



Administrative Procedure

PRC-PRO-SH-40479

Occupational Noise Exposure and Hearing Conservation

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Administrative Use

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1.0 INTRODUCTION**1.1 Purpose**

This procedure establishes requirements and processes for working in conditions with the potential for high noise sources on the Hanford Site. Following these requirements will assist in compliance with:

- 29 CFR 1926.52, *Occupational Noise Exposure*
- 29 CFR 1910.95, *Occupational Noise Exposure*
- 10 CFR 851, *Worker Safety and Health Program*

1.2 Scope

This procedure addresses requirements and processes for working in conditions with the potential for high noise sources. Certain medical procedures are not addressed in the Procedure, including audiometric testing and evaluation.

1.3 Applicability

This procedure applies to all CHPRC team members.

1.4 Implementation

This procedure is effective upon publication.

2.0 RESPONSIBILITIES

All responsibilities associated with this procedure are identified in the process steps.

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3.0 PROCESS

This section addresses the following processes:

- 3.1 Identification and Evaluation of High Noise Areas
- 3.2 Applying Noise Reduction Strategies
- 3.3 Employees Awareness and Training
- 3.4 Medical Aspects of Noise Exposure and Hearing Conservation

3.1 Identification and Evaluation of High Noise Areas

Actionee	Step	Action
Line Management	1.	Prior to assigning work, EVALUATE whether the potential for high noise levels can exist in the work place. <u>IF</u> necessary, <u>THEN</u> CONTACT Safety and Health professionals for assistance in this evaluation. Noise exposures should be maintained at levels below 85 decibels (8-hour TWA).
	2.	NOTIFY OS&IH professional of any and all changes which could result in an increase or decrease in ambient noise levels which could affect employee noise exposures so that the area may be resurveyed as necessary.
OS&IH Professional	3.	ASSIST line management in completing job hazard analyses or other identification processes to identify operations that may potentially expose workers at or above the 8-hour TWA of 85 dBA (or equivalent noise dose).
	4.	CONDUCT <u>AND</u> DOCUMENT baseline and walk-through surveys, as a part of the comprehensive industrial hygiene baseline hazard assessments (IHBHAs), to determine noise areas and changes in work activities or equipment that could affect noise exposure or where workers may be exposed.

NOTE: CERCLA work areas may substitute a HASP for the IHBHA.

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3.2 Employee Exposure Monitoring and Notification

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Line Management	1.	ENSURE that noise exposures suspected or expected to be at or above the 8-hour TWA of 85 dBA (or equivalent noise dose) are quantified using sound level meters, noise dosimeters as necessary, and appropriate, acceptable methodologies.
Line Management	2.	ENSURE representative personal sampling (noise dosimetry) is performed (where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate) as the means to comply with the monitoring requirements specified in requirement 3.2.1, unless it can be demonstrated that area sampling produces equivalent results.
	3.	REQUEST assistance from OS&IH professionals to conduct noise exposure assessments necessary to quantify the noise levels for all sources (portable and stationary) or work activities that could result in noise exposures at or above the 8-hour TWA of 85 dBA (or equivalent noise dose).
OS&IH Professionals	4.	CONDUCT noise surveys and exposure monitoring in accordance with standard health and safety practices and manufacturer's recommendations so as to ensure noise monitoring data is collected in a technically and legally defensible manner.
	5.	INCLUDE noise from 80 dB to 130 dB in noise surveys and monitoring. This includes continuous, intermittent and impulse noise sources.
	6.	COMPUTE noise exposures, DETERMINE if the TLV is exceeded and otherwise follow all criteria and specifications contained in the "Noise" section of the 2005 edition of the "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices" booklet, as published by the ACGIH.
Line Management	7.	ENSURE that, as requested, affected employees and their representatives are allowed to observe any noise monitoring conducted pursuant to the provisions of this PRO.

