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Irrigation safety

Water, and getting water to plants, is a vital part of agriculture. Unfortunately, when it comes to irrigation, hazards are part of the job and many of them can result in life altering injuries or death.

Discussing these topics can help workers stay safe while watering fields and crops.

Strains and sprains when lifting

- Keep elbows as close to your side as possible to gain better leverage
- Place one foot in front of the other to get closer to the load and lift with your legs to avoid back strain
- Take time to clear excess water and vines that may have grown over the pipes to reduce weight

Pressure safety

- Keep your face as far away as possible from the valve when adjusting any pressurized system. Expect all lines to be pressurized unless you can be certain they are not
- Make sure you know where the pressure is, especially if your system requires you to open the riser valve while the main line is fully charged

Equipment transportation

- Know where low telephone and electrical lines are located when transporting between fields to avoid electrocution and snapping lines.
- Know the location of ditches around fields
- Travel slowly when using motorcycles and four wheelers, and wear helmets even if going a short distance.
- Observe tail swing of pipe trailers.
- Keep objects as low as possible during transport. Know where electrical lines are low and reevaluate travel plans if necessary.
- Consider where pipes are placed when you're transporting them. Relocate pipes if they are obscuring trailer lights. Note that a red flag is required whenever a load extends four feet or more beyond the rear of a vehicle.

Communication

- Implement a strategy to communicate to employees when lines become fully charged for the first time.
- Keep in constant communication when working in teams.

Continued

Serious injuries and fatalities in irrigation

2006 fatal injury: While a 42-year-old man was disconnecting the irrigation line, a riser valve failed, and pressurized water severed an artery in his eye. He died five days later.

2002 head injury: When taking apart a sprinkler system in a field, an irrigator bent over a connecting valve and turned the faucet handle. The valve came loose, and the water pressure fired the valve cap into the worker's face, breaking his jaw, giving him a concussion, and knocking out his front teeth.

Electrocution

- Make sure water discharge is a safe distance from overhead lines as electricity can be conducted through water
- Never lift pipes vertically, especially near overhead electrical lines. Instead, move pipes in a horizontal position and tilt pipes to shake out leaves, vermin, etc.
- Train workers to maintain at least 10 feet of clearance between power lines and conductive objects
- Irrigation lines must be stored at least 150 feet away from overhead power lines

- Follow lockout/tagout procedures when servicing, and especially consider how to manage lockout/tagout when using new technology, such as phone controls

Emergency prep

- Have an emergency plan for those who work alone
- Consider sending people with two-way radios if they don't have a cell signal, filing a "flight plan" so you know where to look if someone is missing, and making first aid supplies available in the field
- Consider using a UTV/side-by-side or pickup truck instead of an ATV

Maintenance

- Develop a plan to inspect components of pressurized irrigation systems at least annually. Look for and replace defective parts
- Develop a regular maintenance schedule, including repairing holes in lines
- Inspect electrical components for damage and ensure proper grounding
- Complete winter maintenance, including:
  - Inspection and lock down of electrical power supplies
  - Seal small holes to keep rodent damage to a minimum

Personal protective equipment

- Sturdy, waterproof footwear
- Leather or rubber gloves when handling pipes
- Consider earplugs or earmuffs when around noisy pumps
- Safety glasses
- Ensure long hair, jewelry, and loose clothing is secured

Considerations for specific equipment

Pivots

- Fall protection may be needed when servicing pivots. Usually ladders are fabricated into the wheel tower, but they should still be inspected for safety
- New pivots can turn on/off remotely with your phone. Work with the pivot company to discuss lockout/tagout with phone controls
- Use the right ladders and stable lift devices when inspecting the system and ensure they're properly anchored
- Be aware of wheel paths in the field when riding ATVs to the pivot

Wheel lines

- Stake wheel lines down at the end of the season to prevent runaway sections of wheel line
- Maintain and fix wheels as needed to increase movability
- Review lockout/tagout procedures for the gear box

Irrigation ponds

- Be aware of possible slip and fall hazards when working around bodies of water
- Guard drops to water below and consider life jackets and/or rescue rings if workers access waterways

Continued

Serious injuries and fatalities in irrigation

1992 hand injury:
When moving irrigation pipe, an irrigator lifted one section of pipe, creating a gap where two sections of pipe were stuck. His partner grabbed the next section by the gap at its mouth. When his partner moved the section of pipe to break it free his hand got caught where the pipes were joined, and he lost his finger.

2017 fatal electrocution:
A worker was standing a 40-foot irrigation pipe on its end to move it when the pipe touched an overhead electrical wire 22 feet above the ground. The worker was electrocuted and died a short time later.

Take action (Complete activity as a team)

Demonstrate your specific irrigation equipment either in person or through photos, and discuss potential hazards on your farm. These are images of a few common irrigation hazards. We encourage you to take pictures of your own equipment and include your specific equipment and hazards in the training.

Ensure line is depressurized before working on the system. Complete regular maintenance and inspections.

Overhead power lines account for 80% of electrocutions in agriculture. Consider clearances and never stand pipes on their ends.

A comprehensive program and training should be in place whenever operating ATVs on the farm. Consider safer methods of transport and be aware of wheel paths in the field.

Increase visibility, communicate frequently, and watch for moving parts and equipment to avoid being caught in-between. This includes vehicles, pipes, rollers and other large equipment.

Train as specifically as possible. For example:

"Because of the lack of overhead line clearance, transport this cultivator through the green gate."

"Irrigation pipe or hay bales must be stacked at least 150 feet away from power lines." (Then demonstrate the distance to your employees.)

"Locate and avoid overhead power before clearing pipe from water, dirt, or small animals."