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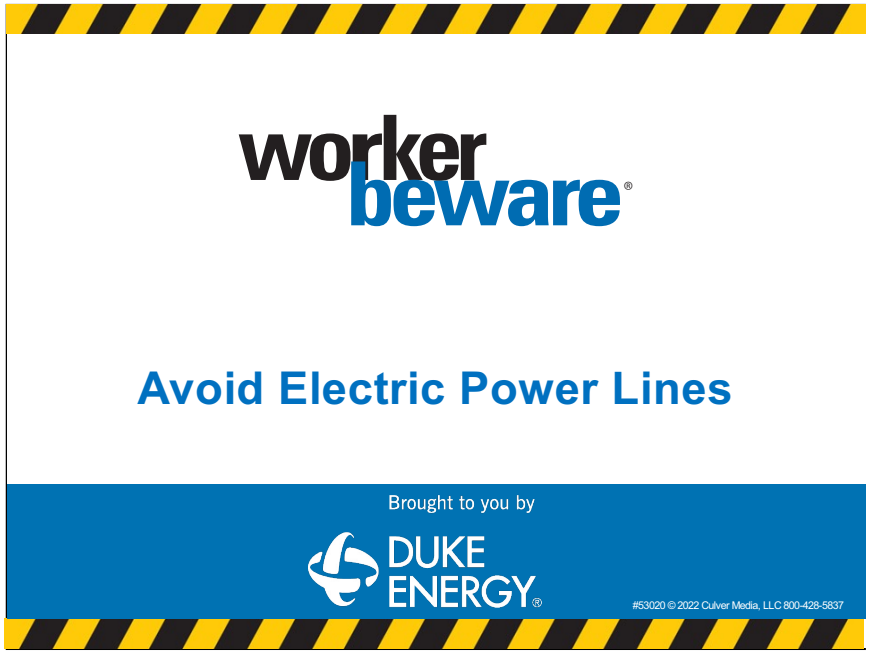
Presenter's Notes



Before darkening the room, offer a welcome and overview. Begin by introducing the program and its topic:

Today's training session focuses on working safely around electric power lines. By following the procedures we'll cover here today, you can keep yourself and your crew members safe and on the job. On the other hand, if you cut corners where power lines are concerned, you put yourself, your crew, and the public at risk of serious injury and even death. Please pay careful attention, and ask questions if you don't understand.

Darken the room and begin the presentation.

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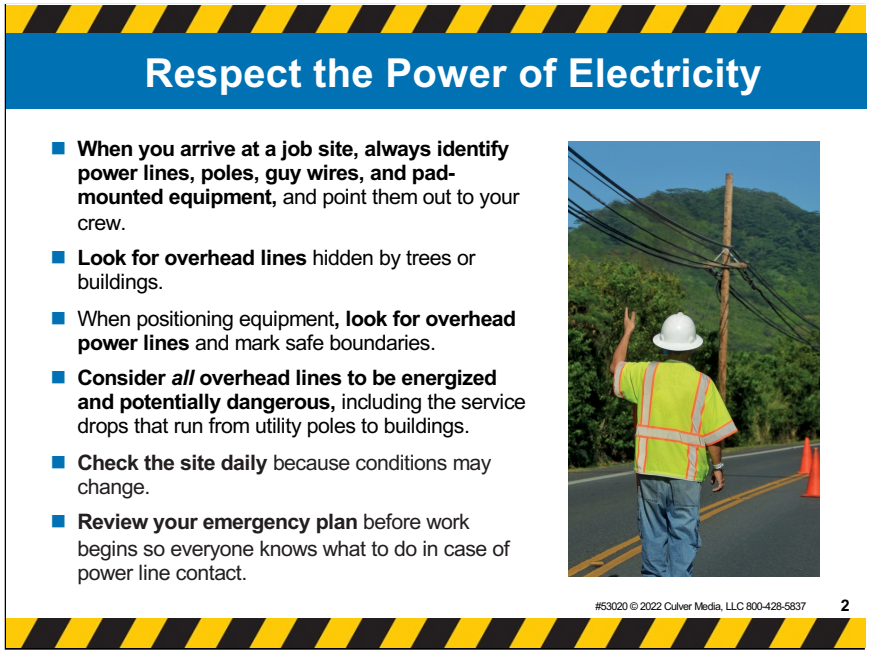
Presenter's Notes



Respect the power of electricity and follow some simple best practices before starting work.

