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Desilting Coal Fines From Process Water Ponds

A total turnkey solution to desilt a process water dam at a coal mine in the Middelburg area of Mpumalanga province was all in a day's work for pump solutions specialists Integrated Pump Rental.

According to Integrated Pump Rental managing director Lee Vine, it is not uncommon for factors like high rainfall or an unexpected process fault to cause overfilling of a process dam with silt. In a recent case, a mining customer urgently needed a process dam that had become filled with coal fines to be emptied. The situation raised the risk of an environmental incident which could have potentially interrupted the smooth operation of the coal processing plant.

"One of the specific issues with coal fines is that they settle very quickly and create a highly compact layer at the bottom of a pond. This makes it more difficult to create a slurry that can be pumped away," says Vine. "The SlurryBlaster is our effective hydro mining solution for removing slurry and sediment accumulation on dam walls and inside dams, boasting a capacity of up to 2,800 litres per minute with a nominal inlet pressure of 7 bar."

In this case, the coal fines could be blasted into an accumulation point where a slurry pump was then used to transfer high tonnages of the sediment to a location specified by the customer. Integrated Pump Rental also provided the pipelines and fittings that the solution required.

"As part of our project assessment, we ascertained that the slurry demonstrated a low pH level of just three," he says. "This high acidity meant that we had to deploy our stainless steel range of pumps and equipment to ensure corrosion-resistance."

Vine highlights that the mine was able to take the dam off-line, and that water from another source was used to feed the mine's process plant while the desilting process was underway.

"To conduct the hydro-mining option on this project, we secured an external water source and used two monitoring guns to attack the silt – turning it into a slurry that we could then pump through our own pipeline to the tailings dam," he says.

DESILTING PIC 01 : Sediment accumulation in a process water dam had become a major issue at a coal mine.

DESILTING PIC 02 : The build-up of sediment in a process water dam can cause major operational issues.

DESILTING PIC 03 : Integrated Pump Rental applied its SlurryBlaster solution to a process water pond at a coal mine.

DESILTING PIC 04 : The SlurryBlaster is considered one of the most effective hydro mining solutions for removing sediment accumulation.

DESILTING PIC 05 : The SlurryBlaster removing slurry and sediment accumulation in a process water dam.

DESILTING PIC 06 : Integrated Pump Rental's SlurryBlaster effectively cleaned a process water dam at a coal mine.

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