10-27-2025 - TBT - Dealing with Hazards Created by Water Inside Excavations

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Water is one of the world's most precious resources; in fact, we couldn't live without it. But water inside of an excavation creates a whole range of potential hazards that can make our work much more dangerous – even deadly! For example, when water is allowed to saturate the soil, it fills up the microscopic void spaces that are present between all the small particles of dirt. While that may not seem like a big deal, these spaces between particles can make up as much as 30 percent of the volume of the soil. Just one gallon of water weighs over 8.3 pounds. That is a lot of extra weight created when water saturates the soil; weight which gravity uses to help bring down the sides of an excavation quicker than it otherwise would. In addition, the water acts a lubricant, loosening the bond between the soil particles, which can eventually lead to the development of dangerous cracks and fissures in the soil.

Another problem created by water inside an excavation is the potential for erosion if the water is allowed to run along the bottom of an excavation. The erosion can undermine the soil along the sides of the excavation, leading to the soil mass making up the walls above to cave into the excavation. In addition, water that is allowed to remain inside an excavation for an extended period can soak in and soften the soil at the bottom of an excavation. This results in the creation of a soft zone of soil along the bottom of the walls that can compress more easily and cause the soil mass above to collapse. And finally, water that is deep enough could possibly create a drowning hazard inside of an excavation. This is especially true if there happened to be a sudden large discharge of water into an excavation, such as might occur with a broken water main or similar situation.

What steps can we take to help protect ourselves and others? First, NEVER enter an excavation where water has accumulated or is accumulating until the situation has been evaluated by the Competent Person. It is the Competent Person's responsibility to prescribe protective measures we must implement, if necessary. These could include the utilization of water removal equipment such as a pump, or the installation of special shoring or a trench shield designed to protect workers inside the excavation from the hazards of water and cave-ins. And in some unusual cases, it may even be necessary for the Competent Person to require someone entering an excavation filled with water to wear a personal floatation device and harness which is attached to a lifeline.

The main point of this toolbox talk is to help you remember that you must not enter an excavation in which any water is accumulated or accumulating until the Competent Person has evaluated the situation. Then we can decide on the proper protective measures to take before giving you the okay to enter! Keep an eye out for water in or around excavations and alert the Competent Person.

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