



## **Electrocution is the leading cause of on-the-job death for water well drillers.\***

**Case 1:** A driller-helper was pulling a winch cable toward a stack of drill steel when the cable contacted a 12,000-volt power line. The helper was killed, and the driller at the rig controls was severely injured.



**Case 2:** A crew was preparing to remove a pump from a well when the hoist boom contacted a 4160-volt power line. The hoist operator was electrocuted.



**OSHA Regulation - 29 CFR 1910.333 (c)(3)(iii)(A)** (summarized)  
Power lines up to 50,000 volts – keep equipment at least 10 feet away, plus an additional 4 inches for every 10,000 volts above 50,000.

\*Based on statistics from 1992-2002 from the Bureau of Labor Statistics.



## Overhead power line safety job site tips

Most overhead power lines are not insulated. They often operate at several thousand volts or higher. If your drill rig or hoist truck hits a power line, any person touching this equipment and the ground at the same time will be severely injured or killed.

Always look around the job site for nearby power lines. Avoid working near any lines, including service drops. OSHA regulations in 29 CFR 1910.333 require that you stay at least 10 feet away from power lines up to 50,000 volts. Play it safe – keep all parts of your equipment at least 35 feet away from power lines.

Never store supplies or park equipment under or near power lines. When raising or lowering the mast, stand on the operator's platform. Use your helper as a lookout to make sure the mast is always at least 10 feet from any power lines.

Be sure that winch and hoist cables will remain at least 10 feet from power lines during all drilling and well maintenance operations.



**SAFER • HEALTHIER • PEOPLE™**

For additional information, contact NIOSH at 1-800-35-NIOSH (1-800-356-4674), Fax: 513-533-8573, or visit the NIOSH Web site at: [www.cdc.gov/niosh/injury/traumaelec.html](http://www.cdc.gov/niosh/injury/traumaelec.html)



## Electrocution is the leading cause of on-the-job death for water well drillers.\*

**Case 1:** A driller lowered a drill rig mast into a 13,800- volt power line and was electrocuted. A truck driver saw the driller collapse and rushed over to help. The truck driver touched the drill rig and was also killed.



**Case 2:** A crew was preparing to remove a pump from a well when the hoist boom contacted a 4160-volt power line. The hoist operator was electrocuted.



**OSHA Regulation - 29 CFR 1910.333 (c)(3)(iii)(A)** (summarized)  
Power lines up to 50,000 volts – keep equipment at least 10 feet away, plus an additional 4 inches for every 10,000 volts above 50,000.

\*Based on statistics from 1992-2002 from the Bureau of Labor Statistics.



## Follow these steps if your equipment contacts an overhead power line.

1. If you are on board the drill rig or hoist truck, stay in place unless it is on fire and you must get off.

2. Try to move the mast or boom at least 10 feet away from line. Never approach or touch equipment from the ground in order to do this.

3. If equipment can't be moved, the power lines must be deenergized. Call the utility company and wait for them to deenergize the lines.

4. If you are not on board, stay away from rig or hoist truck. Never touch any connected winch cables, drill steels, pipes, or hoses.

5. Never attempt to assist an injured worker until the equipment is deenergized. If power lines appear to deenergize automatically, stay away; the lines could automatically reenergize.



**SAFER • HEALTHIER • PEOPLE™**

For additional information, contact NIOSH at 1-800-35-NIOSH (1-800-356-4674), Fax: 513-533-8573, or visit the NIOSH Web site at: [www.cdc.gov/niosh/injury/traumaelec.html](http://www.cdc.gov/niosh/injury/traumaelec.html)



## **Electrocution is the leading cause of on-the-job death for water well drillers.\***

**Case 1:** A driller raised a drill rig mast into a 7200-volt overhead power line. Both he and his helper were killed.

**Case 2:** A driller-helper was pulling a winch cable toward a stack of drill steel when the cable contacted a 12,000-volt power line. The helper was killed, and the driller at the rig controls was severely injured.



**OSHA Regulations - 29 CFR 1910.333 (c)(3)(iii)(A)** (summarized)  
Power lines up to 50,000 volts – keep equipment at least 10 feet away,  
plus an additional 4 inches for every 10,000 volts above 50,000.

\*Based on statistics from 1992-2002 from the Bureau of Labor Statistics.



## How to get off equipment in contact with an overhead power line.

If you are on board a drill rig or hoist truck that is energized due to contact with an overhead power line, try to move the mast or boom at least 10 ft away from the lines. If the equipment can't be moved, but you must get off because it is on fire, never touch the equipment and the ground at the same time.

Jump clear of the rig and land upright with your feet close together. Be sure not to fall backward and contact the rig.

Move away with short shuffling steps or by hopping.



