

## Deadly Hazards of Field Irrigation Circles

**Attention:** Employers and employees who work on or around pivot irrigation circle systems.

In the past two years, three workers died while working alone on or near crop irrigation circles.

These systems are dangerous because:

- Most are powered and energized by 480 volts.
- They have numerous motors, pumps and other moving parts that can cause serious injuries, including electrocution and death.

Employer and employee training on the control of hazards and adherence to safe work practices can improve worker safety.

### Understand the Hazards

#### Electrocution

- Electrocution risks include touching or making indirect contact (e.g. water) with the metal framework or equipment that has been electrified due to damaged or worn electrical components, improper wiring, or inadequate grounding.
- Employees working around this equipment are often wet or damp, so their risk of electric shock is greater.
- An operational irrigation system and related equipment does not mean it is safe or will fail in a safe manner especially if manufacturer's recommendations on equipment operation and maintenance are not being followed.

#### Entanglements with Exposed and Moving Parts

- Unguarded drivelines, motors and other power transmitting devices can catch, maim or kill workers.
- Bypassing the control panel safety mechanisms can cause wheels to move, run over and crush fairly large obstacles in their path, including vehicles and people.



Field irrigation systems, as shown in this photo, are large metal structures that can span 1,200 ft and are often powered with 480 volts.



An employee climbed the pivot tower to troubleshoot a problem when they were electrocuted to death. The worker did not follow the employer's specific written Lockout/Tagout procedure requiring de-energization at the blue control panel.



An employee was caught in the mud and crushed to death under the wheel of a moving end tower.



## Control the Hazards

### Equipment Set-up and Operation

- Power lines servicing a pivot should be protected against unintentional contact and similar shock-related hazards. Wet and/or burial rated conductors, metal-clad cable, and conduit can all be used to reduce the likelihood of injury after components are damaged or reach the end of their service life. Buried service conductors should be marked with signage.
- Never move in front of energized circle wheels or place equipment in their paths.
- Call for qualified help or service when needed. A slight electrical tingle today may indicate a problem that can kill you under different environmental conditions tomorrow.
- Train annually and ensure employees understand safety precautions and what to do in an emergency.

### Equipment Inspection and Maintenance

- Irrigation circle system owners, managers, and operators should implement an electrical inspection program for irrigation equipment at the beginning of each season that includes

periodic inspections of all system components throughout the growing season. This inspection should include checking the integrity of the underground wiring associated with the system.

- Use a nonconductive ladder or stable lift device to perform overhead repair and maintenance on an irrigation circle.
- Train operators and other workers to visually inspect and test the equipment prior to touching.
  - Look for unguarded drive-lines and other mechanical hazards.
  - Look for broken or damaged equipment and electrical insulation on cords and open or damaged electrical enclosures.
  - Locate the equipment disconnect switches/ devices for irrigation machine(s), pumps(s) and other equipment.
  - If equipment is resting on uneven ground, an incline, or in mud, make sure it is de-energized and secured before you work on it so it can't move and pin or roll over you.
- Ensure all energy sources are de-energized prior to repair, maintenance and testing. Use Lockout/ Tagout and follow all procedures.

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## Other resources you can access

Operator Electrocuted while Performing Maintenance on Pivot Irrigation System, [www.Lni.wa.gov/safety-health/safety-research/files/2021/71\\_204\\_2021\\_IrrigatorOperatorElectrocuted.pdf](http://www.Lni.wa.gov/safety-health/safety-research/files/2021/71_204_2021_IrrigatorOperatorElectrocuted.pdf)

Operator Crushed by Irrigation System Wheel, [www.Lni.wa.gov/safety-health/safety-research/files/2019/IrrigatorOperatorCrushed.pdf](http://www.Lni.wa.gov/safety-health/safety-research/files/2019/IrrigatorOperatorCrushed.pdf)

OSHA Fatal Facts – Farmworker Electrocution, [www.osha.gov/Publications/OSHA3817.pdf](http://www.osha.gov/Publications/OSHA3817.pdf)

To find an **electronic** copy of this Hazard Alert, go to [www.lni.wa.gov/HazardAlerts](http://www.lni.wa.gov/HazardAlerts).

L&I Safety web page: [www.Lni.wa.gov/safety-health](http://www.Lni.wa.gov/safety-health).

For other related rules, contact your local L&I office or visit the safety rules webpage: [www.Lni.wa.gov/SafetyRules](http://www.Lni.wa.gov/SafetyRules).

To find the nearest L&I office, visit [www.Lni.wa.gov/Offices](http://www.Lni.wa.gov/Offices).

### How can I get help from Labor & Industries?

The Department of Labor & Industries provides consultations, training, and technical assistance at no cost to employers. Call today to schedule a free confidential consultation or go to [www.Lni.wa.gov/SafetyConsultants](http://www.Lni.wa.gov/SafetyConsultants) for more information.

You may also call 1-800-423-7233 or visit a local L&I office and ask for the Consultation Manager.

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*This alert was developed by L&I's Division of Occupational Safety and Health (DOSHS) to alert employers, labor groups, and employees to potential hazards associated with work activities. **This is not a rule and creates no new legal obligations.** The information provided includes suggested guidance on how to avoid workplace hazards and describes relevant mandatory safety and health rules. DOSHS recommends you also check the related rules for additional requirements.*