

Toolbox Talks 2

082: Unsafe Conditions: Arc and Blast Hazards

Discussion leader duties for this session:

Review your company's blast hazard policies. Obtain sample of the Arc Blast Warning placards used on this jobsite. (Note that many facilities customize their Arc Blast Warning placards to meet their specific operation).

What this Safety Talk covers:

This Safety Talk addresses unsafe conditions that can lead to an arc blast event, and how to minimize those conditions or account for them.

Discussion notes:

Unsafe conditions related to arc and blast hazards

- Absence of a scripted work plan and/or checklist. These tools dramatically reduce the chance of making lethal mistakes. If no such plan exists, create one before starting the actual work. Review it and look for safety problems.
- Absence of the specific tools needed for this work. These should be identified in your work plan. Obtain the right tools before starting the work. Don't use electrical tape to "make" insulated tools or to "upgrade" the insulation on existing tools.
- You don't have the PPE needed for the energy level present. This is a "non-starter." You must be wearing the required PPE if you're going to be in front of that equipment. If you open any covers, the PPE requirements increase.
- You lack the training for each of the specific tasks that you're expected to perform on the specific equipment. This has nothing to do with your position or years of experience. You may understand one model of breaker completely, but that knowledge doesn't transfer to another model.
- You aren't familiar with the system. Review the drawings and operational sequences and understand how the system works. For example, opening the upstream disconnect may not de-energize all sources of power.
- Panels, doors, or covers aren't completely secured. Before energizing equipment, check all enclosures to correct this problem. This will help protect you from the blast force, shrapnel, and molten metal that an arc blast may produce.
- Defeated interlocks, shutters, or other devices designed to prevent misoperation to protect people. Check drawings and manuals to see what these devices are, and ensure they are installed and in working order before proceeding.
- You have drawings that are uncontrolled or outdated. Don't work with drawings that you can't confirm are current.
- No escape plan. Know where all exits are. Make sure the escape paths are clear.
- You're fatigued. Mistakes happen when you're tired or distracted.
- Lockout/tagout not completed. Walk the system down to ensure the energy sources have been properly isolated to prevent a ground fault or other blast condition.
- You have no partner. Don't work on energized equipment alone. Have a partner. This person can cross-check the scripted work plan and review conditions with you.

Review and discussion

1. Why do you need a scripted work plan and/or checklist? What's the danger in not having one?
2. If you don't have the exact tools needed for this job, what should you do?

3. If you don't have the exact PPE needed for this job, what should you do? If the PPE you have exceeds what's needed, can you use the higher-rated PPE? *[Note to Presenter: You can always use higher-rated PPE. The goal of the PPE is to protect you, not to meet some legal requirement or see what you can get by with.]*

4. What's the problem with working on equipment you haven't been trained on? What are some ways to remedy that situation?

5. Why should you make yourself familiar with the system, and not just the equipment?

6. Why do you need to ensure all panel doors, covers, and other protective devices are securely installed?

7. What do you need to know about interlocks and shutters? Why?

8. Before relying on your drawings, what should you do?

9. Why is fatigue dangerous when you're working in and around energized panels? What are some things you can do to handle it? *[Note to Presenter: The purpose of this question is just to get people to think. While you might remind folks that being tired isn't an excuse to goof off, it may be a good reason to find something else to do for the rest of the day.]*

10. Suppose your foreman changes crew assignments because your partner is needed to program a PLC. The new person assigned to work with you needs to go get a blast suit, and won't be available for about thirty minutes. Is there a problem with working in the panel during that time? *[Note to Presenter: Working alone in an energized panel is unsafe. Use that time to review the drawings and other information, so you can more accurately bring your new partner up to speed. This is also a good time to inspect your tools and test equipment.]*

Participant's Signature and Date

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on its right side, suggesting it's resting on a surface.