

VIBRA SCREW CASE HISTORY



C-235

Treatment Plant at Kentland-Elkhorn Uses Live Bin Feeder

Customer

Kentland-Elkhorn Coal Corporation, Mouthcard, Kentucky.

Problem

EPA requirements call for treatment of mine effluent with lime for pH control. At Kentland-Elkhorn, there are six Feds Creek settling ponds which require treatment; the difficulty is to achieve accurate flow of the lime, which is hygroscopic and tends to cake and feed erratically. What was needed was a method for feeding the lime which could provide steady and uniform flow of a material of notoriously poor flow characteristics.

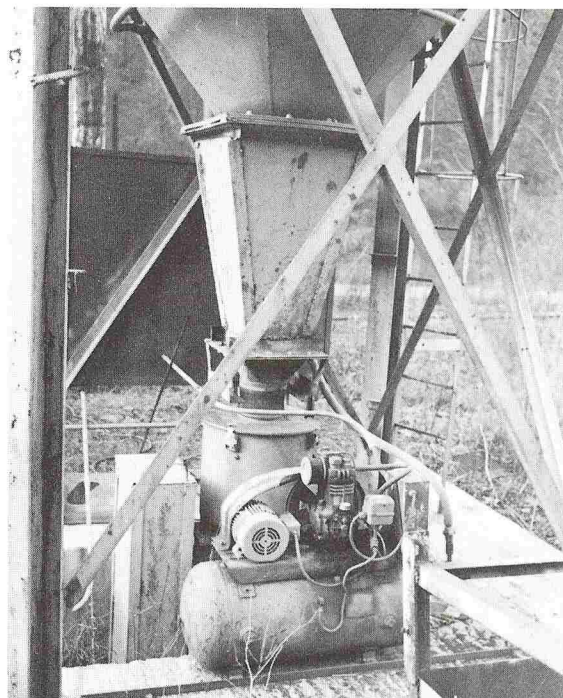
Solution

1 Vibra Screw Live Bin Feeder, 1½ in. screw, carbon steel construction.

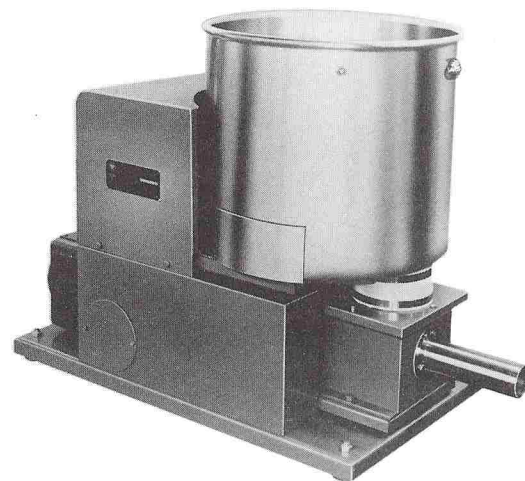
The chemical treatment plant for the Feds Creek ponds was set between the first and second pond. It consists of a 25-ton storage bin, a Live Bin Feeder, and a 2,000 gallon mixing tank. Lime for the storage bin is trucked in to the plant in bulk. The storage bin is located directly over the Live Bin Feeder, which has level probes on it to stop the flow from storage when the Live Bin is filled. The Live Bin Feeder is a vibrated volumetric screw feeder incorporating a vibrating hopper or "live bin" which delivers material to a rotating and vibrating feed screw. Vibrations of the 3 cu.ft. hopper are transmitted to its entire contents preventing bridging and assuring uninterrupted flow of material to the screw chamber. Controlled vibration preconditions the material so that when it enters the trough area, its bulk density is essentially constant. Vibration in the trough insures that each flight of the screw is completely filled on entry of material and completely emptied on discharge. A pH probe, located in the mixing tank where the effluent leaves the tank, activates the Vibra Screw feeder when lime is needed in the tank for pH adjustments.

Results

The Vibra Screw Live Bin Feeder has been in operation at Kentland-Elkhorn now for about two years, usually on a 24-hour-a-day basis. A steady and uniform flow of lime has been achieved, producing the consistent day-by-day control of pH needed to meet EPA requirements.



Vibra Screw's Live Bin Feeder has operated on a 24 hour a day basis for over two years, providing a steady, uniform supply of lime needed for pH adjustments.



Vibra Screw's Live Bin Feeder is a vibrated volumetric screw feeder incorporating a "live bin" which delivers material to a rotating and vibrating feed screw. It is used at Kentland Elkhorn to successfully treat mine effluent with lime for pH control, and meet EPA requirements.