

<b>OCCUPATIONAL NOISE EXPOSURE CONTROL AND HEARING CONSERVATION</b>	<b>Manual Document Page Issue Date</b>	<b>ESHQ TFC-ESHQ-S_IH-C-53, REV C-1 1 of 16 April 11, 2016</b>
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## **1.0 PURPOSE AND SCOPE**

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5)

This procedure establishes requirements and practices to implement an effective occupational noise exposure control and Hearing Conservation Program (HCP) in accordance with 29 CFR 1910.95 “Occupational Noise Exposure;” 29 CFR 1926.52 “Occupational Noise Exposure – Construction;” 10 CFR 851 “Worker Health and Safety Program;” ACGIH Threshold Limit Values (TLV) 2005; and TFC-PLN-34. These requirements aid the Safety and Health (S&H) and Industrial Hygiene (IH) organizations in anticipating, identifying, evaluating, and controlling occupational noise hazards to reduce the risk of occupational hearing loss through both qualitative and quantitative exposure assessment as well as health risk communication to the workforce.

This procedure applies to all Tank Operations Contractor (TOC) activities performed by Washington River Protection Solutions, LLC (WRPS), its subcontractors, and prime contract employees assigned work in WRPS-owned facilities where there is a potential for worker exposure to hazardous noise levels.

The HCP is administered within four programmatic areas: Identifying Hazardous Noise, Work Site Health Risk Assessment, Medical Surveillance and Case Management, and Communication of Health Risk and Analysis. Each responsible stakeholder of the HCP will follow this document to satisfy the federal, state, and local laws and regulations from which the procedures are based.

## **2.0 IMPLEMENTATION**

This procedure is effective on the date shown in the header.

## **3.0 RESPONSIBILITIES**

### **3.1 Hazardous Noise Subject Matter Expert and Technical Authority**

- Administers the TOC Hearing Conservation Program and provides technical oversight, consultation and stakeholder management.
- Coordinates the maintenance of a Work Site Equipment List categorizing noise sources producing 80 dB or more, with assistance from IH, industrial hygiene technicians (IHT), and/or line organization S&H managers.
- Facilitates creating, updating and distributing of Work Site Equipment List of identified hazardous noise sources with assistance from IH, IHTs, and line organization S&H managers.
- Identifies requirements for noise measurements by location and/or activity.
- Develops hazardous noise acceptance criteria for new/rental equipment brought to the worksite, and has Tank Farm Material Services System (TFMSS) signature authority.
- Develops, delegates, and approves creation of hazardous noise industrial hygiene sampling plans (IHSP) in accordance with TFC-ESHQ-S\_IH-C-46 for use by IHs and IHTs.

- Reviews all hearing protection devices used in TOC operations based on data supporting manufacturer's noise reduction rating (NRR).
- Reviews audiogram evaluations of employees enrolled in the HCP and investigates Standard Threshold Shifts (STS) when they occur.
- Reviews HCP training information and provides updated information to the Training Manager, as needed.
- Provides consultation for pre-job briefings as applicable and additional notification to workers exposure over Occupational Exposure Limit (OEL) of 85 dBA over eight hours.
- Processes hazardous noise related Problem Evaluation Requests (PER).

### 3.2 Facility/Area Manager

- Implements noise hazard controls with the recommendations from IH.
- Reviews the Work Site Equipment List for hazardous noise sources and involves IH with mitigation efforts and health risk determination.
- Provides equipment or vendor noise data to IH for review and health risk assessment, prior to procurement and/or use.

### 3.3 Line Manager

- Implements the HCP in line organization operations with assistance from IH.
- Identifies employees who have potential for noise exposure at or above the OEL for enrollment in the HCP.
- Provides a selection of suitable hearing protectors approved for use by IH.
- Maintains an Employee Job Task Analysis (EJTA) with assistance from IH prior to submission to the Occupational Medical Provider.
- When a Threshold Shift has occurred, ensures that a repeat audiogram is scheduled and attended by employee within 30 days.

### 3.4 Industrial Hygienist

- Assists management with implementation of the HCP and acts as subject matter expert (SME) when warranted.
- Performs qualitative health risk assessment for activities/operations within the line organization to identify noise hazards and/or changes in work activities or equipment that may affect noise exposure.

