

THRESHOLD LEVEL  
20  
30  
40  
50  
60

# The THRESHOLD

A T K GROUP PUBLICATION DEVOTED TO OCCUPATIONAL HEARING LOSS PREVENTION AND PROGRAM MANAGEMENT

## On The Inside

T K Group Hearing Loss Prevention Program Audit Form Soon To Be Available  
**Page 2**

Get To Know The Individual Audiometric Record  
**Page 3**

Wind Turbines Causing Health Concerns  
**Page 4**

What You Need To Know About Dual Hearing Protection  
**Page 5**

**MyTKGROUP**

**Awaits You: It's One Click Away  
Call Us For Free Access Today!**

**815.332.3460**

## Determination: Occupational What Should You Do Next?

You requested a Work Relatedness Determination and an occupationally related determination was returned. What should you do now?

First, document the hearing loss event on the OSHA 300 Log under the hearing loss column. Case closed? Not really.

If this is the employee's first shift event in his/her test history, it is best to determine what course of events in the workplace may have contributed to the loss:

- Was the employee wearing hearing protection inconsistently?
- Are the hearing protectors offering insufficient attenuation for that employee's given noise exposure?
- Are administrative controls, such as limiting exposure duration, being overlooked?
- Should engineering controls be revisited to further reduce noise levels?

All of these questions are valid and ones that should be considered in your effort to not only to prevent further hearing loss for that employee

but for all others as well. At the very least, and pursuant to regulations stated in 29 CFR 1910.95:

1. The employee's hearing protectors must be checked to assure that the devices are in good condition.
2. The employee's hearing protectors must be checked to assure that they fit properly.
3. The employee must demonstrate proper insertion of ear plugs (or proper placement of ear muffs).
4. The employee must receive additional supplemental hearing loss prevention training in addition to that received annually.
5. Finally, document all of the above actions.

While an occupationally related determination is unpleasant to receive, it can serve to initiate review of "problem" situations that in the end result in a safer workplace.

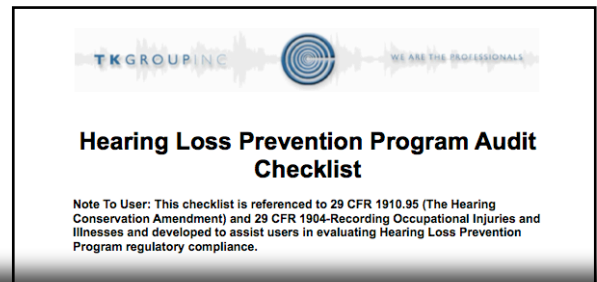
# Hearing Loss Prevention Program Audit Checklist Now Available From T K Group

So you think your Hearing Loss Prevention Program is tight and compliant? 29 CFR 1910.95 has numerous follow-up and documentation demands that can test even the most meticulous program managers.

To assist in making sure you have dotted your “i”s and crossed your “t”s, T K Group has developed a Hearing Loss Prevention Program Audit Checklist that addresses all mandated requirements associated with 29 CFR 1910.05 and 29 CFR 1904 (Recording Occupational Injuries and Illnesses).

Whether your facility conducts in-house testing throughout the year or you receive mobile services once a year, it is good practice to audit your program at least once a year.

Within coming weeks, clients of T K Group will receive an email with instructions on how to download the checklist.



WE ARE THE PROFESSIONALS

## Hearing Loss Prevention Program Audit Checklist

**Note To User:** This checklist is referenced to 29 CFR 1910.95 (The Hearing Conservation Amendment) and 29 CFR 1904-Recording Occupational Injuries and Illnesses and developed to assist users in evaluating Hearing Loss Prevention Program regulatory compliance.

