

**DRAFT  
SAMPLE WRITTEN**

# **Hearing Conservation Program**

**For Compliance With**

**29 CFR 1910.95**

**Wyoming General Rules and Regulations**

Wyoming Department of Workforce Services  
OSHA Division  
Consultation Program

## ACKNOWLEDGEMENTS

This material was compiled by the staff of the Wyoming OSHA Consultation Program.

**NOTE: This sample plan is provided only as a guide to assist in complying with Wyoming OSHA's General Rules and Regulations. It is not intended to supersede the requirements detailed in the standards. Employers should review the standard for particular requirements, which are applicable to their specific situation. Employers will need to add information relevant to their particular facility in order to develop an effective program. Employers should note that certain programs are expected to be reviewed on an annual basis and updated when necessary.**

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The information contained in this document is not considered a substitute for any provision of the standard.

UPDATED: February 2014

**(COMPANY NAME HERE)**

## **HEARING CONSERVATION PROGRAM**

**Note:** *This sample program is written for an employer that has documented or assessed employee noise exposures at or above the 85dBA 8hr TWA action level. Although the Hearing Conservation Program is not required to be written, many employers choose to do so. The program is separated into sections that are required to be addressed in the OSHA standard 29CFR 1910.95. Additional information and sample letters are included in the appendices.*

*It is important that the employer delete sections that do not apply to their facility. Wording in "italic" format is employer information only and may be omitted from the final text of the program. Instructions in BOLD letters indicate sections that must be replaced by appropriate wording specific for your facility. **Wyoming Workers Safety will not accept this respirator program unless the employer has modified and completed all provisions outlined in this sample.***

### **1.0 POLICY**

It is the policy of **(Company Name here)** to provide employees with a safe and healthy work environment. This program has been developed to ensure that all of our employees are protected from hearing loss resulting from occupational noise exposure through a continuing, effective and comprehensive hearing conservation program. The content has been written to assure compliance with the Wyoming Occupational Health and Safety rules and regulations 29 CFR 1910 General Industry Standards.

Work environments will be surveyed to identify potentially hazardous noise levels and personnel at risk. Environments that contain or equipment/tools that produce potentially hazardous noise should, wherever it is technologically and economically feasible, be modified to reduce the noise exposure to acceptable levels. Hearing protection may be used as interim protection while engineering controls are being explored. Where engineering controls are not feasible, administrative controls and/or the use of hearing protective devices will be employed. Noise emission levels will be considered when purchasing new equipment and tools and acoustical requirements will be considered when designing or remodeling locations where hazardous noise levels are expected to occur.

## 2.0 RESPONSIBILITIES

### **Program Administrator** *(Insert appropriate title here)*

*(The Program Administrator must be appropriately qualified and is responsible for administering the Hearing Conservation Program.)*

The Program Administrator is responsible for:

- Conducting noise assessments for each operation, process or work area where hazardous noise levels are suspected to exist.
- Performing noise monitoring to identify potentially hazardous noise levels (above the action level or permissible exposure level).
- Identifying employees at risk for annual audiometric testing.
- Coordinating exploration of engineering and administrative controls for equipment and machinery that produces hazardous noise levels.
- Performing additional noise assessments to verify changes made to lower exposure levels and to address new equipment and work process changes.
- Calculating and ensuring correct levels of hearing protection is worn by employees (attenuation)
- Completing all of the required training initially and annually thereafter for those enrolled in this HCP, within 30 days of enrollment.
- Providing notification to employees of individual noise exposure dosimeter measurements and any significant changes in hearing (standard threshold shifts) and conducting required follow-up investigations.
- Coordinating baseline and annual audiograms for employees enrolled in the Hearing Conservation Program.
- Ensure records are kept and maintained for the appropriate time frames.

### **Supervisor**

*(Supervisors are responsible for ensuring that the hearing conservation program is implemented in their particular areas. In addition to being knowledgeable about the program requirements, they must also ensure that the program is understood and followed by the employees under their charge.)*

The Supervisor is responsible for:

- Assisting the Program Administrator with the completion of noise assessment for operations and processes in their department.
- Becoming aware of tasks requiring the use of hearing protection.