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<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Line Management	8.	<p>ENSURE each employee who is exposed to noise at or above an 8-hour TWA of 85 dBA is notified of their monitoring results in a timely manner which meets applicable requirements specified in PRC-PRO-SH-409, <i>Industrial Hygiene Monitoring, Reporting and Records Management</i> and that all of following information is submitted to each affected employee:</p> <ul style="list-style-type: none"> • Actual monitoring results; • Requirements for including employees in the HCP; • Explanation of engineering controls or administrative controls used, if any, or planned to reduce noise levels or exposure to noise; and • Explanation of the types of hearing protectors available and the enforcement policy for wearing them when required by the HCP.
OS&IH Management	9.	ASSIST line management in reporting and explaining exposure monitoring results and other information to affected employees.

3.3 Hazard Control

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Line Management	1.	IMPLEMENT feasible engineering and administrative controls when employee noise exposures are above 85 dBA TWA to reduce the exposures to below that level.
	2.	CONSULT OS&IH Professionals and facility engineering staff for recommendations and evaluations of engineering and administrative controls.
	3.	ENSURE that, when/where engineering and administrative controls are not used to reduce noise levels below 85 dBA because they are deemed "not feasible" the specific reasons for that determination are documented. The documentation shall be signed off by the cognizant facility manager and maintained in a manner and location enabling affected employees and compliance assessors access to the record.
	4.	<u>IF</u> a noise evaluation has not been performed, <u>THEN ENSURE</u> that default controls specified in Appendix B of this procedure are utilized for the operations/activities specified in that Appendix.

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Actionee	Step	Action
Line Management	5.	PROVIDE, REQUIRE, <u>AND</u> ENSURE the use of hearing protection in accordance with 29 CFR 1910.95 (j) (2) to further reduce exposure when engineering and administrative controls are not adequate to control exposure to 85 dBA TWA.
	6.	ENSURE that hearing protectors are selected and evaluated by the facility/project OS&IH professional to ENSURE that they will provide adequate noise attenuation.
OS&IH Professionals	7.	USE 29 CFR 1910.95 Appendix B, to ESTIMATE the adequacy of hearing protection attenuation and all adequacy elevations shall be documented in writing.
Line Management	8.	ENSURE that employees are provided with a selection of suitable hearing protectors, as approved by the facility/project OS&IH professional, so as to allow employees to select the most comfortable ones that will also provide the required protection.
	9.	ENSURE that access to any and all areas/operations that have a measured or anticipated noise level above 130 dBA is strictly and effectively controlled so as to minimize the possibility of unanticipated, inadvertent or unreported noise exposures above 85 dBA TWA.
	10.	CONSIDER posting all noise hazard areas with appropriate hazard warning signs/labels as a hazard control and to prevent inadvertent employee overexposures in consultation with the facility/project OS&IH Professional. When used, signs/labels should conform to yellow-and-black color specifications for caution signs and should contain sufficient wording to identify the hazard and required protective action (e.g. "Hazardous Noise Area – Wear Hearing Protection At All Times When In This Area" or "Noise Hazard – Wear Hearing Protection When Operating.")
<p>NOTE: <i>Posting noise hazard areas with signs/labels indicating "stay times" are strongly discouraged as a hazard control measure since it is generally infeasible for "stay time" calculations to take into account all affected employees' other noise exposures during the workday.</i></p>		
Employee	11.	Properly WEAR hearing protection when working in areas which require it. <u>IF</u> there is an issue with the hearing protection supplied, <u>THEN</u> NOTIFY management or project OS&IH.