---

**29 CFR 1910.95**

**1910.95(a)**  
 Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

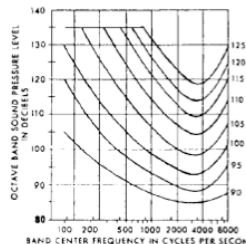


FIGURE G-9

**1910.95(b)(1)**  
 When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

**1. Have active engineering and administrative controls been considered and/or implemented at your facility to reduce unprotected noise exposure to acceptable levels?**

No  Yes

Comments:

**2. Has your facility documented all administrative and/or engineering control attempts whether successful or not?**

No  Yes

Comments:

**3. Have all employees at your facility been fitted with appropriately attenuating hearing protection if engineering and/or administrative controls have not reduced noise levels to listed tolerances?**

No  Yes

Comments:

**1910.95(b)(2)**  
 If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

**TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)**

Duration per day, hours	Sound level, dBA slow response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
3/4	110
1/2 or less	115

Footnote(1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: C(1)/T(1) + C(2)/T(2)C(n)/T(n) exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

# New Report Format: Get to Know The Individual Audiometric Record

T K Group initiated a new reporting format in 2009. The format contains the following core reports: Section I: 10 dB STS; Section II: Potential Recordables; Section III: Retest Results; Section IV: Medical Referrals; Section V: Historical Recordable Events. Additionally, we have a new employee data history format called the **Individual Audiometric Record (IAR)**.

The IAR has numerous enhancements.

- (1) Revised baselines are easily determined by looking in the far left hand column.
- (2) Shift events are clearly listed as “STS” and “Recordable” (if applicable) along with the date of that shift event. Whether on retest or the next test, the initial shift status is described as “Persistent” or “Non-Persistent”.
- (3) Medical Referral status is listed by code on the far right hand column.
- (4) Comparison calculations are listed on the bottom for each test in the record.

## Individual Audiometric Record



Customer No.: SEE\_DP-999

Bogus Database  
Rockford, IL 61101

9/14/2009

For Period from: 01/25/09

ALLOWAY, RICHARD Dept.: Job: SAFETY Shift: Noise Exp: 87.00  
Emp. No. 000101026 Clock Id: Birth Date: 10/08/37 Hire Date: 03/09/97 Gender: M

Date	BASELINES		THRESHOLDS																SHIFT STATUS LEFT	SHIFT STATUS RIGHT	MEDICAL REFERRAL STATUS
	Left	Right	Left Ear								Right Ear										
			5K	1K	2K	3K	4K	6K	8K	.5K	1K	2K	3K	4K	6K	8K					
01/25/09			20	25	30	45	55	60	70	10	25	35	50	65	65	70			6		
01/30/08			20	20	30	45	55	65	70	20	20	25	40	40	50	55			B		
01/01/07	REVISED		05	10	10	40	60	65	70	20	20	05	40	50	55	60	Persistent 1/1/07 STS Persistent 1/1/07 Recordable	STS Recordable	B		
07/31/06			10	35	20	25	25	45	50	15	25	15	25	25	40	35					
05/08/05			20	40	25	25	30	45	60	20	35	25	30	30	60	40					
07/30/04			15	40	20	20	30	45	55	20	25	20	30	30	50	45					
02/12/03	BASELINE	BASELINE	10	35	20	25	30	45	60	15	25	20	30	30	45	40					

**Medical Referral Codes:**

- 2 = Difference between 0.5,1,2K avg. of right and left ears > 15dB
- 3 = Difference between 3,4,6K avg. of right and left ears > 30dB
- 4 = Avg. of 0.5,1,2,3K thresholds for left ear > 25dB
- 5 = Avg. of 0.5,1,2,3K thresholds for right ear > 25dB
- 6 = Avg. of 0.5,1,2K thresholds for left ear > 15dB worse than medical baseline
- 7 = Avg. of 0.5,1,2K thresholds for right ear > 15dB worse than medical baseline
- 8 = Avg. of 3,4,6K thresholds for left ear > 20dB worse than medical baseline
- 9 = Avg. of 3,4,6K thresholds for right ear > 20dB worse than medical baseline

Date	Time	LEFT			RIGHT			LEFT				RIGHT			
		2K	3K	4K	2K	3K	4K	Avg.	AC Avg.	Chg./Orig.	Chg./BL	Avg.	AC Avg.	Chg./Orig.	Chg./BL
01/25/09	00:00	30	45	55	35	50	65	43.33	20.33	18.33	6.67	50.00	27.00	23.33	23.33
01/30/08	00:00	30	45	55	25	40	40	43.33	20.33	18.33	6.67	35.00	12.00	8.33	8.33
01/01/07	00:00	10	40	60	05	40	50	36.67	13.67	11.67	11.67	31.67	8.67	5.00	5.00
07/31/06	00:00	20	25	25	15	25	25	23.33	0.33	-1.67	-1.67	21.67	-1.33	-5.00	-5.00
05/08/05	00:00	25	25	30	25	30	30	26.67	3.67	1.67	1.67	28.33	5.33	1.67	1.67

## Wind Turbines Causing Health Concerns

Given the high cost of energy, countries worldwide have stepped up their use of wind powered turbines to produce electricity.