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- Assists line management in completing Job Hazard Analyses (JHA) and/or other hazard identification processes where workers may be potentially exposed at or above the AL. Documents control requirements on the JHA, procedure, work instruction, or similar documentation to ensure implementation during work evolution.
- Assists line management with EJTA preparation, review, and submittal.
- Identifies when quantitative measurement is appropriate and the need to collect boundary and/or other relevant noise measurements.
- Makes recommendations for controls and use of hearing protection. Identifies when measurement is appropriate to assess the effectiveness of controls.
- Participates in pre-job briefings and other meetings to communicate noise hazard and control information. Works with the Field Work Supervisor (FWS)/IHT to identify employee exposure groups to be evaluated and ensure employees are wearing hearing protection correctly.
- Communicates the results of the hazardous noise exposure assessments to the SME, affected employees, and line management as appropriate.
- Participates in design reviews of noise generating systems (fans, motors, impacts, etc.) and makes recommendations regarding noise control.

### **3.5 Industrial Hygiene Technician**

- Assists in the implementation of the HCP through measurement and documentation of hazardous noise data and analysis.
- Measures boundary noise, as applicable, and communicates results to the FWS, IH, and/or employees.
- As applicable, identifies where employees may not be wearing hearing protection correctly to the FWS, comments in the Site Wide Industrial Hygiene Database (SWIHD) notes, and/or informs the IH.
- Participates in pre-job briefs to explain noise controls, such as boundaries or hearing protection, and/or discusses the sampling plan.
- Records sound level measurements and field information in the SWIHD as specified by the sampling plan and/or IH.

### **3.6 Field Work Supervisor**

- Implements noise controls and verifies use of hearing protection in work activities.
- Verifies that noise controls, such as boundaries, are implemented, and, if hearing protection is required, verifies that hearing protection is worn correctly.

- Works with the IH/IHT to identify employees who will wear noise dosimetry equipment in support of an exposure assessment.

### **3.7 Training Providers**

- Provides IH/IHT training on noise hazards, controls, and instrumentation use.
- Presents training material highlighting laws, regulations, current sampling plans, and this procedure.
- Includes instruction on the proper use of hearing protectors.
- Provides workers enrolled in the HCP annual training on effects of noise on hearing and purpose of hearing protectors.

### **3.8 Workers' Compensation Administrator**

- Reports noise induced injuries in Occupational Safety and Health Administration (OSHA) 300 logs.
- Works with SME to acquire STS data for incorporation in OSHA 300 injury reports, as needed.

### **3.9 Safety & Health Records**

- Maintains hazardous noise records.
- Accepts and files Threshold Shift and STS audiograms. Presents audiograms to SME and Workers Compensation Administrator for processing.
- Compiles HCP personnel list to SME for program evaluation and trend analysis.

### **3.10 Occupational Medical Provider (OMP)**

- Maintains a medical surveillance program.
- Notifies WRPS S&H of results of employee audiograms for those enrolled in the HCP when an employee has experienced a Threshold Shift and an STS.
- Conducts repeat audiogram within 28 days after a suspected Threshold Shift.
- Notifies the affected employee in writing within 21 days of the repeat audiogram results.

### **3.11 Employee**

- Implements the HCP at the individual level.
- Follows directions regarding use of hearing protection within noise hazard boundaries and/or as required per signs/labels/postings.

- Wears hearing protection correctly.
- Identifies the need for additional choices in hearing protection to the line manager and IH.
- Participates in the HCP by discussing noise hazards in the current job assignment with the IH/SME.
- Participates in personal exposure sampling.
- Follows up with requests from the OMP for repeat audiogram evaluations in a timely manner.
- Adheres to OMP direction to ensure audiogram can be optimally administered (i.e., minimal noise exposure fourteen hours prior to test).

#### 4.0 PROCEDURE

#### 4.1 Identification of Hazardous Noise

#### 4.1.1 Work Site Equipment List

The Work Site Equipment List will be populated with existing and new equipment used in TOC operations. The list supports OSHA 29 CFR 1910.95 (b), (c)(1), (d)(3)(i-ii) and 10 CFR 851.26 (1) in regards to assessment of exposure for correct personal protective equipment (PPE) and mitigation efforts.