- Ensuring that all of their employees exposed to hazardous noise have access to appropriate hearing protective devices in the work area and are worn properly.
- Enforcing the use of hearing protection, engineering and administrative controls in their area.
- Ensuring that employees under their supervision (including new hires) have received appropriate training and audiometric testing.
- Instructing new workers on the proper fit of hearing protection.
- Continually mentoring work areas and operations to identify new noise hazards and coordinating with the Program administrator for noise assessments and monitoring.

### **Employee**

*(Employees are responsible for learning to recognize the hazards to which they may be exposed and for following company policies and rules regarding their safety. Employee input and participation identifying new hazards and revising company safety and health programs is vital for a successful effort.)*

Employees are responsible for:

- Recognizing hazardous tasks or areas where hearing protection may be required.
- Obtaining and using their hearing protection properly when required.
- Storing, maintaining and disposing of their hearing protection as instructed.
- Participating in training and keeping appointments regarding compliance with medical requirements (audiometric testing).
- Informing their supervisor if the hearing protection does not fit well nor needs repair or replacement.
- Informing their supervisor (or the Program Administrator) of any noise hazards that they feel has not been adequately addressed in the workplace and of any other concerns that they have regarding the program.

### **3.0 NOISE MONITORING**

*(OSHA has specific requirements for the calibration and use of noise monitoring meters and dosimeters. The monitoring of employees for noise exposure is done two ways: area and personal monitoring. Area monitoring is used to determine noise levels generated by a certain machine or task and to help estimate distances and locations where noise levels drop off to acceptable levels. They are generally obtained with a noise meter. Personal monitoring is measured and calculated to determine daily occupational exposure levels individual employees receive for comparison with OSHA permissible exposure limits and action levels. Employees exposed to variable levels of*

*noise are most effectively measured with a noise dosimeter which can calculate eight hour time weighted averages from data collected throughout the day.)*

Noise monitoring and identification of hazardous noise areas and tasks will be conducted by \_\_\_\_\_ (*position or names here*) with the assistance of an outside consultant (***name here***) and/or the Wyoming Worker Safety Consultation Department. Areas and tasks where noise levels fall above the 85dBA action level will be routinely monitored (*add frequency here*). Whenever an employee exhibits a standard threshold shift, as determined by an audiologist, the employee's work place shall be re-monitored to identify and remove or apply needed engineering controls to the cause.

In order to effectively control noise it is necessary that the noise be accurately measured according to standard procedures and that the measurements are properly evaluated against acceptable criteria. All noise monitoring will be conducted in accordance with established standard operating procedures per OSHA 1910.95. Determination of noise exposure levels will be accomplished using calibrated noise meters \_\_\_\_\_ (*list noise meters and dosimeters used here*). If a consultant or OSHA conducted your noise monitoring this information should be provided in their report). All exposures will be measured on an A weighted scale set to slow response mode.

If the employee noise level exposure is less than a time-weighted average of 85dBA, no action is required. We do, however encourage employees to voluntarily wear hearing protection at any time that they are exposed to uncomfortable noise levels (which may differ according to individual preferences), unless chosen hearing protection creates an additional safety hazards.

Employees exposed to at or above the 8-hour time-weighted average (TWA) of 85 dBA shall be enrolled in the Hearing Conservation Program. Hearing protection between 85 and 90 dBA will be provided and (required or optional). Hearing protection for employees exposed above 90dBA is required.

Employees exposed to above the OSHA Permissible Exposure Limits as referred to in the following diagram are also enrolled in the Hearing Conservation Program and required to wear hearing protection until such time that engineering or administrative controls can lower hazardous noise to acceptable levels. All employees exposed to above 115dBA for any length of time (or over 140dBA impulse sound) will be required to wear hearing protection. An attempt will be made to isolate the task that creates this exposure level and require hearing protection appropriately.

| Noise Permissible Exposure Limits |                   |
|-----------------------------------|-------------------|
| Duration/Day (Hours)              | Sound Level (dBA) |
| 16                                | 85                |
| 12                                | 87.2              |
| 8                                 | 90                |
| 6                                 | 92                |
| 4                                 | 95                |
| 2                                 | 100               |
| 1                                 | 105               |
| 0.5                               | 110               |
| 0.25                              | 115               |

If the employees' exposure exceeds the Permissible Exposure Limit, written notification of the noise exposure will be provided to that employee within 15 calendar days of the exposure determination and corrective action will be taken.

