

Utility Realizes Significant Improvement with Smart Ash



On his drive into work at the PacifiCorp Energy Dave Johnston plant, Cole Harris used to wonder as he neared the station how the opacity on Unit 3 would look. One of three units at the plant, Unit 3 was experiencing problems staying at or below opacity limits set by the state. All three units at the station have electrostatic precipitators to control emissions and all utilize Neundorfer controls and POS software.

One of the problems with Unit 3 was that the existing system was set up to use ash-conveying blowers and 48 feeders to pull the ash from the collection hoppers. A lot of man hours were required to keep so many feeders working at peak performance and to monitor and diagnose poor performing feeders. As Harris describes it, “The system was ‘dumb’ in the sense that it was looking to detect back pressures and assumed there was no ash build up.” In reality, there was so much ash in the front row hoppers that it had bridged over and compromised the capacity and performance of the precipitator. As a result, opacity increased. Harris knew that something could be done to help the opacity and cut the workload for the mechanic maintaining the system.

Having past experience with precipitators, Harris had attended a Neundorfer POS Users’ Group meeting and had learned about SmartAsh, a Neundorfer software system for operating and troubleshooting fly ash systems. He learned that the SmartAsh system provides an accurate, real-time view of fly ash systems to display system trends, logs and alarms in order to detect high feeder levels before high hopper levels occur. SmartAsh also offers a three-dimensional view of the amount of ash collected by each hopper.

Harris thought this might be exactly the solution for Unit 3. Working with Dave Sheetz, SmartAsh was installed on Unit 3 in the spring of 2005. Sheetz worked with the system daily, looking for trouble spots and mechanical problems. According to Sheetz, “The results of using the SmartAsh system have been nothing short of amazing.” Sheetz now has the ability to diagnose feeder performance in less than three minutes, where it took an hour to cycle through the system previously.

“Having worked on the feeders and knowing what the pressures should be, I can look at the computer and see right away if I have a plugged ash conveying line,” Sheetz said. Sheetz uses the feeder pressure to diagnose the problem with the system. Using the SmartAsh maintenance mode, Sheetz can operate gates individually while monitoring vessel pressure to diagnose problems.

“All of this helps to keep the ash flowing more effectively, with less chance to build ash clinkers while eliminating the bridging of ash,” Harris said. Sheetz confirmed that no high hoppers have occurred on Unit 3 since SmartAsh was installed. The opacity, which

was in the 20's, now runs in the 3-5% range. "There is a noticeable improvement," said Harris, "and I feel good that we were able to make a positive difference."