- When you arrive at a job site, always identify power lines, poles, guy wires, and pad-mounted equipment, and point them out to your crew. Review proper safety procedures before beginning work.
- Look for overhead lines hidden by trees or buildings.
- When positioning equipment, look for overhead power lines and mark safe boundaries.
- Consider *all* overhead lines to be energized and potentially dangerous, including the service drops that run from utility poles to buildings. These wires may look insulated, but any coating you see may be designed to protect the lines from weather, not to protect you from shock. Contact can still be deadly, so keep your distance.
- Check the site daily because conditions may change. Always survey the site before beginning the day's work.
- Review your emergency plan before work begins so everyone knows what to do in case of power line contact.

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Presenter's Notes

For tools and equipment other than cranes and derricks used in construction, always observe the 10-foot rule. (Cranes and derricks on construction sites may require greater clearances, which we will discuss on the next slide.)

- OSHA requires that you keep yourself and your equipment at least 10 feet away from overhead power lines carrying up to 50 kV. This applies to all personnel, tools, materials, and equipment other than cranes or derricks used in construction. Be aware that wind can move equipment, so build in some extra distance in case of an unexpected shift. A good rule of thumb is to maintain a buffer zone of the minimum required clearance plus 1.5 times the length of your tools or material.
- Higher-voltage lines require greater clearances. Contact Duke Energy for clearance information. Remember that your best practice is always to stay as far away as possible from power lines.
- If your job requires you to work closer than 10 feet from power lines, call Duke Energy well in advance to make safety arrangements. In your state, call:
  - Carolinas: 800.777.9898 or 800.POWERON
  - Indiana: 800.521.2232
  - Kentucky or Ohio: 800.544.6900
  - Duke Energy Progress: 800.452.2777
  - Florida: 800.700.8744

  Cutting corners and failing to call could have life-threatening and livelihood-threatening consequences.
- Electrical safety distances given here are minimums.
- Always use the maximum possible distance, and clearly mark boundaries with tape, signs, or barricades to keep workers and equipment away.

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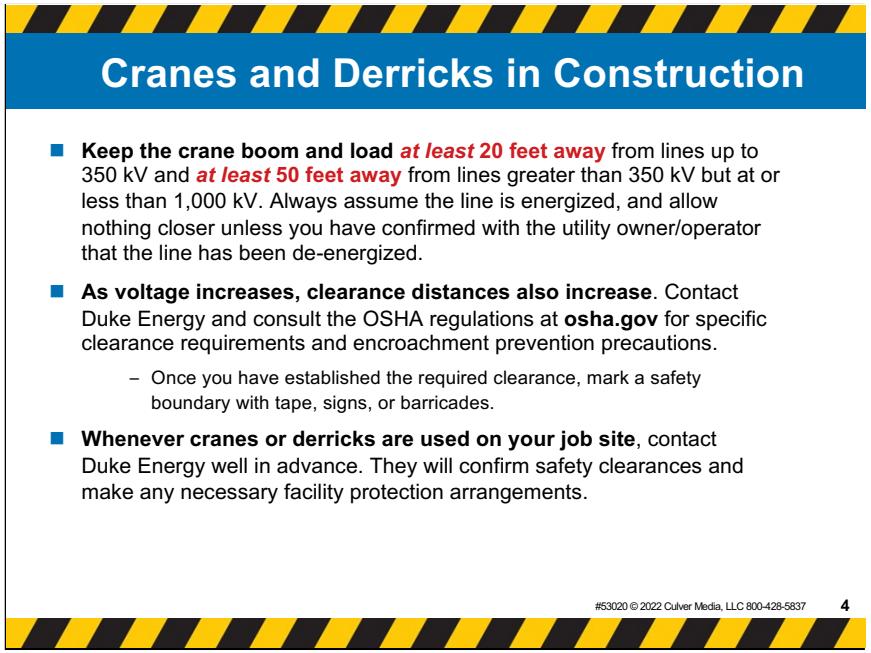
Presenter's Notes



Cranes and derricks used in construction require different clearances than other equipment.

