

A Shotcrete feature:

# SAFETY SHOOTER



by ASA Safety Committee Chair—Chris Zynda of Concrete Structures

## Shotcrete Pump

The shotcrete pump. Every shotcrete crew needs one. Unfortunately, the pump that pushes all the material we need to do our job gets more abuse than any of the other equipment. Pumps come in various sizes and shapes, anywhere from a trailer single axle to a boom truck or robot. They all have one thing in common: they pump concrete at very high pressure. If you want your pump

to operate efficiently and safely, you can't neglect its needs.

Some of the neglect comes from failing to perform simple cleaning. Most shotcrete pumps are covered with hardened shotcrete and concrete. This hurts the entire system and can cause overheating, resulting in a loss in productivity. When the shotcrete pump is covered with concrete, you cannot see areas in need of repair. Some areas of concern include cracks in the frame, broken axles or springs, and frozen wheel bearings, not to mention the stress put on the entire engine and pumping system.

The hopper is the starting point of a clean, smooth-running shotcrete pump. If the hopper and swing tube are not clean, the pump is less productive. Remember, a shotcrete mix with a high cement content, fine aggregates, and 2 in. minus slump is not an easy mix to pump in the first place. A poorly running pump can cause major safety issues due to the added jerking felt by the nozzleman, not to mention the loss of production that means loss of profit on the job.

To make cleanup easier, I suggest that a bond breaker be sprayed in the hopper and on the entire pump before use. This will keep the concrete from sticking to the equipment and will reduce the frequency that the unit will need to be pressure washed to maybe once a week. The hopper will still need the jackhammer and chipping gun approach for thorough cleaning, but cleaning of hardened, splashed concrete will be held to a minimum.

Reducers and hoses are very important in a safe shotcrete operation. Because of high line pressures, it is very important to direct all reducers away from the pump operator and concrete truck driver. This can be done simply by turning your reducers to the other side. Also make sure you tie off your system so it stays where you want.

Radios are a great help for safety and production. They keep the nozzleman and pump operator in contact with each other in case a fast shut down is needed due to line plugs. All shotcrete and concrete pumps are a little different, so it's important that you read and understand all safety information and have regular safety meetings with all pump operators. Also, safety information should be kept with the pump. I suggest a 2 in. pipe attached to the pump approximately 12 in. long with caps on both ends to store this paperwork. This method also provides great storage for any license information you may need.

