

WELCOME – STEP 1

1. Welcome to the May Safety Toolkit – Noise and Hearing Conservation. You play an important role in the health and safety across the company, and we thank you for your contribution! Without your focus and dedication to making safety a priority, our people would suffer, our clients would suffer, and our families would suffer. We hope you find the safety tools provided in this Toolkit and in Toolkits like this in the coming months as just some of the many resources afforded to you to communicate Eye and Face Protection. As always, the work you do matters, and we are so grateful to have you on the team!

HOW TO USE THIS SAFETY TOOLKIT

1. Supervisor/Lead Script – Start Here! Way to go! Now keep reading and you'll be all set. This script sets you up for success.
2. Supervisor/Lead PowerPoint – Use this as a training moment for your team. Everything you need to know and communicate for each slide is contained in this script! Skip ahead if you are ready to give this training to your team. It's always a good time to learn about Eye and Face Protection. The presentation should last about 1 hour & 6 minutes depending on group participation.
3. Teaching Tool – We have included an Noise and Hearing Conservation Practice Quiz and Answer Key to test your knowledge
4. Site Communication Poster – A PDF version of the monthly infographic if you would like to display it at your workplace.
5. Sign-In Sheets – Please complete this form when completing Noise and Hearing Conservation training and turn-in to the appropriate point of contact as a record of training.
6. What's next? – Use this QR code for yourself AND share it amongst everyone on your team for additional safety resources based on the theme Eye and Face Protection. Look for Interactive resources, recommendations for phone apps, checklists, handouts, and more. Check it out!



SUPERVISOR/LEAD POWERPOINT SCRIPT – STEP 2

NOTES ON THESE SLIDES:

- KLP: Key Learning Point (objective of the slide)
- F: Facilitator

Slide 1: Title Page (30 Seconds)

KLP: You set the tone. If you believe safety is important, the audience will believe safety is important.

The facilitator opens the session by welcoming everybody to the training and noting the monthly focus – Noise and Hearing Protection.

F: Today's task is to attend training on Noise and Hearing Conservation. Cell phones should be turned off or silenced during this training. If you need to take a call, please go to (designated area), take the call, and return as soon as possible. {Address any other important announcements or business now.}

Slide 2: Housekeeping (1 Minutes)

KLP: Opportunity for a HSE (Health Safety and Environmental) Moment

F: Prior to training, determine if any fire drills are planned and the response expected from the facility and muster points if alarms should go off. It is important to remind employees that should they need to leave the location at any time, they should inform the Facilitator because, in the event of a fire incident, we need to know their whereabouts. This is an opportunity right at the start of the day to brief the employees on HSE procedures in general for the running of the training course. [If your job site is outdoors, do not overlook this safety moment. Adjust the plan in the event of a job site fire.]

F: Hello Team, I have verified with the HSE department and have confirmed that there are no Fire Drills or Emergency Drills scheduled for today. If we hear an alarm, we will follow site protocol for emergency response.

F: {Point out the fire exits and muster point}

F: Once we are at the muster points, we will do a role call to account for all attendees.

Slide 3: Presenter (2 Minutes) & Introductions (5 Minutes)

F: {This is your moment! This is a chance to visibly "Walk the Talk"}

Share:

- Your personal experience of safety and impact on the company

- Importance of making the most of this opportunity to think about the importance of HSE and discuss with employees
- Appreciate that you are a leader and that you make an impact
- Importance of taking personal responsibility to make a positive impact
- You get out of this training what you put into it
- HSE matters to our company
- The safety program is going to help people feel empowered and take the initiative to improve their own HSE performance through proactive attitudes and behaviors.

You may wish to share:

- A story of your experience in the safety program and how it has changed the way in which you behave.
- Some lessons learned from an incident when you have been involved in the investigation, highlighting the devastating impact that accidents have on people's lives, or you can describe your experience of being involved in an environmental incident. How did this affect the company, and more importantly, affect the lives of others not working for the company.

F: Go around the room and ask everyone to give their name and what their position is. {Wait for their responses, smile, and nod as they participate. Be careful about timing here---if you ask an additional intro question of the participants and give a long-winded answer yourself, your participants will follow with long stories/explanations, and you can accidentally take up a lot of time.}

Slide 4: Why am I here? (1 Minute)

F: Each one of us is the last line of defense to protect workers from injury or the environment from damage, should management systems and collective protections fail. Supervisors and workers are the KEY to HSE. We can promote or destroy the HSE climate through our own behavior and how other workers perceive it.