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3.4 Medical Surveillance

Actionee	Step	Action
Line Management	1.	SUBMIT a revised Employee Job Task Analysis (EJTA) for each employee who is identified as having noise exposure equal to or exceeding 85 dBA TWA (regardless of the use of any hearing protection).
<p>NOTE: <i>Revising and submitting an employee's EJTA to 2 or higher will trigger the scheduling of a baseline audiogram for the employee and will place the employee in the medical surveillance program for hearing conservation provided by the occupational medical provider (OMP), which includes annual audiograms for the duration of HCP enrollment.</i></p>		
	2.	ENSURE that the EJTA is revised so that the baseline audiogram is obtained within 6 months of the employee's first exposure to noise at or above the allowable exposure of 85 dBA TWA. This applies to new employees and employees reassigned from jobs without hazardous noise exposure to jobs where their new exposure equals or exceeds the TLV.
	3.	Prior to or upon completion of an employee EJTA revision indicating noise exposure equal to or exceeding 85 dBA TWA (regardless of the use of any hearing protection), ENSURE that the employee is enrolled in Hearing Conservation training, as detailed in Section 3.5.
	4.	ENSURE that the employee is notified that his/her baseline audiogram is to be preceded by at least 14 hours without exposure to workplace noise at or above the exposure limit (85 dBA TWA). Employees shall also be advised to avoid exposure to high levels of non-occupational noise (or noise from other employment) for 14 hours before each audiogram.
OS&IH Professionals	5.	NOTIFY line management of employees who need to be enrolled in the HCP as well as those who no longer meet the exposure criteria for continued enrollment. Such notifications shall be based on noise surveys, noise dosimetry data, or noise assessment results.

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Actionee	Step	Action
Line Management	6.	<p><u>WHEN</u> an employee in the HCP will longer be exposed to noise at 85 dBA TWA or above, or leaves CHPRC or CHPRC subcontractor employment, <u>THEN ENSURE</u> that the employee's participation in the HCP is discontinued by revising the employee's EJTA accordingly, and documenting the basis for discontinuance.</p>
NOTE:	<p><i>Revising and submitting the EJTA to indicate that the employee will no longer be exposed to noise at 85 dBA TWA or above will trigger OMP to schedule a close-out audiogram and discontinue the medical portion of the HCP, including the annual audiograms.</i></p>	
	7.	<p><u>WHEN</u> notified by the site OMP that, as a result of the annual audiogram, a standard threshold shift (STS) has occurred, <u>THEN ENSURE</u> that a repeat audiogram is scheduled within 30 days of the original to determine if the STS is persistent.</p>
	8.	<p>NOTIFY facility/project OS&IH professionals that an employee STS has occurred so that the employee's exposure, use and adequacy of controls and hearing protection is re-evaluated.</p>
	9.	<p><u>WHEN</u> a repeat audiogram shows that the STS is persistent, <u>THEN ENSURE</u> that the employee is trained (or re-trained) in the proper use and care of hearing protectors and shall require the employee to wear hearing protectors until engineering or administrative controls are implanted so that they reduce the noise exposure to 85 dBA or less. START an Event Report on the STS so it can be investigated and a determination made as to its cause.</p>
	10.	<p><u>IF</u> the repeat audiogram shows that the STS is persistent, <u>THEN ENSURE</u> that the affected employee is notified in writing within 21 working days of the repeat audiogram.</p>
	11.	<p>REFER employees to the OMP for evaluation if problems are reported or suspected due to wearing hearing protectors (such as headaches, ear pain, irritation, or inability to hear signals) are reported or suspected.</p>
OS&IH Professionals	12.	<p>ASSIST Line Management in interpreting the IH aspects of medical opinions and recommendations, and interface with the OMP.</p>

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3.5 Employee Training

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Line Management	1.	<p>ENSURE that each newly enrolled employee in the HCP is provided initial training on the following general HCP topics.</p> <ul style="list-style-type: none"> • Effects of noise on hearing. • Purpose of hearing protection. • Advantages and disadvantages of various types of protection. • Instructions on selection, fit, use and care of protective devices. • Purpose of audiometric testing and an explanation of the test procedure. • Rights of workers to access records and federal hearing information releases. • Where to obtain copies of the PRC-PRO-SH-409 and 29 CFR 1910.95 (or 29 CFR 1926.52, as appropriate).

