

# PumpLines

Innovation... Technology... Leadership

## Goulds Helps Drummond Coal Meet Energy Needs

by Bob Bloom, Brownlee-Morrow Engineering

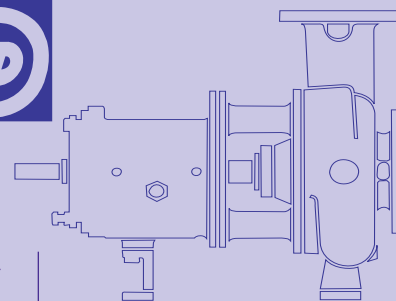
With oil prices topping \$60 a barrel, once again the world has turned its attention to coal as a cost effective alternative. Coal currently fuels half of the nations electric power. With clean coal technology continually improving, coal offers a nearly inexhaustible fuel supply. Drummond Coal is part of that possible solution.

Drummond Coal is a large multinational coal producer which is based in Alabama with operations in Alabama and Colombia, South America. They have sales throughout the world supplying steam coal and

metallurgical coal. Drummond ranks in the top 25 percent of U.S.-owned coal companies. To meet today's demand for coal, Drummond wanted to reactivate their Short Creek washer to handle the additional strip coal from the region.

Brownlee-Morrow Engineering had been working with Drummond Coal and their engineering group and consultants for about two months to determine what would be required to take a coal prep plant that had been idle for 14 years and reactivate it. Drummond had very few records of the existing pumps and relied

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Goulds Model 5500 pump on Raw Coal Feed Service (Heavy Media Cyclone Feed).

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## Goulds Helps Drummond Coal

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on Brownlee-Morrow to furnish the information from old records on the plant which they had previously maintained.

Drummond decided to go ahead with the project. For Brownlee-Morrow, the challenge was getting the plant up and running in less than 90 days. To meet this challenge, B-M had to tear down, inspect, order parts and repair what we could in all 20 pumps. Most were Goulds models, which were obsolete and had been sitting idle for 14 years. There were some 14x16x25, 5x6-14, 4x6-18 model 5050 and 8x10-21, 6x8-21 model 5000 slurry pumps. The quantity of the parts required and the normal time to obtain them would normally preclude meeting the deadline.

Brownlee-Morrow was released on the project just two weeks before Christmas and had 10 weeks to tear down the pumps, order parts, and then rebuild the pumps in enough time to install them for a March 1st start date. The real story and the success comes in how the Customer Service Group of Goulds Pumps, the factory and distribution centers, other distributors, and our own customers worked together to supply over 120 separate lines of material.

Brownlee-Morrow took their preliminary findings and placed the first big order just days before Christmas. Goulds Customer Service Group did a tremendous job in entering and tracking the job. The Goulds Slurry plant and the many functional areas within the plant had parts shipping to us in just days after Christmas day from their Nitro, West Virginia warehouse, Goulds - Ashland plant inventory and Memphis Central Distribution Center. Ashland also had the challenge of getting the obsolete parts and patterns out of mothballs and getting many of the cast hard metal parts to Brownlee-Morrow in 6 weeks or less. Goulds utilized all the plant resources including the Ashland LYNX, Goulds quick-react group, to make this happen in time. In many instances, Goulds bettered their delivery commitments.

Other Goulds distributors also helped by supplying parts from their inventory. Goulds West Virginia Pro Services Center helped procure parts from their customers that had similar equipment in their territory and local suppliers to help source bearings, sheaves and belts. Brownlee-Morrow also called on some of their own customers to borrow or purchase parts.

Brownlee-Morrow was also challenged with the engineering of the tailings pump where an additional 4000 feet of pipe was added onto their existing tailings line. With Goulds help, a series 5500 hard metal slurry pump, a 4x6-29, was located which was converted to mechanical seal complete with adjustable sheaves and motor in a matter of 4 weeks.

### Ready for Start-Up

Drummond was ready to start-up the plant on target. Unfortunately, they immediately had problems with their river pumps, which were vertical turbines. Drummond pulled them on Thursday and knowing the age and the possibility of needing at least one new pump, Brownlee-Morrow had contacted Goulds turbine pump group and started a dialog with them about the upcoming need. Drummond followed the pumps into the Brownlee-Morrow service shop and determined that due to the age, damage, and the obsolescence of the bowls, it would be better to replace them. Brownlee-Morrow quickly called Goulds just before closing on Thursday. They were able to get 2 complete pumps built and shipped by 10:00AM Friday, the next day. Brownlee-Morrow then supervised the installation and had them running Saturday morning. Wow!

Another time saver for the customer resulted from Brownlee-Morrow being able to build a Goulds horizontal split case 3410 and three, 3196 ANSI process pumps out of their inventory using the Liquid End Kit program complete with motors, bases, and couplings. Brownlee-Morrow did the entire repair of the old pumps in their repair center.

### Matrix Management of Customer Needs

What does it take to satisfy the customer? The answer, what ever it takes. In this case, the complexity of the overall project called for teamwork, cooperation, and close coordination.

On the supply side, the coordination by Brownlee-Morrow entailed working with two divisions of Goulds Pumps, other distributors, Goulds West Virginia PRO Services Center, their own customers and suppliers for the parts and equipment required. Working with Drummond and their engineering group, contractor and suppliers was a pleasure. In all it was a great success all the way around and could not have been done without the full cooperation of all involved. It is nice to see such a large group of people pull together to make this a success. ■

## Tech Talk

### Impeller Pump-out Vanes Extend Seal and Bearing Life

by Richard Nardone  
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In today's industrial world, the landscape is shifting to more of a life-cycle cost analysis of pumping systems, as opposed to the more traditional initial purchase price limited scope. As a result, many seemingly insignificant pump design aspects are starting to come into play more and more.

One of these increasing popular topics of discussion is back pump-out vanes. A common question these days is – "Why do most end-suction open impeller centrifugal pumps have back pump-out vanes and what do they do for you?" In short, they are there to extend bearing and seal life. What follows is a discussion of various pump designs, when and where the back pump-out vanes are found, and how extended bearing and seal life is accomplished.

First, let's define the types of pumps where we find back pump-out vanes and some basic pump designs. Although there are countless different pump styles and designs, back pump-out vanes are most commonly found in end-suction process pumps. These process pumps; whether ANSI B73.1, large end-suction (larger than ANSI B73.1 sizes), or smaller sub-ANSI sizes, can be of either the enclosed or open impeller design.

Both styles move fluid and develop pressure, but each style has its own unique characteristics. In general, enclosed impellers have higher efficiency and open impellers have a higher solids content limit. The back pump-out vanes are found predominantly on open impellers.