#### 4.0 IDENTIFICATION OF HIGH NOISE AREAS OR ACTIVITIES

Warning signs requiring the use of proper hearing protection will be posted at either the entrances to work areas or one specific machine where noise levels exceed the permissible exposure limits. Personnel who work in these areas, or with these machines will have hearing protection supplied to them, will be instructed in its proper use, and be required to wear this equipment when in these identified areas. It is the responsibility of the area supervisor to ensure that these precautions are maintained.

A list of specific tools and tasks that require hearing protection (such as pneumatic tools) is posted (*list location here*).

#### 5.0 HEARING PROTECTION

(*Company name here*) has made appropriate hearing protection available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. The following hearing protection is available: (*List here*)

Any employee experiencing difficulty in wearing assigned hearing protection (i.e., irritation of the canals, pain) will be advised to immediately report this to their supervisor, and alternative hearing protection will be reviewed by the safety coordinator. Additional selection of hearing protection devices will be provided to the employee when medical pathology warrants.

## **Noise Reduction Rating (NRR)**

Not all hearing protection is the same. Different types of hearing protection have different noise reduction ratings. The Noise Reduction Rating can be found on the hearing protective device packages. That rating is a lab value that must be adjusted for the workplace used. To provide adequate hearing protection, adjustment calculations are available for each type of measuring device used. The following calculation is used at this company (*list here*).

The Program Administrator has calculated the Noise Reduction Rating (NRR) that is required for each employee or each area in order to reduce the noise at the ear drum to less than (90 dBA). See the noise hazard assessment for the specific protection that is needed for the task or area an employee may be working in.

## **Use, storage and disposal**

The issuance of hearing protective devices is handled through (*explain where to get hearing protection*). The area supervisor will provide initial instructions on the proper use and care of earplugs and earmuffs. Always use and maintain hearing protection as originally intended and in accordance with instructions provided.

***(Select the appropriate paragraphs below)***

### ***Earplugs***

Disposable earplugs come in just one size. Some are made of material, which after being compressed and inserted, expands to form a seal in the ear canal. When properly inserted, they can provide high noise attenuation values. It is important to instruct users in the proper insertion and use of these earplugs. It is important that the ear canal be straightened before insertion and the earplug held in place while it expands enough to remain firmly seated. There is a very large difference between the comforts of the fit with different brands. A large, cheap brand may not fit someone with a small ear canal (it may apply too much pressure). These are the hearing protection of choice for employees with grimy hands. They should be disposed of after use.

Reusable earplugs are pliable in design and come in various sizes and shapes and often are sold with a cord attached. It may be harder to achieve a perfect fit with various employees. These earplugs may be washed and therefore are reusable. While pre-molded earplugs are reusable they may deteriorate, become hard or may no longer form an airtight seal when properly inserted and should be replaced periodically. Reusable earplugs should be washed in lukewarm water using hand soap, rinsed in clean water and dried thoroughly before use. Wet or damp

earplugs should not be placed in their containers. Cleaning should be done as needed.

Custom Molded Earplugs are, as they say, earplugs built from a custom made mold of the employees' ear. They are more expensive, but can achieve the best fit. A small percentage of the population cannot be fitted with standard earplugs. Individuals wanting custom earplugs will be referred to an audiologist. The coverage of this cost is *(provided by the company or the employee)*.

### ***Earmuffs***

Earmuffs are devices worn around the ear to reduce the level of noise that reaches the ear. Their effectiveness depends on an airtight seal between the cushion and the head. Earmuff performance may be degraded by anything that compromises the cushion to circumaural flesh seal. This includes other pieces of personal protective equipment such as eyewear, masks, face shields, and helmets. Facial hair such as side burns may also interrupt this seal. Earmuff cushions should be kept clean. The plastic or foam cushions may be cleaned in the same way as earplugs, but the inside of the muff should not get wet. When not in use, earmuffs should be placed in open air to allow moisture that may have been absorbed into the cups to evaporate.

