TOPIC: Why Testing at the End of the Chute is the Right Place to Test.

DETAILS

1. Responsibility
   The responsibility for concrete under table 5 performance sits with the supplier. The supplier has been contracted to supply a material meeting specific parameters to the project. The suppliers responsibility ends when the concrete is offloaded into another piece of equipment. Logically, neither the pump operator or the contractor will accept responsibility for the concrete properties passing through the pump.

   Often, we are asked for a correlation so that the concrete delivered into the pump will yield in spec concrete out of the pump. For example: Specified air is 5-8% and the change is 2%. The supplier is asked to deliver concrete that measures 7-10% going in to the pump. When there is an issue, the supplier will indicate that they were requested to deliver outside of the specification.

2. Pump effect on air entrained concrete is temporary.
   The effect of the pump on concrete is well established. We test the concrete going in and out to determine the effect. Some specifications require the pump to have minimal impact. Rate of loading, stop/start for sampling/moving equipment/waiting for loads and pump configuration affect the concrete properties. Often the EOR has requested concrete to be tested as close to point of placement assuming the tested concrete would best represent the concrete in place.

   Research by Tyler Ley of the University of Oklahoma counters this approach showing that the air bubbles compress in the pump but recover in the form: https://www.youtube.com/watch?v=38H6yXi_of8

3. Sampling does not meet the requirements of CSA A23.2-1C
   Most specifications require sampling of concrete to follow the standard outlined in CSA A23.2-1C. This standard requires the sample to be collected by diverting the stream of concrete into the sampling receptacle or by passing the receptacle through the concrete stream.
   The stopping of a concrete pump to fill a wheelbarrow does not meet either of these criteria. Additionally, the stop start of the pump to collect the sample will affect the concrete properties (concrete is a fluid). Often the pump is laid down flat on a bridge deck to lessen the stop start effect, while this does seem to lessen the change in slump and air recorded, this does not meet the intent of the standard.

4. Safety
   Most importantly, it is not safe to sample concrete at the end of the hose by a technician. The area is congested by people and high-pressure equipment and the technician may not be familiar with the environment.

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