



**BENMARC**™  
| SEE THE DIFFERENCE |

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## Excessive Moisture Hurts your Bottom Line

Problems with material flow can halt your operation. This is a big concern when you're dealing with wet, sticky material or extreme weather conditions. Pluggage in your storage systems and caked material in your conveyor system require unwanted extra maintenance and housekeeping hours, potential workplace hazards and increased operating costs. Clogging and back-up issues can also cause expensive downtime. When you are not running at full capacity, you are losing money.

During mining large quantities of bulk material such as Run of mine material and crushed material are handled, silos, hoppers, screens, feeders, chutes and stockpiles are widely used because they are economical and reliable when properly designed, operated and maintained. However, they are not free of trouble and many experience flow problems due to outside influences such as rain and changing conditions from the mining area. When these excessive moisture problems occur, the characteristics of the material change and problems such as bridging, plugging, blinding, and rat holing can slow or stop production causing a loss of revenue.

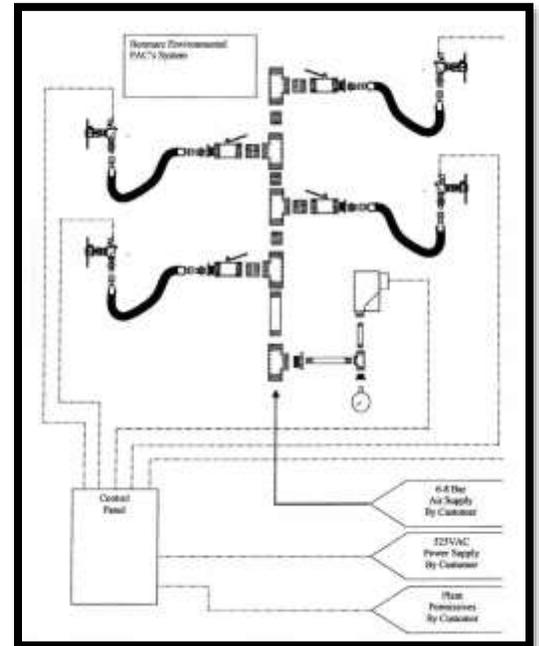
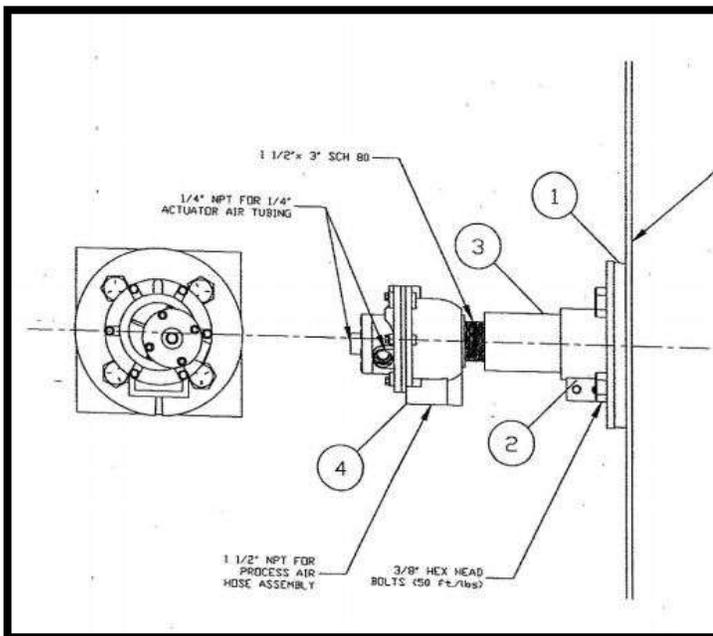
The one element that influences the handling of coal and impacts the operation and efficiency of the plant is water. The amount of surface moisture determines the dustiness and flow ability characteristics of a coal. Additional moisture added due to rain and other climatic processes not only lowers the heating value of the coal but creates an additional efficiency penalty. Increased moisture lowers the plant efficiency by raising the wet gas loss component of the boiler. Moisture in the coal is converted to steam in the combustion zone using a considerable amount of energy. Any additional moisture added to the coal is also converted to steam. The stack temperature of most coal plants is typically 300°F. This means that the energy used to convert the moisture to steam is never recovered. The actual boiler efficiency loss is approximately 0.1% for each 1.0% increase in moisture, or about a nickel for every ton of coal.

When it is impossible or not cost effective to make whole scale engineered changes to a system or when your moisture problem is intermittent Benmarc has some cost-effective solutions for your material handling system. As with any good project a site visit including a walk down and conversation with operators is the first step in determining if a Benmarc solution is possible.

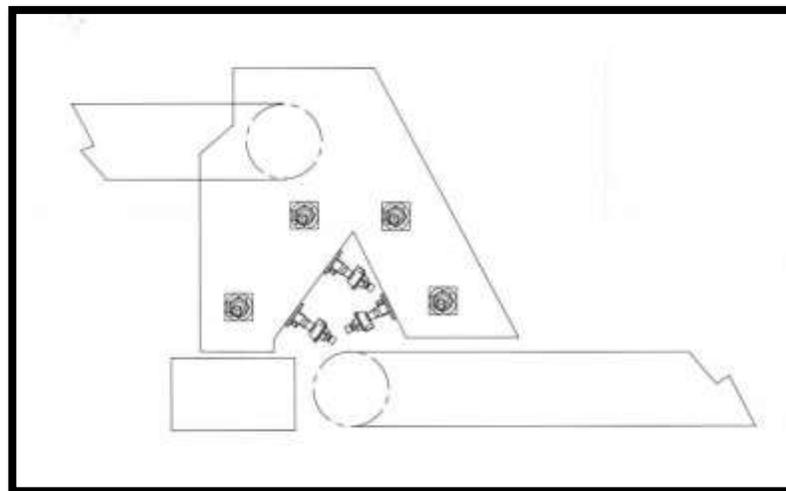
# Benmarc Solutions for Blockages and Plugging

## PAC's (Pneumatic Actuated Cleaner)

Easy to install and maintain, PACS are a trouble-free solution for uninterrupted material flow. PACS removes wet and sticky material from the walls of chutes, bins, hoppers, silos and bunkers. It is perfect for pluggage prevention involving materials such as coal, Iron ore, sand, cement and limestone.



PAC's air nozzles are specifically designed to handle bulk material. These automatic nozzles remove material accumulation before pluggage can occur; Buildup is eliminated at points of impact, prior to becoming large enough to break off and cause escalating problems.



## FEA (Flow Enhancement Additive)

Benmarc's cost-effective, efficient flow enhancement chemicals treat wet and sticky materials using a tested blend of surfactants and additives and custom application equipment.



Benmarc Fabricates all of their Application equipment for each project to ensure proper application rates lead to successful results.

FEA are applied using positive displacement gear pumps to ensure good coverage and penetration of the product. Systems can be simple on/off control to fully automated systems remotely monitored and operated.

## Benmarc's material flow enhancement products:

- Stops Blockages
- reduce housekeeping and maintenance
- keep systems running at full capacity
- ensure less material waste.

