



CONTROLLING NOISE EXPOSURE

Toolbox Talk



AGENDA

- » What is Noise?
- » Some Perspective
- » Types of Exposure
- » Health Effects
- » Hearing Protection
- » Inserting Plugs Properly
- » Where are the Gaps?

WHAT IS NOISE?

- » Noise is unwanted sound

- » Noise levels vary significantly
 - Noise is measured in decibels (dB)
 - Logarithmic rather than linear
 - An increase in 10 dB means sound is 10 X louder
 - E.g. 125 dBA is 10,000 times louder than 85 dBA

 - What does this mean practically?
 - People are a poor judge of sound level and hearing protection needs to be worn properly and consistently

SOME PERSPECTIVE

» Quiet office	~ 40 dBA
» Normal conversation	~ 60 dBA
» Handsaw	~ 85 dBA
» <u>8-hour Occupational Exposure Level (OEL)</u>	~ 85 dBA
» Bulldozer	~ 100 dBA
» Generator	~ 116 dBA
» Oxygen torch	~ 121 dBA
» Shotgun	~ 170 dBA

Source: Honeywell Noise Thermometer

TYPES OF EXPOSURE

- » Exposure is a function of:
 - Work locations (routine)
 - E.g. Logging a compressor building or operating a frack pump
 - Work activities (tasks)
 - E.g. Blowing down a well or using tools that make noise such as pneumatic tools
 - Events (infrequent)
 - E.g. Site shut-down (ESD) and gas sent to flare

HEALTH EFFECTS

- » Noise damages the inner ear
- » Noise induced hearing loss is permanent
 - Dependent on intensity and duration
- » Other health effects (stress):
 - Fatigue
 - Elevated blood pressure
 - Etc.
- » At 85 dBA we expect ~8% of workers to lose hearing over a working lifetime⁽¹⁾

(1) <http://www.cdc.gov/niosh/docs/98-126/pdfs/98-126.pdf>

HEARING PROTECTION

- » Only has value if it is worn all the time!
- » Double protection only gets you 5 dBA extra protection because of bone conduction
- » Without training, plugs may give you only 12 dBA of protection despite CSA class or grade.⁽¹⁾
- » It typically takes more than one plug type to fit a large group of workers



Photos Courtesy of Honeywell

(1) <http://multimedia.3m.com/mws/media/8931960/earlog-20.pdf?fn=EARLog%2020.pdf>

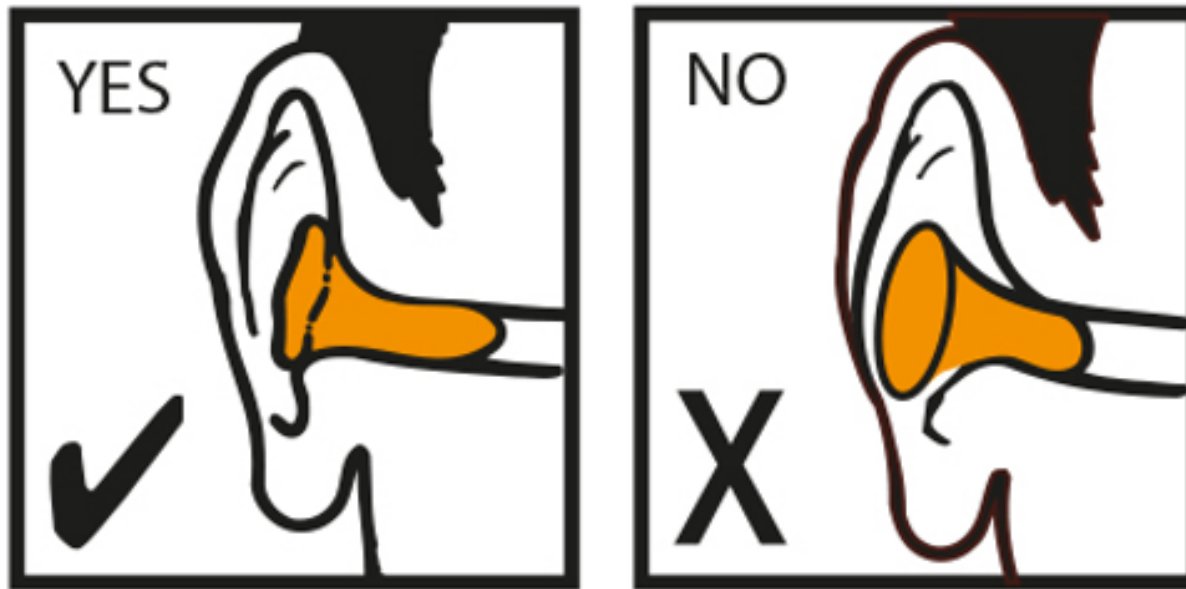
INSERTING PLUGS PROPERLY



Images Courtesy of Honeywell

INSERTING PLUGS PROPERLY

PROPER FIT



Images Courtesy of Honeywell

INSERTING PLUGS PROPERLY

- » A roll-down plug needs to be rolled down completely with no creases
- » Lift outer ear up and back to straighten ear canal
 - Insert the plug and hold until the plug has expanded
- » Fit Check: In a noisy environment, place your finger up against plug and lightly press or cup your hand over your ears
 - Do you hear a difference? If so, you need more protection and your plugs are likely not inserted properly

WHERE ARE THE GAPS?

- » People do not wear hearing protection
 - “I know I am going to lose my hearing, it is part of working in the oil and gas industry”
 - Solution: education and enforcement

- » People are not wearing protection properly
 - Solution: training, fit testing, etc.

- » People need more protection
 - Solution: noise measurement and muffs available

- » Noise is too high for PPE, other controls required
 - Solution: implement administration and engineering controls

HOW MIGHT THIS IMPACT US?

- » Have we conducted noise measurements?
- » Do workers really know how to use hearing protection?
- » How confident are we that our workers are not going to lose their hearing?

ADDITIONAL INFORMATION

- » Alberta Labour and Immigration, Workplace Health and Safety, [Noise at the Work Site Bulletin](#), November 2009
- » WorkSafe BC, [Occupational Noise Surveys](#), April 2007
- » WorkSafe BC, [Hearing test results in the oil and gas industry](#), WorkSafe Bulletin, 2015

For additional information please contact
Safety@EnergySafetyCanada.com