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## Avoiding Jobsite Electrical Wires

by Robert Edwards

### **e • lec' tro • cu' te**

*verb.* To kill with electricity: *a worker who was electrocuted by a high-tension wire.* [From the words Electro- + (Exe)cute.]

The number one cause of fatal accidents involving the use of concrete pumps is electrocution. That fact is somewhat surprising to me, because I've known about the dangers of power lines for as long as I can remember. As a child, my parents wouldn't let me fly a kite until they had surveyed the area for power lines. When I was a pump operator in the late 1970's, I was asked on several occasions to move the boom into an area that would have created an electrical danger. I refused to do it on all occasions. It was especially important to me, because when I'd been hired I was told the reason there was an opening for an operator was because the previous operator had been electrocuted. Once or twice, the contractor was agitated by my refusal, but by diplomatically offering a safe alternative, no job was lost to a competitor. Sometimes, the safe alternative is not available, and sometimes the safe alternative will not be economically feasible. It is during these moments of pressured reflection when a person will decide whether or not to take a chance. There are several factors which can make the safe decision easier to make.

1. Decide beforehand that you will not take risks with safety. If you consider it a decision of whether or not to recklessly kill coworkers, it seems easy. A reasonable person would not put a bullet in a revolver, spin the barrel, then aim and fire at a coworker. Similarly, a reasonable person will not set up or operate in an area where one small lapse in judgement or focus would cause death or serious injury to a coworker. Ask yourself the question, "Would I rather find a new job, or kill someone today?" If the answer is "find a new job," then you're home free. No one can make you kill someone if you're willing to risk your job for safety. Furthermore, in the 24 years I have been in the concrete pumping industry, I've never heard of an operator who was fired because he refused to get near power lines. I have, however, heard of operators who lost their jobs for hitting power lines.
2. Arrive to work on time, rested, with a clear head. Of the electrocution cases I've been aware of, the story too often begins with "I was late getting to the job, and by the time I found out where they wanted me to set up, they were already yelling at me..." You may fill in the blank with any information you want after that. The end result is the same. Because the operator was late, he didn't dare assert himself about the unsafe setup spot. Other cases of power line strikes have involved operators trying to setup and operate with little or no sleep, and in some cases still under the influence of the previous evening's festivities.
3. Set up taking power lines into consideration. If there are two setup locations equal in all other ways, choose the one farthest from the wires. Don't accept an unsafe setup location under any circumstances.

In addition to the choices you make before you operate the machine at the jobsite, other factors will play into power line avoidance. The following is a list of some of the other things to consider. Please note that no attempt has been made to think of every possible condition which could lead to a power line strike.

1. If the job is out of the way of power lines, but the boom is still capable of hitting a power line, the danger still exists. This is particularly hazardous, because the operator doesn't have "power line" on his mind at all. There is a nationwide movement underway, and legislation underway in some areas, to appoint a dedicated spotter at any job site with high voltage power lines within reach of the construction equipment. The spotter would be armed with a signaling device or shut-off device, and would simply watch the area around the wires and signal the operator or stop the operation of any machine that entered into the "no-fly zone."
2. Devices exist which can sense the presence of many power lines. Tests conducted by the pump manufacturers have determined that these devices are not 100% reliable. For that reason, pump manufacturers have not endorsed the devices as standard equipment at this time. Some pump owners and operators, however, have chosen to utilize the devices, which are available from their respective manufacturers.
3. Setting up or operating in the dark will compound the hazards of operation in the vicinity of power lines. Adequate lighting must be used to eliminate this hazard.
4. There have been several power line contact incidents where the power lines were hidden from the operator by trees and other brush. It is important to survey the jobsite completely before operation begins.
5. Several tests have been done regarding the ability of humans to gauge relative distances using depth perception. The studies show that depth perception is useful in judging the distances of a boom from a power line only when viewing the boom and wire positions from a distance of 25 feet or closer. Because virtually all concrete pump placing booms are longer than 25 feet, we can conclude that depth perception should never be used to try to judge the distance between the end of a boom and a power line. Again, the safest solution is to have a dedicated spotter stand under the line to alert the operator if the boom gets too close. Finding that impossible, the operator can with the aid of his remote control device, move himself into a position which will let him see the gap between the end of the boom and the power line. This is not as safe as a dedicated spotter, however, because the operator's attention will be divided between watching the wires and the many other required duties.
6. Never take the word of someone on the job that an electrical wire has been de energized. Only a qualified representative of the power company that owns the wires will be able to make that determination. There will be physical evidence of de energizing, such as a wire leading to the earth from the conductors in question.

In summary, power line safety is a matter of life and death. Cutting corners in this area could have disastrous results. The American Concrete Pumping Association recommends maintaining a clearance of 17 feet from any electrical wire. PLEASE don't play Russian roulette with your life or the lives of your coworkers...maintain the distance.

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