- You must keep the crane boom and load at least 20 feet away from lines up to 350 kV and at least 50 feet away from lines greater than 350 kV but at or less than 1,000 kV. Always assume the line is energized, and allow nothing closer unless you have confirmed with the utility owner/operator that the line has been de-energized.
- As voltage increases, clearance distances also increase. Contact Duke Energy and consult the OSHA regulations at osha.gov for specific clearance requirements and encroachment prevention precautions.
  - Once you have established the required clearance, mark a safety boundary with tape, signs, or barricades.
- Whenever cranes or derricks are used on your job site, contact Duke Energy well in advance. They will send a representative to your job site to confirm voltages and safety clearances and to make any necessary facility protection arrangements.

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Presenter's Notes

Use a Dedicated Spotter

- **Always use a dedicated, qualified spotter on the ground** to safely judge distances between hoisting equipment and power lines.
- **Crane and derrick operators:** You must maintain continuous contact with a dedicated spotter to comply with line clearance requirements.
- **The spotter's only responsibility should be power line safety.** Don't divide the spotter's attention with other tasks.

Use a dedicated spotter when working with hoisting equipment around overhead lines.

- Always use a dedicated, qualified spotter on the ground to safely judge distances between hoisting equipment and power lines. From the ground, the spotter will have the clearest vantage point and best be able to judge distances correctly.
- Crane and derrick operators must maintain continuous contact with a dedicated spotter to comply with electric line clearance requirements.
- The spotter's only responsibility should be power line safety. Don't divide the spotter's attention with other tasks. To be effective, the spotter must make spotting and clear communication with the equipment operator the top priorities.

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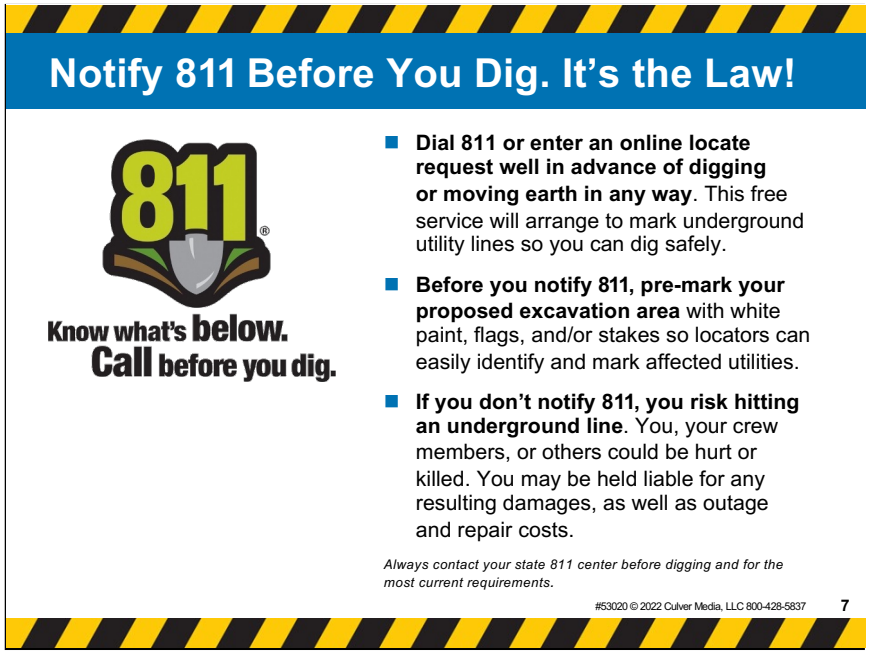
Presenter's Notes

If your equipment contacts a power line, it's critical to follow proper safety procedures.