## **6.0 AUDIOMETRIC TESTING**

*(OSHA encourages the employer to be as specific as possible in this section. Read over this section and then explain how your company will complete the audiograms and how notification requirements will be met.)*

Upon entry into the Hearing Conservation Program (based upon identification of noise exposure whose 8-hour TWA equal to or exceeding 85dBA or 140dBA (impulse sound), employees will receive a baseline audiogram and annual audiograms thereafter. If the employee is transferred to another job or location that does not exceed the action level, audiograms will be *(choose: continued, discontinued.)* When new employees are hired, the baseline audiogram will be provided within *(provide company timeframe: OSHA requires 30 days if local and 6 months if distant service is provided)*.

Employees will be notified when it is time to take an audiogram and that they need to avoid high levels of noise for 14 hours prior to taking the audiogram. Employees will be advised that wearing hearing protection to keep noise exposure below 80 dBA is satisfactory. All audiometric testing will be performed during the employees normal work schedule at no cost to the employee.

The object of the audiometric testing is to identify workers who are beginning to lose their hearing (standard threshold shift) and to intervene before the hearing

loss becomes worse. Audiometric testing will be provided by \_\_\_\_\_ (**provide vendor used**). Qualified persons such as certified technicians or/and state licensed audiologist shall evaluate audiograms. All audiometric testing will be done in accordance to OSHA regulations specified in the OSHA 29CFR 1910.95 (g). Additional audiometric testing will be provided if the audiologist requests it. Results and interpretations will be provided to the employee within 30 days of the receipt of the audiograms from (*vendor used*).

*(Explain who is responsible for providing the results to the employee and how it will be done).*

### **Standard Threshold Shift**

The certified technician or audiologist will use the audiogram to determine if a standard threshold shift of 10dB has occurred in one or both ears. Written notification will be sent to the employee within 10 working days after receiving audiograms or follow-up results by (*who is responsible for this*). The notification will include the results/interpretation of the STS and the need and reason for any further testing or evaluation. These employees may be retested within 30 days to confirm that STS has occurred. Employees with a confirmed STS must be retrained and follow-up investigations must be conducted to review the effectiveness of engineering and/or administrative controls to identify and correct any deficiencies. Hearing protection will be required immediately upon notice if it has only been voluntary. Once an STS has occurred and stabilized, the audiologist may reexamine and reestablish a new baseline so that the employee is not targeted as having a STS every year.

## **7.0 TRAINING**

*(OSHA encourages the company to read through this section and rewrite it to be very specific about who conducts the training, when the training must be completed and exactly what topics you choose to cover in your training and how it will be documented.)*

Initial and annual training will be provided to all employees enrolled in the Hearing Conservation Program. Initial training for new employees will be provided by \_\_\_\_\_ (*insert position and name here*) within \_\_\_\_\_ (*insert time interval here*) of hire. Annual training will be provided by \_\_\_\_\_ (*insert position and name here*). All training will be documented \_\_\_\_\_ (*where*).

At a minimum, initial training will cover the following:

- The effects of noise on hearing
- The purpose and value of the hearing protection provided
- The advantages, disadvantages, and attenuation potential for types of hearing protection provided.
- Instruction on selection, fit, use and care of hearing protection provided.

- The purpose and procedures of audiometric testing.
- The requirements of the OSHA 1910.95 standard.

Other training (not required) may include:

- Content of the company Hearing Conservation Program
- Responsibilities of each position
- Types of hearing loss
- Various dBA and frequency levels produced at work locations
- Various dBA and frequency levels produced away from work
- Anatomy and functioning of the ear
- Types of audiometric test results
- Types of hearing loss.
- Explanation of noise measurement machines and procedures

(Company name) employees are encouraged to use hearing protective devices when they are exposed to hazardous noise during activities at home; (lawn mowers, chain saws, snowmobiles etc.)