In a recent article entitled *Wind farms whip up health fears for Oregon residents near turbines*, many Oregon residents have voiced concerns after “wind farms” have recently been constructed in close proximity to their homes.

Low frequency noise and vibration generated by such turbines are theorized to be behind several unexplained health effects related to the inner ear according to Dr. Nina Pierpoint, a Johns Hopkins University graduate. Dr. Pierpoint has coined the term “Wind Turbine Syndrome” and such complaints include headache, equilibrium (balance) issues, Tinnitus, sleep disorders, and various psychological disorders.

Concerns of the effects of “infrasonic” low frequency vibration on the human ear are not new. Numerous studies have

suggested correlations between low frequency stimulation and resulting health difficulties thought to be inner ear related. The World Health Organization in fact recognizes potential infrasonic risks as well.



Source: Oregonlive.com; [http://www.oregonlive.com/environment/index.ssf/2008/08/wind\\_farms\\_whip\\_up\\_health\\_fear.html](http://www.oregonlive.com/environment/index.ssf/2008/08/wind_farms_whip_up_health_fear.html)

If you are new to T K Group, or if you are simply interested in receiving email notification of new newsletter postings, please email [robertwilliams@tkontheweb.com](mailto:robertwilliams@tkontheweb.com) and type “Add to Newsletter” in the subject line.

*Clients and associates of T K Group are permitted to reproduce all or part of this publication for private or corporate use. Parties not associated with T K GROUP, INC without the expressed written consent of T K GROUP, INC may reproduce no part of this publication. For reprint permission, please contact Dr. Robert Williams at [robertwilliams@tkontheweb.com](mailto:robertwilliams@tkontheweb.com)*

The Threshold is written by Robert Williams, A.uD.

## What You Need To Know About Dual Hearing Protection



There is a common misconception that use of dual hearing protection (e.g. ear plugs *and* earmuffs) doubles attenuation.

While use of dual hearing protection may offer some degree of additional attenuation, only an additional 5 dB of attenuation is generally gained. If for example the earplug used purports a Noise Reduction Rating (NRR) of 22 dB, and the earmuffs suggest a NRR of 19 dB, the overall combined attenuation provided by dual use of the plug and earmuff can be expected to be 27 dB since you simply add 5 dB to the *higher* rated device being used to estimate combined dual attenuation. Users of dual protection should not make the mistake in thinking that a 22 dB (NRR) earplug combined with a 19 dB (NRR) earmuff provides 41 dB of attenuation. Additionally, given what we know about “real world” hearing protector performance, any real world attenuation depends on proper insertion and use of the device.

Furthermore, the type of noise—specifically the noise’s frequency make-up, is very important to consider when selecting the earplug to use with earmuffs. If the noise field is heavily comprised of low to mid frequency energy, foam and deeply insertable earplugs offer the best

attenuation (again if properly inserted) and the selection of earmuffs is essentially inconsequential.

Dual hearing protection is generally recommended in noise environments that equal or exceed 105 dB (A), however be advised that because noise can stimulate the cochlea via bone conduction, dual hearing protection at some point becomes ineffective; it is at this time when duration (exposure) management (i.e. Administrative Controls) becomes necessary. The noise level at which bone conduction initiates is difficult to determine and may vary from person to person depending on his/her unique physical characteristics and/or other variables.

A second caution is not to over-protect by dual hearing protection (or single device protection for that matter). If properly used, inserted, and of adequate attenuation value, single device protection can in most cases provide adequate attenuation in moderate to high noise environments. If an employee is hearing impaired and works in moderate to high noise, dual protection may over-protect to the extent that needed communication ability may create safety concerns.