- The equipment, the line and anything touching them should be considered energized.
- Move the equipment away from the line, if you can do so safely.
- Remain on the equipment until utility workers say it's safe to get off. You are safe from electric shock while on the equipment.
- Warn others to stay far away. Anyone who touches the equipment or even the ground nearby may be injured or killed.
- Have someone call 911 and Duke Energy immediately. Their personnel will respond, switch off the power, and tell you when it is safe to leave or move the equipment. Wait for their instructions.
- If fire or other imminent danger forces you off the equipment, take these steps:
  - Do NOT touch the equipment and the ground at the same time.
  - Jump clear, and land with your feet together.
  - Shuffle away with small steps, keeping both feet close together and on the ground at all times. Resist the temptation to run or take long steps because this puts you at risk for shock.
  - Do not return to the equipment until utility personnel tell you it is safe.
- Never touch fallen power lines or anything they may be contacting. Stay far away, and call 911 and Duke Energy to report the emergency.

Demonstrate the jump-off procedure.



Underground power lines can pose an unseen but very real danger. By law, and for your safety, you must notify the 811 center before you dig.

- Call the underground utility locator service at 811 or enter an online locate request well in advance of digging or moving earth in any way. This free service will arrange the marking of underground power lines and other buried utilities in your dig area, so you can work a safe distance away from them. Be sure to leave adequate time in your job schedule. The service is free, but the costs of not calling can be very high. Building in a few extra days for the job costs less in the long run than spending months or years recovering physically and financially from a power line incident. And remember, it's the law.
- Before you notify 811, pre-mark your proposed excavation area with white paint, flags, and/or stakes so locators can easily identify and mark affected utilities.
- If you don't notify 811, you risk hitting an underground utility line. You, your crew members, or others could be hurt or killed. You may be held liable for any resulting damages, as well as outage and repair costs.
- Always contact your state 811 center before digging and for the most current requirements.

Wait the Required Time

- **In Florida,* Indiana and Kentucky,*** wait *at least* two full business days, excluding weekends and legal holidays.

  In Ohio, wait *at least* 48 hours, excluding weekends and legal holidays.

  In North Carolina* and South Carolina,* wait *at least* three full business days, excluding weekends and legal holidays.

  ***In FL, KY, NC and SC,** this wait time does not include the date you make your locate request at 811.*

- **If you wait the required time and the locate is not completed, do not dig**. Notify the 811 service that your locate request has not been fulfilled.

Always contact your state 811 center before digging and for the most current requirements.

 8

After you notify 811, wait the required time for buried utility lines to be marked before you dig:

- This wait time varies by state.
  - In Florida,* Indiana and Kentucky,* wait at least two full business days, excluding weekends and legal holidays.
  - In Ohio, wait at least 48 hours, excluding weekends and legal holidays.
  - In North Carolina* and South Carolina,* wait at least three full business days, excluding weekends and legal holidays.

    **In FL, KY, NC and SC, this wait time does not include the date you make your locate request at 811.*
- If you wait the required time and the locate is not completed, do not dig! You must notify the 811 service that your locate request has not been fulfilled.