NOTE: *Course #020194 can be used to fulfill the training requirement specified in item 3.5.1.*

2. ENSURE that facility/project – specific training is provided, as necessary, to address, as a minimum, the following information:

Areas, processes and equipment within the facility with or within which the employee may be required to work that have been found to have noise levels resulting in employee exposures above a TWA of 85 dBA.

Project/Facility – specific requirements or practices regarding noise exposure and/or controls (posting/signing, personal protective equipment PPE, etc.)
3. Upon continued exposure to 85 dBA TWA or greater, PROVIDE annual refresher training on the subjects above.

3.6 Records Management

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Line Management	1.	<p>ENSURE that facility/project OS&IH Professionals enter all noise exposure monitoring data required by the PRO to the Site Wide Industrial Hygiene Database (SWIHD) for retention.</p>

NOTE: *Audiograms/medical opinions/medical records are maintained by Site OMP.*

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<i>Actionee</i>	<i>Step</i>	<i>Action</i>
OS&IH Professionals	2.	ENSURE that all noise exposure monitoring data required by this PRO is recorded on the appropriate form (see PRC-PRO-SH-409, Section 4.0) prior to submittal into SWIHD.
Line Management	3.	CONSIDER retaining other records, such as copies of employee notifications, which indicate actions taken on behalf of the company.
	4.	ENSURE that affected employees have access to all records required by this PRO per the requirements of 29 CFR 1910.95(m)(4) and 29 CFR 1910.1020.
	5.	ENSURE that, if CHPRC ceases to do business, all records required by this PRO to be maintained by CHPRC are transferred to the successor employer, as per the requirements of 29 CFR 1910.95(m)(5).

4.0 FORMS

None

5.0 RECORD IDENTIFICATION

All records are generated, received, processed, and maintained by CHPRC in accordance with PROC-PRO-IRM-10588, *Records Management Processes*.

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
Industrial Hygiene Baseline Hazards Assessments (ref: Section 3.1.4)	Project/facility OS&IH	Project/facility OS&IH
Noise surveys and noise exposure monitoring records (ref: Section 3.2.4 and Section 3.4.5)	Project/facility OS&IH	CHPRC Industrial Hygiene records coordinator
Employee notifications of noise monitoring results (ref: Section 3.6.3)	Project/facility OS&IH	Project/facility line management

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6.0 SOURCES

6.1 Requirements

10 CFR 851, *Worker Safety and Health Program*

29 CFR 1910, *Occupational Safety and Health Standards*

29 CFR 1926, *Safety and Health Regulations for Construction*

PRC-MP-SH-32219, 10 CFR 851 *CHPRC Worker Safety and Health Program Description*

6.2 References

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists.

29 CFR 1910.1020, *Access to Employee Exposure and Medical Records*

PRC-PRO-SH-409, *Industrial Hygiene Monitoring, Reporting and Records Management*

PRC-PRO-IRM-10588, *Records Management Processes*

7.0 APPENDIXES

Appendix A – Glossary

Appendix B – Default Controls/Actions to Prevent Unprotected Noise Exposures Above 85dBA, 8-hour TWA

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Appendix A - Glossary

Term	Definition
audiogram	A chart, graph, or table presenting the results from an audiometric test, showing an individual's hearing threshold levels as a function of frequency.
baseline audiogram	An audiogram against which future audiograms are compared.
decibel (dB)	Unit for expressing the relative sound pressure level on a logarithmic scale from zero for the average least perceptible sound to about 130 for the average pain level.
A-weighted sound pressure level (dBA)	Sound pressure level measured on the "A" frequency weighting scale of a standard sound level meter. This scale approximates the response of the human ear to noise at lower levels, by selectively responding to higher sound frequencies (which are more damaging than lower frequencies).
dose	The measure of exposure to noise energy with reference to the stated TLV. For example: a 100 percent TLV dose is equivalent to 85 dBA as an 8-hour TWA; a worker exposed to 85 dBA for 4 hours has received 50 percent of the allowable dose, and a worker exposed to 88 dBA for 4 hours has received 100 percent of the allowable dose.
exchange rate	The rate at which an increase in noise level is "exchanged" for decreased exposure time, or conversely, a decrease in noise level is exchanged for a longer exposure time. A 3 dB exchange rate results in cutting the allowable exposure time in half when the noise energy doubles (i.e., increases by 3 dB).
exposure assessments	Determinations of potential and actual exposure to noise, including initial and subsequent qualitative and quantitative exposure assessment activities.
high noise source	Any noise source which is consistently 85 dBA or above.
impulse or impact noise	Variations in noise levels that involve maxima at intervals of greater than one second. When the intervals are less than one second, the noise is considered to be continuous.
noise reduction rating (NRR)	The amount of attenuation in decibels provided by hearing protectors with individual pure tones in a test chamber without echoes or reflections. This number must be adjusted downward in consideration of actual noise exposure situations.

