VIBRA SCREW
CASE HISTORY

C-244

Vibra Screw Bin Activator Replaces Competitive Unit

Customer

IMCO Services, Battle Mountain, Nevada. Producer of drilling fluids used in oil and gas wells.

Problem

The mixture of barites used by IMCO in producing drilling fluids varies widely in size, ranging from a fine powder of 200 mesh to ¾" rocks. It moves by belt conveyor to a cylindrical carbon steel storage bin which is 10 ft. in diameter and about 10 ft. high. From the bin, the mixture goes to a variable speed belt feeder and from there to a rotary drier. The material usually contains 6 to 7% moisture, and its bulk density ranges from 150 to 180 lbs. per cu. ft. Normal mix which is stored in the bin consists of three grades of barites: jig (⅛" up to ¾"), wet sand and a putty-like flotation product. Weight bearing down on the discharge outlet of the bin is 10,000 lbs. or more, and the mixture, which is highly pressure sensitive, packs badly in the cone of the bin. The company installed a competitive discharger to solve the problem, but it failed—material continued to pack in the cone shaped discharger, causing stoppages and downtime.

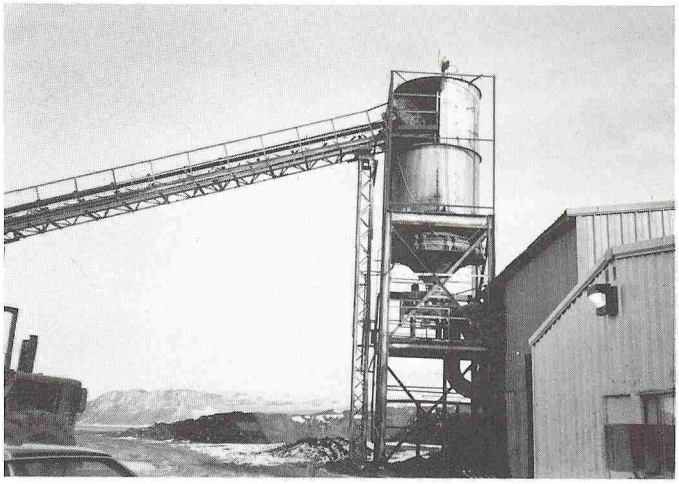
Solution

Vibra Screw Bin Activator, 10 ft. diam., carbon steel construction, pre-assembled mounting ring.

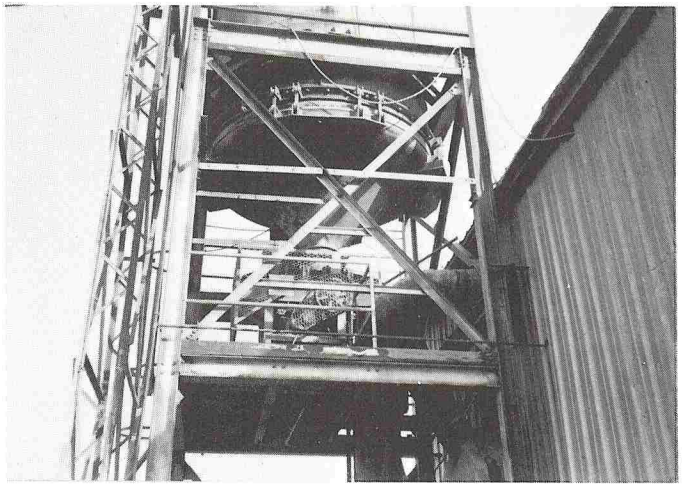
After extensive testing, the company replaced the cone shaped discharger with a Vibra Screw Bin Activator. Flat support surfaces carry the overhead load without permitting the additional compression that occurs in a conical bottom. The Bin Activator is flexibly hung from the upper bin by rubber-bushed forged steel hangers. An elastic sleeve of reinforced rubber seals the small gap between the main bin and movable bottom. An integral baffle relieves headload over the outlet. Mounted to the Bin Activator, and riding with it is a sealed, oil lubricated gyrator. In operation, the gyrator produces powerful horizontal thrusts which vibrate the Bin Activator, its baffle and the contained material but not the bin. The material lying unpacked on the dish is thrown horizontally toward the free-running outlet beneath the baffle where it falls away easily by gravity. This two-stage discharger principle eliminates conical compression of material during discharge and avoids packing it into the bottom during storage. The curved baffle resolves the horizontal thrusts into strong vertical impulses extending far up into the main bin. This discourages overhead bridging.

Results

Production requirements call for a rate of flow of from 10 to 40 tons of normal mixture of barite per hour. With the competitive unit, this flow could not be achieved because of material packing in the cone causing downtime. Now, thanks to the Bin Activator, flow has been consistent, and production is dependable and sustained.



IMCO Services moves their barite mixture by belt conveyor to a cylindrical storage bin where the Vibra Screw Bin Activator discharges it with a dependable and consistent flow.



A competitive cone-shaped discharger had to be replaced with a Vibra Screw Bin Activator, shown above. The cone-shaped discharger caused stoppages and downtime because material continually packed in its cone.