

Technical Article Series

Circular vibratory screen separators clarify corrosive effluent at GMC Truck and Coach Division.

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Circular screen vibratory separators clarify highly corrosive effluent

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Neither separator has required parts replacement in over 2 years of operation

NEW SOLUTIONS TO PLANT PROBLEMS

Problem:

An effective and economical way to separate particles in a waste stream prior to transporting the solution to waste treatment facilities was sought at the GMC Truck and Coach Division of General Motors in Pontiac, Mich. Because of the corrosive properties of the chemicals being treated, standard carbon steel, 5000-gal, gravity-fed separators were unacceptable. In addition, a traditional 5000-gal settling basin with drag-out conveyor required a large amount of floor space.

Solution:

Two stainless steel circular 48" diameter separators were installed. The specially designed separator requires less space than rectangular separators and permits flow-through up to 500 GPM with a single 48" screen.

The self-contained production machines perform precise mechanical separations according to particle size through the use of multi-plane inertial vibration techniques. Utilizing various screen sizes, the separators can make accurate separations ranging from 0.0014" (400 mesh) to 2" and are available in diameters ranging from 18 to 100". In operation, the unitized machines impart adjustable, multi-plane, mechanical, inertial vibrations to the plant effluent being processed, discharging clarified effluent and dewatered solids continuously.

In this application, 1/2" clear opening stainless steel woven wire screen having 0.063" wire diameter removes the unwanted particles, allowing the effluent to pass through for final treatment in special chemical treatment and settling tanks before being discharged into local waterways.

The units are available for operation 7 days a week. In order to save power, they are turned on and off by a flow switch so that they run only when there is flow.

Results:

Solids separation using two 48" diameter circular screen vibratory separators has resulted in minimal maintenance and has reduced floor space requirements by as much as 90%. In more than 2 years of operation, neither separator has required parts replacement.

According to Daniel L. Carmichael, Supervisor of Central Waste Treatment, "The separators have been in almost continuous operation during waste flow time since early 1972. To date, no parts replacement has been required on either separator. Our initial apprehensions about the effectiveness and reliable operation of these units - the first time ever used for a waste treatment system handling highly corrosive chemical - were completely unwarranted. As a result," Mr. Carmichael concludes, "our waste treatment system has performed dependably and given us almost no trouble to help us meet pollution control requirements since it first went into operation."