## 8.0 RECORDKEEPING

Copies of the company Hearing Protection Program will be available \_\_\_\_\_ (where). The OSHA standard 29 CFR 1910.95 is posted for your review at the following locations: \_\_\_\_\_ (list where) and more information can be obtained \_\_\_\_\_ (where). Upon request, employees, former employees and representatives designated in writing by the individual employee will be provided with copies of all records pertaining to audiometric testing and noise exposure to the specific worker. The following records will be kept at the following locations for the following period of time:

| Documentation              |          |                  |
|----------------------------|----------|------------------|
| Record                     | Location | Time             |
| Area Noise Assessments     |          | 2+ yrs           |
| Personal Dosimetry         |          | 30+yrs           |
| Audiograms/Notifications   |          | 30+yrs           |
| Training Records           |          | Updated Annually |
| Hearing Protection Program |          | Updated Annually |
| List of Employees in HPP   |          | Updated Annually |

# APPENDIX A

## DEFINITION OF NOISE TERMS

**RESPONSE RATE:** Instruments used to measure sound levels have selectable response time constraints, which were originally established to describe the dynamic response characteristics of analog sound level meters. Two most commonly used time constants which are in common use are: Slow (1 second) and Fast (.125 second). Typical occupational and environmental noise regulations require a Slow response rate.

**WEIGHTING NETWORKS:** The sound level meter response at various frequencies can be controlled by electrical weighting networks (A, B, C). The C network provides a flat response over the frequency range 20-10,000 Hz; the B and A networks selectively discriminate against low (less than 1 kHz) frequencies. Typical occupational noise regulations require an A-weighted filter.

**Permissible Exposure Limit (PEL):** The average sound level allowed over an eight hour work period, often referred to as the 8 hour time weighted average (TWA). OSHA regulations stipulate that an unprotected worker may be exposed to noise levels of 90dB for 8 hours.

**EXCHANGE RATE:** The exchange rate is the increase in sound level for which the permissible exposure time is halved, OR the decrease in sound level for which the permissible exposure time is doubled. OSHA has set the exchange rate at 5 dB, so for every 5 dB the noise exposure increases the permissible exposure time is cut in half, and for every 5 dB the noise exposure decreases the permissible exposure time is doubled. Thus, a worker could be exposed to a noise level of 95 dB for only 4 hours.

**THRESHOLD LEVEL:** All sound levels at or above the threshold level are averaged into the calculations relating to noise exposure. All sound levels below the threshold are not included. For example, if an 80 dB threshold is selected, all samples of sound levels equal to or greater than 80 dB will be included in the calculations for noise exposure. This is an arbitrary procedure used by OSHA and other regulations. OSHA required dual threshold levels of both 80 and 90 dB.

**CEILING:** The maximum allowable sound level an unprotected worker may be exposed to. For example, OSHA does not permit unprotected workers to be exposed to sound levels, measured with a Slow response, above 115 dB.

**Lav(Average Level):** Lav is the average sound level (in dB) computed for a chosen averaging time duration.

**Leq:** Equivalent continuous sound level over the elapsed measurement time. This is the most useful parameter for giving an impression of the average sound pressure level.

**TWA (Time Weighted Average):** The TWA is the level (in dB) at which exposure for the 8 hours that would produce a noise dose equal to that obtained for a shift length of arbitrary duration. In other words, it is a conversion of the actual noise dose to an equivalent exposure sound level for 8 hours. For example, if a worker accumulated 100% noise dose in 16 hours with a continuous exposure of 85dBA, the corresponding TWA for 8 hours of exposure would be 90 dBA.

**Lmax or MaxL:** Maximum sound pressure level observed over the elapsed measurement time. OSHA specifies that an Lmax measured with Slow response must not exceed 115 dBA.

**Lmin or MinL:** Minimum sound pressure level observed over the elapsed measurement time.

**Lpk or MaxP:** The highest instantaneous sound pressure level observed during a measurement interval. Under OSHA regulations, unprotected workers may not be exposed to peak sound levels greater than 140 dB.