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Presenter's Notes

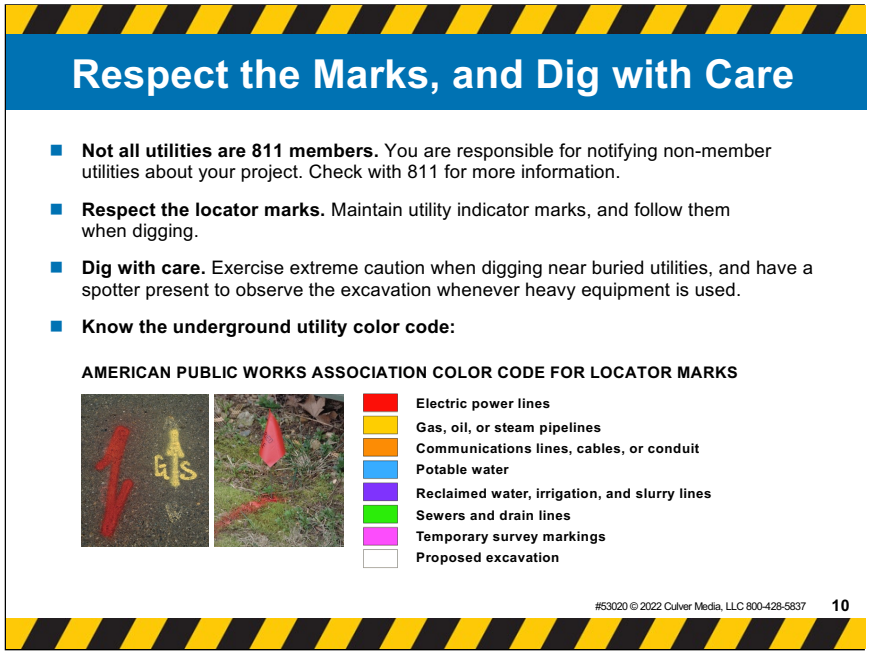
Conduct a Visual Site Survey

- **Do not rely exclusively on the locate marks.** Look for visual indicators of underground facilities that have not been marked.
- **Check with property owners about any private underground lines** that would not have been marked by the locator.
- **Also check for signs of something buried after the locate was completed**, such as a fresh trench.
  - If you find a newly installed or unmarked facility, call 811.

 9

Conduct a visual site survey before beginning any digging.

- Do not rely exclusively on the locate marks. Look for visual indicators of underground facilities that have not been marked, such as meters and pad-mounted transformers. Use your common sense and industry knowledge.
- Check with property owners about any private underground lines that would not have been marked by the locator because they do not belong to a utility.
- Also check for signs of something buried after the locate was completed, such as a fresh trench.
  - If you find a newly installed or unmarked facility, call 811.



After you contact 811, the underground utility locator service will arrange for each member utility to send someone out to your dig site to mark the underground lines.

- Not all utilities are 811 members and may not be notified. You are responsible for notifying non-member utilities. Check with 811 for more information.
- Respect the locator marks. Maintain utility indicator marks for the duration of the job, and follow them when digging. If lines become confusing, faded, or illegible, notify 811 to refresh them—do NOT use paint to refresh fading marks yourself! Be sure to renew and update your 811 ticket per state regulations.
- Dig with care. Exercise extreme caution when digging near buried utilities, and have a spotter present to observe the excavation whenever heavy equipment is used.
- Know the underground utility color code. Utilities use these colors to mark their lines. Learn the code to stay safe.

Point to the chart as you speak.

  - Red: Electric power lines
  - Yellow: Gas, oil, or steam pipelines
  - Orange: Communications lines, cables, or conduit
  - Blue: Potable water
  - Purple: Reclaimed water, irrigation, and slurry lines
  - Green: Sewers and drain lines
  - Pink: Temporary survey markings
  - White: Proposed excavation

Respect the Tolerance Zone

- **Dig carefully within the "tolerance zone,"** which spans the width of a marked utility plus up to an additional 24 inches on either side of the outside edge of the utility (18 inches in Ohio). Refer to state laws for the appropriate distance.
- **Hand dig prudently in this zone.** For your safety, use only hand tools or vacuum technology to visually verify the location of utility lines within the tolerance zone.
- **Once visual identification has been achieved**, use a spotter to observe the excavation and help prevent damage when heavy equipment is used near the tolerance zone.
- **The tolerance zone is a *minimum* safety clearance**. Protect yourself by maintaining the maximum possible distance.

Always contact your state 811 center before digging and for the most current requirements.

 11

Respecting the tolerance zone protects buried utility lines from damage and also protects you from injury.

- Dig carefully within the "tolerance zone," which spans the width of a marked utility plus up to an additional 24 inches on either side of the outside edge of the utility (18 inches in Ohio). Refer to state laws for the appropriate distance.
- Hand dig prudently in this zone. For your safety, use only hand tools or vacuum technology to visually verify the location of utility lines within the tolerance zone. Use extreme care and caution. Too many accidental utility contacts have occurred when someone dug with a backhoe or other power-operated equipment instead of a shovel.
- Once visual identification has been achieved, use a spotter to observe the excavation and help prevent damage when heavy equipment is used near the tolerance zone.
- The tolerance zone is a minimum safety clearance. Locator marks are only the locator's most reasonable interpretation of the equipment's signal. So protect yourself by maintaining the maximum possible distance.

