

**U. S. Department of Labor
Occupational Health and Safety Administration
Cranes and Derricks Negotiated Rulemaking Advisory Committee**

**BRAINSTORMING -- STRATEGIES
FOR PROTECTING WORKERS OPERATING CRANES NEAR POWER LINES**

ELIMINATE HAZARD

- De-energize and ground power lines
- Re-route power lines for long-term jobs
- Maintain absolute clearance for crane with boom fully extended

AVOID HAZARD

Identify and understand hazard

- Pre-planning meetings
 - Advanced site planning - walk the site, meet with power company to identify potential hazards, possibilities for moving, grounding, de-energizing, insulating and marking, etc. of the lines
 - Require power company to respond to crane operator requests for advanced planning meetings (already required by some states)
 - Require pre-lift meeting and pre-lift trial whenever crane may get close to prohibited area
- Require Close-proximity permit process when work must be done in prohibited area
- Crane Operator Training
 - Including aids that show operators what happens with different levels of power lines, for example, in railroad industry
- Require set policy and procedure for operating near power lines
- Accountability of crane operator, supervisors through a “zero tolerance policy” where an accident leads to termination of person responsible
- Decals on crane
- Require controlling contractor to take responsibility for pre-planning in rental situations – as part of responsibility to provide adequate site conditions

Control crane movement near the prohibited area

- Maintain clearance of specified distance (currently 10 ft, perhaps increase)
- Barricade area near power lines
- Restrict crane operations to pre-determined safe zone
- Swing limitation device (more complicated for mobile cranes, but still possible)
- Safety buffer area surrounding the prohibited area – entry into the safety buffer area would trigger additional precautions

Warning systems

- Audio proximity alarms
- “Banger beams” – rope placed in front of power lines, which gets hit first
- Signal person

- Strobe lights

Improve visibility of the power lines

- Marking/signage of power lines – for example, using engineers' tape
- Tag the lines
- Erect signs (35-40 feet) in front of power line that signals the hazard

Improve visibility of the prohibited area around the power line

- Mark the prohibited distance on the ground
- Accurately measure distance from power line – for example, using sonar
- Lay out caution tape at 150% of the safe distance from the power line

PROTECT AGAINST INJURY FROM CONTACT

- Insulating links
- Barricade around crane (keep employee from touching crane)
- Ground the crane
- Ground the load
- Insulate/Blanket the line

Possible approaches for the rule

- Require multiple levels of protection
- Keep law as is, and focus on increasing compliance through enforcement and training
- Modify existing OSHA regulations to be consistent with B30.5 2000
- List some possible safety devices in the rule (as information, not requirements)
- Require strategies to address the various components of the problem

Problems that contribute to electrocution accidents:

- Pressure on operator to “push the envelope” on distance from power line
- Operator doesn't know the line is there
- Operator knows the line is there but forgets or can't see it (blends into background, early evening)
- Operator knows the line is there and can see it but can't judge the distance correctly
- Not enough time before start of job to do pre-planning or to walk the site
- No one working near crane knows how many volts are going through the line
- Power companies are not cooperative
- Operator complacency and lack of awareness
- Human error is inevitable
- Increased use of engineering controls could lead to decreased operator awareness and attention to hazards