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Term	Definition
noise (hazardous noise)	Noise levels equal to or exceeding 85 dBA TWA or an equivalent noise dose.
OSHA recordable threshold shift	Generally, a threshold shift of 25 dB avg. at 2000, 3000, and 4000 Hz or greater when compared with the original (earliest) baseline audiogram, allowing for presbycusis.
Standard Threshold Shift (STS)	Change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz or greater in either ear, and accounting for presbycusis.
Threshold Limit Value (TLV)	The sound level in dBA to which workers may be exposed for a specified duration which will protect most workers against hearing loss over a working lifetime.
Time-Weighted Average (TWA)	The average sound pressure level incorporating varying exposure levels weighted by their duration during the workshift.

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Appendix B - Default Controls/Actions to Prevent Unprotected Noise Exposures Above 85dBA, 8-hour TWA

This Appendix includes work activities which CHPRC OS&IH has determined that sufficient CHPRC exposure monitoring data is available to allow establishment of default actions and controls applicable to all anticipated instances of those work activities.

These work activities shall be accepted as having sufficient potential to result in 8-hour TWA exposures above 85 dBA which will make additional exposure monitoring unnecessary unless the cognizant IH has reason to believe that new, previously-unmonitored exposure scenarios for the work activity are taking place.

This Appendix will be expanded to include additional work activities as sufficient additional exposure monitoring data becomes a part of CHPRC's Industrial Hygiene employee exposure database.

Inclusion in this Appendix also serves as the documentation required by Section 3.3.3 of this PRO that engineering and administrative controls to reduce employee exposures to below the 8 hour TWA of 85 dBA are "not feasible". Therefore, inclusion of a work activity in this Appendix means that no separate/further documentation to meet this requirement is necessary.

Mandatory default actions/controls:

- Hearing protection required for workers performing activity and other workers within 25' of activity (ref: Section 3.3.4 of this RD); and
- EJTA review required to ensure that Question 9 on "PEH, Part 1" page is answered either "2" or "3", as appropriate (ref: Section 3.4.1 of this RD); and
- Training required (ref: Section 3.5 of this RD)

Work activities to which the mandatory default actions/controls apply:

1. well drilling operations; and
2. pneumatic tool operation; and
3. power equipment operation (drills, saws, grinders, etc.); and
4. "Guzzler " truck operation;
5. heavy equipment operations (excavators, loaders, graders, etc.)

If a project/facility has noise exposure monitoring data indicating that noise exposures for work activities listed above are below an 8-hr TWA of 85 dBA and desires an exemption to the mandatory default controls required by this Appendix, they shall submit to the CHPRC noise control/hearing conservation Interpretive Authority (IA) (or Functional Area Manager (FAM), if IA is not available), data and information verifying that exposures will be below 85dBA, 8-hour TWA. The data/information to be submitted shall include, as a minimum:

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- description of operation, which includes environmental and exposure factors likely to influence noise exposures; and
- equipment being used; and
- specific controls being utilized; and
- summary of exposure monitoring data.

Upon completion of data review, the CHPRC OS&IH IA (or FAM) will notify the requestor via e-mail whether an exemption will be granted.