F: Supervisors and workers are responsible for enforcing safety rules. Regardless of our position, employment status, or background, everyone is responsible for HSE, and everyone can be a HSE leader by demonstrating positive attitudes and behavior.

Slide 5: The Human Ear (2 Minutes)

F: So, how exactly do we hear?

- Sound waves enter your outer ear and travel through the ear canal to your eardrum.

- Your eardrum vibrates with the incoming sound and sends the vibrations to three tiny bones in your middle ear.
- The bones in your middle ear amplify the sound vibrations and send them to your inner ear, or cochlea. The sound vibrations activate tiny hair cells in the inner ear, which in turn release neurochemical messengers.
- Your auditory nerve carries this electrical signal to the brain, which translates it into a sound you can understand.

F: The hairs inside of the ears serve other functions as well. Within the Semi-circular canals, there are three tubes laying perpendicular to one another. These tubes are filled with fluid and tiny hair cells. When your head is tilted, the fluid moves the hair cells, and they send a signal to your brain. This is responsible for helping you maintain your balance.

F: Loud sounds destroy the hair cells, and they stop functioning FOREVER!

Slide 6: Hearing Physiology – Think About It (1 Minutes)

F: Think about it this way; picture the ear's hair cells as grass in a lawn. If you walk on the lawn occasionally, the grass pops back up. But if you walk repeatedly in the same spot, the grass no longer recovers. This is what happens to the hair cells in your ears.

Slide 7: Noise and Its Effects (2 Minutes)

F: Noise is defined as any undesirable sound, even a meaningful one. Undesirable noise disrupts communication or interferes with other day-to-day activities. Exposure to high levels of noise causes hearing loss and may cause other harmful health effects as well.

F: The Centers for Disease Control and Prevention estimates that 22 million employees in the United States are exposed to potentially damaging noise at work each year. Noise-induced hearing loss is one of the most common occupational hazards for American workers.

F: Fortunately, noise-related hearing loss is preventable.

Slide 8: Noise Exposure - Video (4:17 Minutes)

F: (Click play to play clip)

Slide 9: How Sound is Measured (3 Minutes)

F: Many factors influence how loud a sound seems, including how long it lasts, the sound's frequencies (or pitches), and the environment in which you hear the sound. Another important and easily measured factor is sound intensity, or volume.

F: The frequency of a noise is measured in Hertz (Hz). The frequency measures the pitch of the sound. Humans can typically hear between 20 - 20,000 Hz. You can hear different frequencies better than others.

F: The loudness of a sound is measured in Decibels (dB). The quietest sound most humans can detect is 0 dB, but some people can even hear sounds as quiet as -5 dB. Decibels are measured on a logarithmic scale, which is a way of displaying numerical data over a very wide range in a compact way. Every time you increase **5 dB**, you **double** the sound.

Slide 10: Permissible Noise Exposure (2 Minutes)

F: OSHA sets permissible exposure limits (PELs) to protect workers against the health effects of exposure to hazardous substances or physical agents, such as noise.

F: With noise, OSHA's permissible exposure limit (PEL) is 90 dBA for all workers for an 8-hour day. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half.

F: OSHA requires employers to implement a hearing conservation program when noise exposure is at or above 85 decibels averaged over 8 working hours, or an 8-hour time-weighted average (TWA). Hearing conservation programs strive to prevent initial occupational hearing loss, preserve and protect remaining hearing, and equip workers with the knowledge and hearing protection devices necessary to safeguard themselves.

F: The chart shown gives the duration of exposure a day in hours and gives the Permissible Noise Exposure sound level for each. The impact noise should not exceed 140 dB.

Slide 11: Hearing Loss (5 Minutes)

F: Hearing loss can come about in several ways, in multiple forms.

F: On-the-job (occupational) noise is one of the most common sources of harmful noise. That's mainly because you are around it all day for years. Industries like construction and manufacturing are some of the most common industries leading to hearing loss since these employees are around harmful noise for several hours each day.

F: A sudden, extremely loud sound, such as an explosion, a gunshot, or a firecracker close to the ear, can damage any of the structures in the ear. When this happens, it can cause immediate, severe, and often permanent hearing loss. This type of injury often requires medical attention right away.