- |                       |   |
|-----------------------|---|
| SME                   | 1. Write sampling plans and strategies for collecting data to be documented in the Work Site Equipment List.  |
|                       | 2. Verify completeness of Work Site Equipment List inventory.   |
| Facility/Area Manager | 3. Review the Work Site Equipment List inventory for tools/equipment used in their operation/facility that produce hazardous noise.   |
|                       | 4. Notify IH/S&H managers of changes or additions to the Work Site Equipment List inventory or changes to production, processes, equipment, or controls that could impact noise exposure assessment conditions. |
|                       | 5. Request IHT support to conduct periodic noise measurements on inventoried noise sources.   |
| IH                    | 6. Identify need for sampling during General Hazard Analysis (GHA)/JHA meetings when noise exposures are anticipated to exceed the OEL (85 dBA).  |
|                       | 7. Communicate results of exposure assessment to manager, SME, and employees as appropriate.  |

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|     | 8.  | Use Work Site Equipment List to justify appropriate hearing protection controls for workers.   |
| IHT | 9.  | Collect noise measurement data in accordance with IHSP-HCNS-03, “Noise Survey of Hazardous Noise Producers for Work Site Equipment List Inventory” and TF-OPS-IHT-019. |
|     | 10. | Record data in the SWIHD in accordance with TFC-ESHQ-S_IH-C-46.  |

#### 4.1.2 Hazardous Noise Sampling and Monitoring Equipment

- |                   |    |   |
|-------------------|----|---|
| SME               | 1. | Approve procurement of hazardous noise sampling and monitoring equipment for sampling plans and strategies. |
|                   | 2. | Research proposed equipment for appropriate applicability.  |
|                   | 3. | Provide input to training provider for required milestones for IH/IHT training on new equipment.            |
| IH                | 4. | Provide input to SME on procurement of additional hazardous noise sampling and monitoring equipment.        |
| Training Provider | 5. | Train IHTs on proper equipment use.   |
|                   | 6. | Schedule periodic training when appropriate.  |
| IHT               | 7. | Meet required milestones for equipment use prior to executing sampling.                                     |
|                   | 8. | Provide feedback to SME/IHs on field use of equipment.  |

#### 4.1.3 Work Site Equipment Procurement

The “WRPS Instructions for Determination of Required Approvals – Items” form requests IH Hearing Conservation SME approve equipment producing noise at or above 80 dB during anticipated use (line item 16). The following procedure supports the form as well as OSHA 29 CFR 1910.95(d) and 10 CFR 851.21 (1-8) and 851.25 (3).

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| SME | 1. | Evaluate new equipment for hazardous noise via TFMSS, when requested.   |
|     | 2. | Schedule noise surveillance if warranted.   |
| IH  | 3. | Alert SME to new equipment order discoveries.   |
|     | 4. | Ensure appropriate hazardous noise sampling takes place for new equipment on site.  |
|     | 5. | Evaluate fabricated equipment for hazardous noise via operational acceptance tests, construction completion documents, etc. |

## 4.2 Work Site Exposure Assessments

### 4.2.1 Sampling and Monitoring Execution

Hazardous noise sampling should follow SME-approved IHSP and documented in the SWIHD. Variations must be approved by the SME.

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| SME                      | <ol style="list-style-type: none"> <li>1. Request IHs collect data in the event of noise concerns or employee concerns with noise.</li> <li>2. Write and coordinate appropriate IHSP to support hazardous noise assessments.</li> </ol>  |
| Facility/Area<br>Manager | <ol style="list-style-type: none"> <li>3. Review the Work Site Equipment List for tools/equipment used in their operation/facility that emit hazardous noise.</li> <li>4. Notify IH of changes to production, processes, equipment, or controls that could impact noise exposure assessments.</li> <li>5. Request IH/IHT support to conduct noise measurements on noise sources.</li> </ol>  |
| IH                       | <ol style="list-style-type: none"> <li>6. Select and implement appropriate IHSP for assessment where noise exposures are reasonably anticipated to be at or above the AL. Hazardous noise IHSPs may be cited in other IHSPs as a reference for sampling events. Requirements of SME approved IHSPs must still be met.</li> <li>7. Make recommendations on control measures based on exposure assessment.</li> <li>8. Coordinate recommendations with IHT, FWS, line manager, and facility manager to ensure correct implementation of controls.</li> </ol> |
| IHT                      | <ol style="list-style-type: none"> <li>9. Collect noise measurement data per the identified IHSP and TF-OPS-IHT-019.</li> <li>10. Record data in the SWIHD in accordance with TFC-ESHQ-S_IH-C-46 and TFC-OPS-IHT-019.</li> </ol>   |

### 4.2.2 Hazardous Noise Control Implementation

Noise hazards will be controlled to reduce worker exposures below the OSHA 29 CFR 1910.95 (c)(2) AL of 85 dBA. 10 CFR 851.21 (1-8) requires documented assessments of work process hazards in addition to control implementation.

