

Chemical Injection for Bottom Ash

Temporary Chemical Injection System To Optimize Water Quality in a UCC Closed-Loop Recirculation System

Plant Challenge: High Levels of Total Suspended Solids (TSS) Causing Downstream Equipment to Experience Accelerated Wear

At an Eastern coal-fired power plant, upset conditions required the utility to convey multiple sluice lines into a single Remote Submerged Flight Conveyor (R-SFC) simultaneously. This method was outside of the recommended sequential operation, which led to higher flow rates and increased Total Suspended Solids (TSS) carryover during operation. The spikes in TSS caused greater than expected wear to the pumps and pump seals downstream of the R-SFC. The plant reached out to UCC for a solution that would reduce the TSS contamination in the R-SFC effluent, and in turn, reduce the erosion issues observed downstream in the bottom ash recirculation loop.

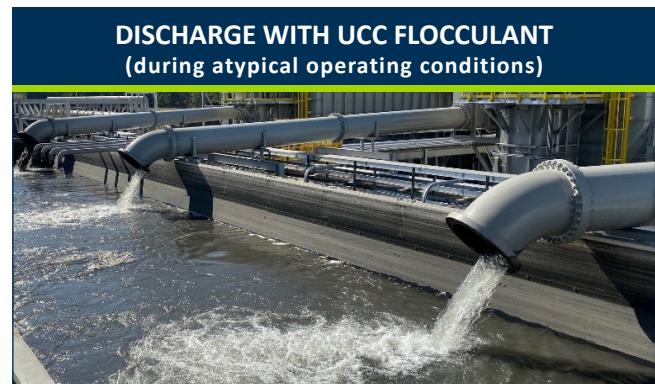
UCC Solution: Temporary Chemical Injection System for Bottom Ash Transport Water

UCC provided a temporary Chemical Injection System to demonstrate the performance of UCC flocculant. The UCC flocculant treated flows from multiple units during bottom ash conveying. The flocculant caused the solids to settle out at a higher rate and improved the quality of the effluent water.

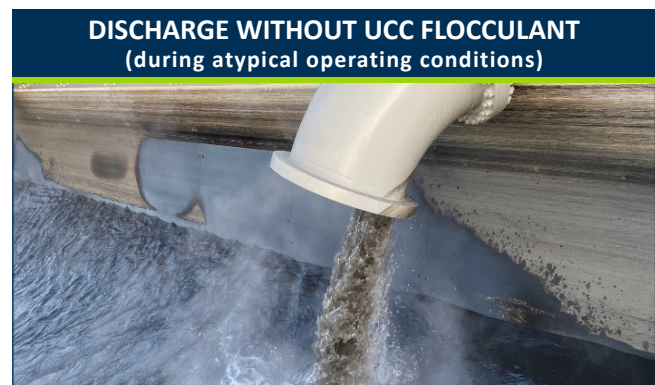
Results:

The UCC Chemical Injection System operated for one week during plant operations. Samples were taken from the R-SFC to monitor how the fines reacted to the UCC flocculant. TSS carryover was reduced by over 80% using UCC flocculant.

After observing the improved performance with the UCC temporary Chemical Injection System, the plant placed an order for a permanent UCC system, which will allow for greater control over TSS during upset or atypical operating conditions. UCC's wastewater expertise provides coal-fired power plants with the most efficient and economical methods to meet effluent limits and comply with environmental regulations.



Discharge from R-SFC is clear with UCC flocculant injection.



Discharge from R-SFC without flocculant has increased levels of TSS carryover.