



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:

The current chemistry was being dosed in pulses, causing dunes in the ponds and carryover of heavy solids.

Accumulated solids in the secondary settling pond eventually circulated 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—impacting inventory and sales.

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 pulsing, 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
- 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.