



ZMI/Portec M-5 Slaker

Case Study



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M-5 Lime Slaker Upgrade

ZMI/Portec M-5 Slaker

PROBLEM:

A typical municipality stabilizes its sludge with lime. The lime is added as a slurry with the sludge in a mixing tank prior to dewatering. Because of the variability of flows, the system could be classified as a batch-type process in which a 1,000 lb./hr. Paste-type slaker operates continuously for the 8-hour work day and then is shut down overnight. This process

used to work fine when the slaker was running, but start up was a continual problem. Operators had to stand next to the slaker with a hose to make sure the slaker did not overheat and lock the paddles. Once, because of a forgetful operator, the slaker became so hot that it blistered the paint and melted any elastomers in contact with the slurry. As time progressed, the water-to-lime ratio could not be maintained properly because of the unreliability of the torque-actuated water valve. Many time the grit residue incorporated large amounts of unreacted lime. As much as 1/6 of the lime was wasted as grit because the lime-to-water ratio could not be adjusted.

SEARCH FOR SOLUTION:

The city has tried to solve the problem by installing expensive replacement parts. In each case, the results were the same; poor slaking and impossible start-up. Eventually, as the operators and plant managers were losing their patience over the slaker and were debating whether the slaker wouldn't be better off in the local landfill, the decision to buy another slaker was made. This slaker had to be durable and easily maintained.

SOLUTION:

After considerable research, the plant manager pronounced he had found the highest quality and most durable slaker on the market. It was the Model M-5. A price was quoted that was agreeable to both the plant manager and the city fathers. Engineers offered considerable assistance and advice on the retrofitting of their slaker. Three months after the bid was received, the M-5 slaker was installed and working.

RESULT:

The new slaker has solved the city's lime handling problems. After a serviceman inspected the slaker installation and instructed the plant personnel to its proper operation, the city began slurry production on its own. After only two weeks, the city is noticing the slaker is far superior to its predecessor. The grit residue has been reduced from three barrels a day to ½ barrel a day. Lime usage has been cut by 10%. Also, the slaker requires no supervision for start-up and shut-down. Just turn on the switch and walk away.