

Toolbox Talks 2

67: Unsafe Conditions: De-energized Equipment

Discussion leader duties for this session:

Walk out to a piece of de-energized equipment, and make a list of possible hazards.

What this Safety Talk covers:

This Safety Talk addresses some unsafe conditions around de-energized equipment.

Discussion notes:

Background

You can be lulled into a false sense of security just because there is no electrical power to the equipment you're working on. Many hazards can still exist, including energy sources. When we de-energize something from an electrical standpoint, we don't necessarily remove all energy sources. And we certainly don't remove all dangers.

Unsafe conditions around de-energized equipment

- Slipping hazards due to construction methods. It's great to walk into a switchgear room without blast protection. In new construction, when things haven't been energized yet, this is normal. But new construction brings with it slipping hazards due to construction activities. An example is cable-pulling lube left on the floor.
- Slipping hazards due to leaks. Look for stains, puddles, and smears on the floor. New equipment that hasn't yet been inspected for service may have undiscovered leaks or drips. This is especially true of motors and liquid-filled transformers.
- Fire hazards. Product packaging, construction debris, and other combustible materials may have been "temporarily" stored in a transformer vault and promptly forgotten about. Remove these items before working in that location. Before energizing new equipment, inspect for the presence of such materials.
- Energy sources. Capacitors, batteries, mechanical springs, pneumatic circuits, gas cylinders, hydraulic cylinders, and other devices can store and release energy even before the supply breaker is installed. You can have lethal energy present even if the circuits have never been energized.
- Poor lighting. A new building with no power to it isn't necessarily safer than an existing building. One of the key drawbacks to a building with no power is the lighting is typically poor. You must supplement daylight, or provide all light, from portable sources. Sometimes, the lighting effort is less than enthusiastic—nobody likes running cords and hanging lights while the job sits there waiting to be done.
- Outdated drawings. This is mainly a cost issue, and the project manager should stay on top of it. But outdated drawings can also present safety hazards. Check the date on any drawing before using it. Your company should have a drawing management system in place. If so, follow the rules. If not, you'll need to ask the project manager for the latest drawings before each major project phase.
- Other equipment. You've taken care of *your* equipment. Is someone else's equipment your responsibility? If it can affect your safety, the answer is yes.
- Other trades. Did you trip over the drywaller's tool bucket again? You will have to communicate with the other people working in your area. Try to set up clear walkways, and keep each other updated on activities that may create safety issues for the others.

Review and discussion

1. Name five hazards that can be present, even if there's no power to the equipment you're working on.
2. What slipping hazards and tripping hazards can result from ordinary construction activities, and what precautions should you take?
3. A pad-mounted service transformer hasn't been energized yet. The utility is scheduled to inspect it and connect it next week. In the meantime, you need to run the service conductors from the transformer to the service entrance and make the connections. What are some possible safety hazards?
4. Before energizing equipment, what kind of inspection should you make? *[Note to Presenter: Walk down the system, from supply to load, to ensure it's safe to energize. Look for things that have been left in the wrong place, such as combustibles, tools, and temporary jumpers. Close all covers and doors. That's just the visual inspection. You should also conduct an electrical inspection to ensure there are no problems that will cause a fault upon energization. This is typically done with an insulation resistance tester, testing for ground faults and insulation problems.]*
5. What kinds of fire hazards are likely during construction, and what precautions should you take?
6. What are some energy sources that may be present, even if the equipment supply breaker isn't installed yet?
7. What are some issues with lighting?
8. What is the company's drawing control policy or process, and what is your role in ensuring you have the current revision? *[Note to Presenter: Your company might not have a drawing control policy. If that's the case, this may be a good time to collect some ideas to present to management. Some electronic options exist for drawing control today, including the use of portable computers and central databases. These systems are nice, but companies had effective drawing control policies long before electronic drawings existed. Now is also a good time to identify what you can do to make the existing system work better. Keep in mind that not all ideas are practical to implement in the real world, even if they seem to work for other firms.]*
9. What other kinds of equipment have you encountered while working? How has the presence of this equipment posed a safety hazard?
10. What are some general rules for working safely with other trades?

Participant's Signature and Date