F: Sometimes exposure to impulse or continuous loud noise causes a temporary hearing loss that disappears after exposure. Loud sounds (like a rock concert) can cause a temporary ringing and temporary hearing loss. Sounds may also seem muffled. These effects usually don't last more than a few hours, but they may sometimes last several days or weeks. According to the National Institutes of Health, recent research suggests that although the loss of hearing seems to disappear, there may be residual long-term damage to your hearing.

F: Repeated, frequent exposure to loud or moderately loud sounds over a long period of time (often years) can cause permanent hearing loss. But this kind of hearing loss can almost always be prevented. These sounds include recreation and daily activities such as:

- High-volume music.
- The noise of power tools, like chainsaws or electric drills.
- The noise from lawn mowers, household appliances (such as blenders and vacuum cleaners), and vehicles (such as snowmobiles and motorcycles).

F: Some individuals develop tinnitus after loud noise exposure. Tinnitus is the perception of sound when no actual external noise is present. While it is commonly referred to as “ringing in the ears,” tinnitus can manifest many different perceptions of sound, including buzzing, hissing, whistling, swooshing, and clicking. Tinnitus can come about in several different ways, but most people who have it have some degree of hearing loss.

Slide 12: Protect Your Hearing! - Video (8:01 Minutes)

F: (Click to play clip)

Slide 13: Employer Responsibilities (2 Minutes)

F: OSHA requires employers to monitor noise exposure levels in a way that accurately identifies employees exposed to noise at or above 85 decibels (dB) averaged over 8 working hours, or an 8-hour time-weighted average (TWA). Employers must monitor all employees whose noise exposure is equivalent to or greater than a noise exposure received in 8 hours where the noise level is constantly 85 dB. The exposure measurement must include all continuous, intermittent,

and impulsive noise within an 80 dB to 130 dB range and must be taken during a typical work situation.

F: Employers must repeat monitoring whenever changes in production, process, or controls increase noise exposure.

F: The employer must establish and maintain an audiometric testing program. The important elements of the program include baseline audiograms, annual audiograms, training, and follow-up procedures. Employers must make audiometric testing available at no cost to all employees who are exposed to an action level of 85 dB or above, measured as an 8-hour TWA.

F: Employers must also provide hearing protectors to all workers exposed to 8-hour TWA noise levels of 85 dB or above.

Slide 14: Noise Monitoring (3 Minutes)

F: In order to determine if exposures are at or above this level, it may be necessary to measure or monitor the actual noise levels in the workplace and to estimate the noise exposure or "dose" received by employees during the workday. There are two different instruments to measure noise exposures: the sound level meter and the dosimeter.

F: A sound level meter is a device that measures the intensity of sound at a given moment. Since sound level meters provide a measure of sound intensity at only one point in time, it is generally necessary to take a number of measurements at different times during the day to estimate noise exposure over a workday. If noise levels fluctuate, the amount of time noise remains at each of the various measured levels must be determined.

F: A dosimeter is like a sound level meter except that it stores sound level measurements and integrates these measurements over time, providing an average noise exposure reading for a given period of time, such as an 8-hour workday. With a dosimeter, a microphone is attached to the employee's clothing and the exposure measurement is simply read at the end of the desired time period. A reader may be used to read-out the dosimeter's measurements. Since the dosimeter is worn by the employee, it measures noise levels in those locations in which the employee travels.

Slide 15: Exposure & Controls (3 Minutes)

F: There are several ways to control and reduce worker exposure to noise in a workplace where exposure has been shown to be excessive.

F: Engineering controls involve modifying or replacing equipment or making related physical changes at the noise source or along the transmission path to reduce the noise level at the worker's ear. Examples of inexpensive, effective engineering controls:

- Choose low-noise tools and machinery
- Maintain and lubricate machinery and equipment (e.g., oil bearings)
- Place a barrier between the noise source and employee (e.g., sound walls or curtains)
- Enclose or isolate the noise source.

F: Administrative controls are changes in the workplace or schedule that reduce or eliminate the worker exposure to noise. Examples:

- Operate noisy machines during shifts when fewer people are exposed
- Limit the amount of time a person spends at a noise source;
- Provide quiet areas where workers can gain relief from hazardous noise sources; and
- Control noise exposure through distance is often an effective, yet simple and inexpensive administrative control. Specifically, for every doubling of the distance between the source of noise and the worker, the noise is decreased by 6 dBA.

