Huber Engineered Materials (HEM), located in Havre de Grace, Maryland, processes silica flour into a variety of Silica and Silicate products used in the Rubber, Paper, Chemical and Dental markets. Havre de Grace is the first established plant in this business unit, and celebrated its 60-year anniversary in October 2012. A former whiskey distillery, the site now houses two manufacturing plants, a Technical Center for Silica Research & Development, and a pilot plant.

As part of the silicate process, a wastewater stream is generated containing unreacted silica which is reusable, as well as waste solids. The effluent treatment system employs a variety of filters to separate the solids from the liquid streams. One of the filters was an aged vacuum belt filter used to separate solids and recover silicate water for reuse in the process. The resultant filter cake solids were then further processed as a waste stream.

After a review of the separation system, the decision was made to replace the vacuum belt press with a recessed plate type filter press. The filter press, which is a known technology for the plant, would provide more effective separation, yield improved cake dryness, and therefore maximize the amount of silicate water recovered for reuse.
The new filter press system would include two diaphragm pumps. Huber has typically used Air Operated Diaphragm (AOD) and centrifugal pumps within the process, and so these were evaluated. In conjunction with the press OEM, diaphragm pumps were selected as the best applied technology for the process. However, air usage and the subsequent cost were also of concern and so Huber explored the possibility of using electric driven diaphragm pumps in lieu of the AODs. As a result, ABEL model EM pumps were chosen and installed in the process.

A year after start-up, the ABEL model EM electric diaphragm pumps perform well with minimal wear part replacement. Along with the recessed plate filter press, the EM positive displacement pumps remove nearly two times more silicate water for reuse than the previous belt press system (i.e., an improvement of the filter press cake from 44% solids by weight to 72% solids by weight). The new system also promotes a cleaner environment around the process equipment, free from uncontained mud.

The ABEL Advantage
- Best energy efficiency for filter press feed systems
- Controllability with VFD
- Long lasting, wear resistant diaphragms and elastomers
- Designed specifically for abrasive slurries
- High reliability
- Low maintenance and operating cost
- Superior service after sales support

Bevel gears with vertically mounted electric motors provide space saving installation.

PERFORMANCE CHART
Electric Diaphragm Pumps EM Series