**SAFER • HEALTHIER • PEOPLE™**

For additional information, contact NIOSH at 1-800-35-NIOSH (1-800-356-4674), Fax: 513-533-8573, or visit the NIOSH Web site at: [www.cdc.gov/niosh/injury/traumaelec.html](http://www.cdc.gov/niosh/injury/traumaelec.html)

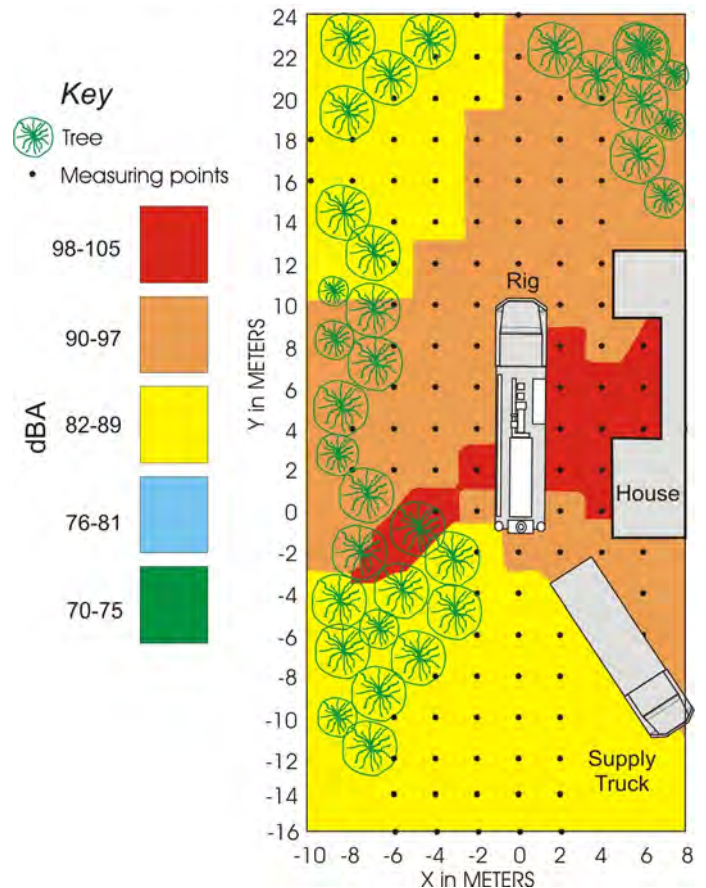


# Noise-induced hearing loss is one of the most common occupational diseases in the U.S.

Working around loud noise can lead to hearing loss.

Hearing loss makes it hard to understand the machine's audio cues that tell you such things as when to add or reduce air pressure or if you have broken a drill bit.

The drill rig's compressor, engine, cooling fan, and drill rod are noise sources that can expose workers to noise levels 90 dB(A) and above.



The image above shows a sample water well site. Red and orange colors show noise levels above OSHA limits.

## **OSHA Regulation - 29 CFR 1910.95 (a)**

Protection against the effects of noise exposure shall be provided when sound levels exceed permissible noise exposure levels (ex. TWA of 90 dB(A) for 8 Hours or 95 dB(A) for 4 hours)



## Take these steps to lower your noise exposure at the work site.

1. Move 6 to 12 feet away from cooling fan, rig compressor, engine, or drill rod when not working on these rig parts.
2. Consistently wear hearing protection devices: ear plugs, ear muffs, or canal caps.
3. Know OSHA regulations on noise exposure levels (from 29 CFR 1910.95 (b) (2) listed in the table below.



<b>Duration</b>	<b>Sound level dB(A)</b>
8 hours	90
6 hours	92
4 hours	95
2 hours	100
1 hour	105
30 minutes	110
15 minutes	115

**SAFER • HEALTHIER • PEOPLE™**

For additional information, contact NIOSH at 1-800-35-NIOSH (1-800-356-4674), Fax: 513-533-8573, or visit the NIOSH Web site at: [www.cdc.gov/niosh/topics/noise](http://www.cdc.gov/niosh/topics/noise)





# Noise-induced hearing loss is one of the most common occupational diseases in the U.S.

Working around loud noise can lead to hearing loss.

Hearing loss makes it harder to understand the machine's audio cues that tell you such things as when to add or reduce air pressure, drill faster or slower, or if the drill bit is broken.

Wearing hearing protection every day at the worksite will help to lower your exposure to noise.



NIOSH has developed a partial cab design (arrows note cab on rig) that can be retrofitted onto drilling rigs. Field tests have shown that the partial cab can reduce sound levels at the operator's ear by as much as 8 dB(A) while hammer drilling.

### **OSHA Regulation - 29 CFR 1910.95 (a)**

Protection against the effects of noise exposure shall be provided when sound levels exceed permissible noise exposure levels (ex. TWA of 90 dB(A) for 8 Hours or 95 dB(A) for 4 hours)



# Hearing Protection Devices

Everyone is different, and so are ears.  
Choose a device that is most comfortable for you.



## Foam Plugs

Molds to shape of ear canal.

Does not interfere with hair, glasses or hard hat.

To insert: Roll plug to a point. Pull ear up and back to straighten ear canal. Hold plug for 30 seconds.

Replace when dirty.



## Flange Plugs or Canal Caps

Provides seal against ear canal wall.

Twist or rotate plug to insert in ear.

Twist or rotate plug to remove.

Washable/reusable.



## Ear Muffs

Can be seen from distance.

Replace muffs when they become stiff or brittle.

Glasses, facial hair affect degree of protection.

**SAFER • HEALTHIER • PEOPLE™**

For additional information, contact NIOSH at 1-800-35-NIOSH  
(1-800-356-4674), Fax: 513-533-8573, or visit the NIOSH Web  
site at: [www.cdc.gov/niosh/topics/noise](http://www.cdc.gov/niosh/topics/noise)