Slide 16: Hearing Protection (4 Minutes)

F: Hearing protection devices are mandatory to wear when:

- workers are exposed to 90 dBA or above for an 8-hour time weighted average (TWA);
- workers have a standard threshold shift; and
- workers are exposed to 85 dBA or above for more than six months until they receive their first audiogram.

F: Here are a few examples of hearing protection:

- Disposable foam plugs
- Molded ear plugs
- Noise-cancelling ear plugs
- Earmuffs

F: When purchasing hearing protection, the company will consider Noise Reduction Rating (NRR) of devices, Noise Reduction Rating (NRR) is a unit of measurement used to determine the effectiveness of hearing protection devices to decrease sound exposure within a given working environment. The higher the number, the greater the protection.

F: Employer must ensure proper initial fitting, as well as supervise the correct use of hearing protectors. Hearing protectors must be replaced as necessary at no cost to the employee and must be cleaned and stored according to the manufacturer's specification.

F: Each different form of hearing protection has advantages and disadvantages.

Slide 17: Hearing Protection - Earplugs (2 Minutes)

F: Let's look at the advantages and disadvantages of foam insert earplugs.

F: The advantages are:

- They offer more protection at lower frequencies than muffs.
- There are various NRRs (Noise Reduction Rating) available.
- They are relatively inexpensive and are usually disposable.
- They can be custom molded for the individual worker, and
- Reusable plugs are available.

F: The disadvantages are:

- Your hands must be cleaned before inserting the earplugs, which can be hard when on a jobsite.
- If improperly inserted, it reduces NRR value.

Slide 18: How to Use Formable Ear Plugs – Video (2:23 Minutes)

F: (Click to play clip)

Slide 19: Hearing Protection - Earmuffs (2 Minutes)

F: Next, let's look at the advantages and disadvantages of earmuffs.

F: The advantages are:

- They offer more protection at higher frequencies than earplugs.
- There are various NRRs available. .

- They are reusable, durable, and long lasting.
- They can be fitted on a hard hat.

F: The disadvantages are:

- They usually are a higher cost.
- For those who wear eyeglasses, it can interfere with the earmuff seal.
- They can be uncomfortable to wear in hot environments.
- They must be properly cleaned before use by another worker.

Slide 20: Hearing Protection – Earmuffs cont. (3 Minutes)

F: While it's true that it is easier to correctly fit earmuffs than earplugs, not all styles of earmuffs are worn the same way and it is actually possible to wear them incorrectly. Take a look at these images of a man wearing his earmuffs.

F: The pictures to the left show him properly wearing earmuffs that are properly fitted to his head and covering his entire ear.

F: The pictures to the right show him wearing his earmuffs incorrectly. The top picture shows the earmuffs are not properly fit to his head, leaving room for them to shift while working. The earmuffs in the bottom picture do not cover the employee's entire ear, leaving his ears exposed to noise.

Slide 21: Audio Metric Testing (2 Minutes)

F: Audiometric testing is used for determining your hearing sensitivity and how well you can hear. Regular audiometric testing can be a very useful tool in a hearing conservation program as it can identify when your hearing is being compromised.

F: The employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared within 6 months of an employee's first exposure at or above the action level. Without a baseline measurement, it is impossible to determine if any hearing loss has happened to employees.

F: When taking an audiometric test, you can expect the process to be similar to the following:

- The examiner will ask you questions as part of the evaluation, such as any ear, nose & throat problems like colds, infection or congestion. They will also likely ask about noisy

hobbies or activities and time since exposure to loud noise. The examiner may also visually check your outer ear canal with an otoscope for ear infections, excessive earwax or obstructions in the ear canal

- You will sit in a quiet booth and be equipped with a headset and a signal switch
- You will hear tones of varying level and frequency
- You will be instructed to depress the signal switch to indicate a tone was heard

F: It is important to be honest; don't try to anticipate or intentionally miss a tone, or the test will be invalid.

F: Audiometric testing can help identify progressive noise-induced hearing losses before they become an impairment. They can also identify temporary losses before they become permanent, providing time for remedial steps.

Slide 22: Questions?