Picture This: Trenching Tragedy in the Making

There are some obvious hazards in this picture that make it a great tool for training and learning. Share this image with your crew and see how many hazards they spot. Then discuss why they are hazardous, how these hazards can be corrected, and what they would do if they were asked to work in this excavation. Here are six violations found in this scene along with explanations for each.

1. There are no protective systems in place – no shoring, sloping, or use of a trench box.a. Unless trench walls are solid rock, no one should enter a trench deeper than 1.2 meters (4 feet) if it is not properly sloped, shored, or protected by a trench box.
2. The spoil pile should be at least 1 meter (CA) or 2 feet (U.S.) from the edge of the excavation, and farther away for deeper trenches.a. Equipment should also be kept as far from the excavation's edge as possible.
   b. The weight of the spoil and the weight of equipment puts pressure on the walls of the excavation and can lead to collapse.
3. Vibration from vehicle traffic, heavy equipment, compactions, pile driving, and blasting can also affect trench stability and lead to collapse.
4. Water has been allowed to accumulate in the trench.a. Rain, melting snow, thawing earth, and overflow from adjacent streams, storm drains, and sewers all produce changes in soil conditions. In fact, water from any source can reduce soil cohesion.
   b. The amount of moisture in the soil has a great effect on soil strength. Once a trench is dug, the sides of the open excavation are exposed to the air. Moisture content of the soil begins to change almost immediately, and the strength of the walls may be affected. The longer an excavation is open to the air, the greater the risk of a cave-in.
5. Workers in the trench don't appear to be wearing head protection or any other form of PPE.a. Whenever there is the potential for falling debris or objects, hard hats must be worn.
   b. Safety glasses are recommended to protect eyes from flying debris.
6. A ladder has been placed in the trench but the lone worker on the far end of the excavation may have trouble reaching it quickly. Whether protected by sloping, boxes, or shoring, trenches must be provided with ladders so that workers can enter and exit safely. Ladders must be:a. Placed within the area protected by the shoring or trench box.
   b. Securely tied off at the top.
   c. Extend above the shoring or box by at least 1 meter (3 feet).
   d. Be inspected regularly for damage.

e. Placed as close as possible to the area where personnel are working and never more than 7.5 meters (25 feet) away.

In addition to the hazards listed, what other hazards can you identify and what are other excavation hazards in general that should be evaluated and addressed before crews begin work?