**Peak:** The maximum peak level within the last one second interval.

**SPL (Sound Pressure Level):** The maximum sound pressure level within the last one second interval. It differs from the peak value because SPL is an RMS (root mean square) measurement.

**Dose:** The actual dose (as a percentage) accumulated for the actual work shift length based on either an 80 or 90 threshold level.

**Projected Dose:** This is a computed estimation (as a percentage) of what the projected dose would be for an 8 hour work shift. For example: a workers' exposure may be monitored for four hours and a dose of 20% is obtained. If the assumption is made that for the remaining 8 hours of the shift the worker will continue to experience the same noise exposure, the instrument will compute and estimated 8 hour projected dose of 40%. OSHA requires employers to establish a Hearing Conservation program with monitoring, audiometric testing, personal protective equipment, training and record keeping requirements whenever the 8 hr. TWA equals or exceeds 85 dBA, or the projected dose equals or exceeds 50%.

### CFR 1910.95 Table G-16

Leq or Lav (A-weighted, slow response)

| Duration  | Sound Level |
|-----------|-------------|
| 8         | 90          |
| 6         | 92          |
| 4         | 95          |
| 3         | 97          |
| 2         | 100         |
| 1 ½       | 102         |
| 1         | 105         |
| ½         | 110         |
| ¼ or less | 115         |

- *Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level*

### ACGIH Table 9-G

Threshold Limit Values for Impulsive or Impact Noise

| Sound Level dB | Permitted No. of Impulses or Impacts per Day |
|----------------|--|
| 140            | 100  |
| 130            | 1000   |
| 120            | 10,000                                       |

# APPENDIX B

## Engineering Controls For Noise Reduction

*Engineering controls are procedures other than administrative or personal protection procedures that reduce the sound level either at the source or within the hearing zone of workers. The following are examples of engineering principles that can be applied to reduce noise levels.*

### **1) Maintenance:**

- a) Replacement or adjustment of worn, loose, or unbalanced parts of machines
- b) Lubrication of machine parts and use of cutting oils
- c) Use of properly shaped and sharpened cutting tools

### **2) Substitution of machines:**

- a) Larger, slower machines for smaller, faster ones
- b) Step dies for single-operation dies
- c) Presses for hammers
- d) Rotating shears for square shears
- e) Hydraulic presses for mechanical presses
- f) Belt drives for gears

### **3) Substitution of processes:**

- a) Compression riveting for impact riveting
- b) Welding for riveting
- c) Hot working for cold working
- d) Pressing for rolling or forging

### **4) Reduction of the driving force of vibrating surfaces:**

- a) Reduction of the forces
- b) Minimization of rotational speed
- c) Isolation

### **5) Reduction of the response of vibrating surfaces:**

- a) Damping
- b) Additional support
- c) Increased stiffness of the material
- d) Increased mass of vibrating members
- e) Change in the size to change resonance frequency

- 6) Reduction of the sound radiation from vibrating surfaces:**
- a) Reduction of the radiating area
  - b) Reduction of the overall size
  - c) Perforation of the surfaces
- 7) Reduction of the sound transmission through solids:**
- a) Use of flexible mountings
  - b) Use of flexible-shaft couplings
  - c) Use of fabric sections in ducts
  - d) Use of resilient flooring
- 8) Reduction of the sound produced by gas flow:**
- a) Use of intake and exhaust mufflers
  - b) Use of fan blades designed to reduce turbulence
  - c) Use of large, low-speed fans instead of smaller, high speed fans
  - d) Reduction of the velocity of fluid flow (air)
  - e) Increase in the cross section of streams
  - f) Reduction of the pressure
  - g) Reduction of air turbulence
- 9) Reduction of noise by reducing its transmission through air:**
- a) Use of sound-absorptive material on walls and ceiling in work areas
  - b) Use of sound barriers and sound absorption along the transmission path
  - c) Complete enclosure of individual machines
  - d) Use of baffles
  - e) Confinement of high-noise machines to insulated rooms
- 10) Isolation:**
- a) Machine from operator
  - b) Operator from machine