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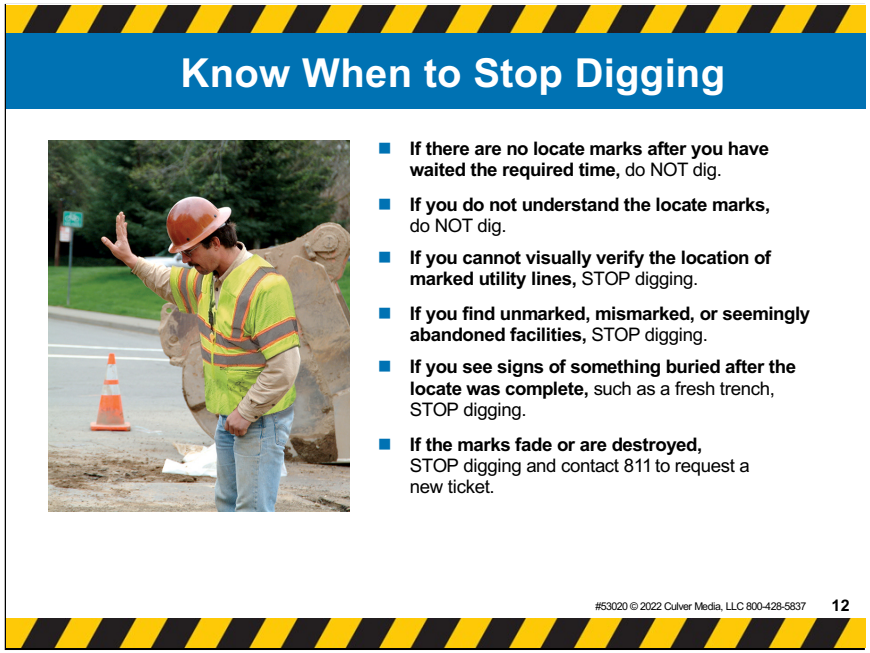
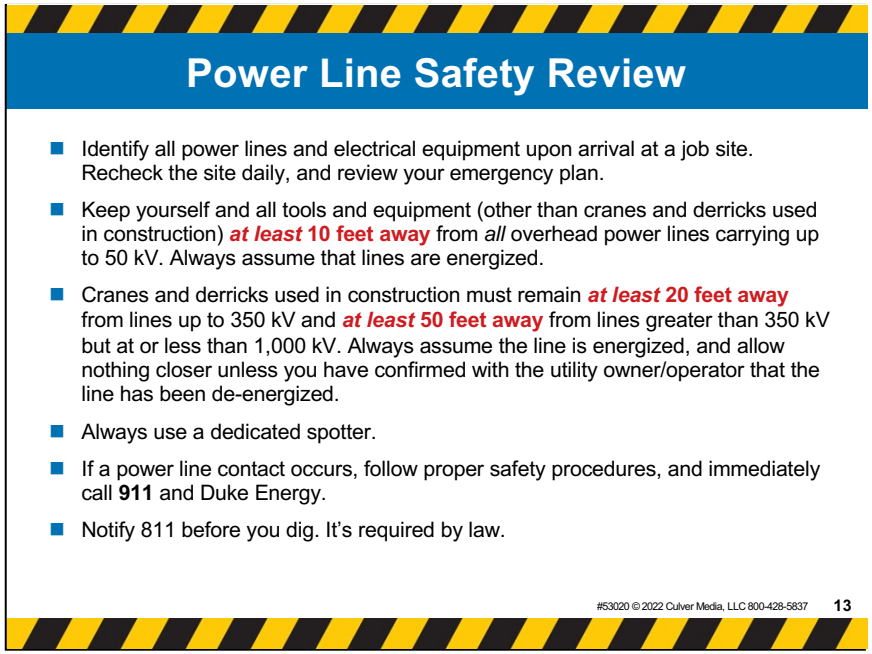
Presenter's Notes



