↳ **Shutdowns impacted plant profitability**
The facility requires 24 hour operations to remain profitable. These conditions limited operations to 12 hours at a time—limiting inventory and sales.

The root cause was determined to be an ineffective wash water chemistry and dosing program.

Approach:
CarboNet tested on-site and designed a new chemistry program to optimize performance and cut cost-to-treat. Products selected include:

↳ **SimplePrime 2000** a coagulant for clarification which increases material settling rate.

↳ **PreFlight 10034A** a flocculant used to separate materials in wash water.

Our team also installed an automated pump to replace a manual process. It modulates chemistry to reduce overdosing, and provides consistent mixing before water is recycled for reuse.

Results:
The mine resumed 24-hour operations with lower OPEX and CAPEX. Consistent water treatment performance allows delivery of material to the plant's customers at a lower cost-per-dry-ton.

RESULTS

- The plant resumed 24 hour operations
- 30% reduction in cost to treat (est)
- Dosing pump reduced labor requirements
- Cut the cost per ton of product produced

CarboNet: As freshwater becomes increasingly scarce and regulated, companies from energy and mining to food and beauty turn to CarboNet to reduce, recycle, and renew the water they need to compete.