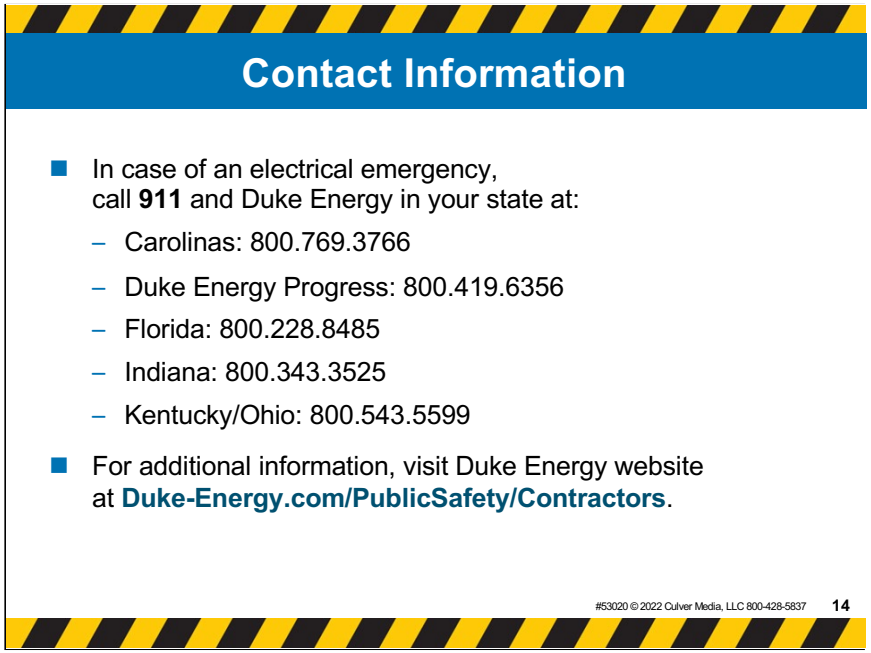
When you work around buried power lines, knowing when to stop a job could save your life.

- If there are no locate marks after you have waited the required time, do NOT dig. Notify the 811 service that your locate request has not been fulfilled.
- If you do not understand the locate marks, do NOT dig. Ask your supervisor what you must do to work safely.
- If you cannot visually verify the location of marked utility lines by hand digging, STOP digging and notify 811 immediately.
- If you find unmarked, mismarked, or seemingly abandoned facilities, STOP digging. Assume all utility lines are in service, and report them to 811.
- If you see signs of something buried after the locate was complete, such as a fresh trench, STOP digging. Notify 811.
- If the marks fade or are destroyed, STOP digging and contact 811 to request a new ticket. Do not resume digging until the area is re-marked.



So let's review the key safety points of this presentation.

- Identify all power lines and electrical equipment upon arrival at a job site. Recheck the site daily, and review your emergency plan.
- Keep yourself and all tools and equipment (other than cranes and derricks used in construction) at least 10 feet away from all overhead power lines carrying up to 50 kV. Always assume that lines are energized.
- Cranes and derricks used in construction must remain at least 20 feet away from lines up to 350 kV and at least 50 feet away from lines greater than 350 kV but at or less than 1,000 kV. Always assume the line is energized, and allow nothing closer unless you have confirmed with the utility owner/operator that the line has been de-energized.
- Always use a dedicated spotter.
- If a power line contact occurs, follow proper safety procedures and immediately call 911 and Duke Energy.
- Notify the underground utility locator service by dialing 811 or using the online ticket-entry system before you dig.



Last but not least, here is some important contact information to keep handy:

- In case of an electrical emergency, call 911 and Duke Energy in your state at:
  - Carolinas: 800.769.3766
  - Duke Energy Progress: 800.419.6356
  - Florida: 800.228.8485
  - Indiana: 800.343.3525
  - Kentucky/Ohio: 800.543.5599
- For additional information, visit the Duke Energy website at **Duke-Energy.com/PublicSafety/Contractors**.

Thank you for your attention.

Take questions and begin discussion. If you are using the trainer's guide, in it you will find discussion topics, an electrical safety quiz, and more information about the properties of electricity and the electric delivery system.

Discuss how this information conflicts with what your audience believed about electrical safety, and ask how they may have put themselves or others at risk in the past. Ask what they would have done differently had they had this training before.

Duke Energy thanks you for helping to keep workers safe.