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| SME | <ol style="list-style-type: none"> <li>1. Conduct inventory of hazardous noise hearing protectors.</li> <li>2. Analyze effectiveness of hearing protectors using manufacturer and other published sources.</li> </ol> |
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|                          | 3. | Research engineered controls for noise sources when appropriate.  |
| Facility/Area<br>Manager | 4. | Implement noise controls with input from the IH to maintain noise exposures below the OEL.              |
| Line Manager             | 5. | Ensure employees exposed at or above the 85 dBA OEL are placed on the HCP (via EJTA).                   |
|                          | 6. | Ensure posting of OSHA 29 CFR 1910.95 in areas where employees have access when expected to exceed OEL. |

NOTE: The NRR of hearing protection must bring exposures below the eight-hour time weighted average (TWA) of 85 dBA.

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| IH  | 7.  | Recommend use of hearing protection to management for implementation when personal exposures are at or above the OEL.   |
|     | 8.  | Obtain approval from SME for engineered controls for hazardous noise sources prior to implementation.   |
|     | 9.  | Communicate administrative controls, engineering controls, personal protective equipment requirements through work planning documents (e.g., JHA, work instructions). |
|     | 10. | Observe the use of hearing protection and offer consultation when appropriate.  |
| IHT | 11. | Collect noise measurements around sources in the work area.   |
|     | 12. | Identify the location of the 85 dBA boundary to the FWS and employees where hearing protection is required.   |
|     | 13. | Observe the implementation of identified boundary or other administrative controls. Notify the FWS and/or IH when identified controls are not being met as planned.   |
| FWS | 14. | Implement boundary requirements (establishment and clear identification) for hearing protection use as specified by IH.   |
|     | 15. | Verify proper wearing of hearing protection.  |

#### 4.2.3 Conducting Exposure Assessments

Noise exposure assessments will be conducted for all areas/activities with the potential to produce hazardous noise at or above the OEL of 85 dBA. Sampling and monitoring will be conducted (personal, source, area) to quantify health risk to the employee.

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| IH | 1. | Request IHT sampling or monitoring execution when results of a hazard assessment and/or employee concerns with noise justify action. |
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|             | 2.  | Select and implement appropriate IHSP to support noise exposure assessment. Hazardous noise IHSPs may be cited in other IHSPs as a reference for sampling events. |
|             | 3.  | When unprotected TWA noise exposure results meet or exceed the OEL:   |
|             | a.  | Communicate the results using the SWIHD exposure letter to the monitored employee and/or other represented employees.   |
|             | b.  | Verify the employee's EJTA shows enrollment in the HCP.   |
|             | 4.  | When unprotected TWA noise exposure results meet or exceed the daily TLV of 85 dBA, eight-hour TWA:   |
|             | 5.  | Notify SME of a potential overexposure that could require an occurrence report.   |
|             | 6.  | Request IHT follow-up measurements.   |
|             | 7.  | Determine the work week exposure on the employee or those similarly exposed.  |
|             | 8.  | Communicate noise exposure results using the SWIHD exposure letter and assessment data to monitored and similarly-exposed employees.                              |
| IHT         | 9.  | Collect sound level and noise dosimetry data in accordance with the IHSP, and record the data in SWIHD.   |
|             | 10. | Collect follow-up sound level and noise dosimetry data and records data in SWIHD.   |
| S&H Records | 11. | Provide copies of employee exposure letters to the OMP.   |

### 4.3 Medical Surveillance and Case Management

#### 4.3.1 Investigation Protocol

Employees affected by STSs have additional requirements under HCP provisions. Those affected must undergo medical surveillance to confirm severity. Results of surveillance may lead to additional steps that must be taken to protect worker health and safety. Investigations support 10 CFR 851.26 (b)-(1).

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|--------------|----|--|
| Line Manager | 1. | Maintain EJTA and submittal process with assistance from IH.   |
|              | 2. | Ensure repeat audiogram is attended by employee within 30 days to determine if the STS is persistent when notified a Threshold Shift has occurred. |
|              | 3. | Ensure employee is not exposed to hazardous noise for at least 14 hours prior to repeat audiogram as requested by the OMP.                         |

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|  | 4.  | Ensure the employee is trained (or re-trained) in the proper use and care of hearing protectors in the event the repeat audiogram confirms the STS.                             |
|  | 5.  | Refer employee to the OMP for evaluation when employee(s) reports problems such as headaches, ear pain, irritation, or inability to hear signals due to hearing protection use. |
| OMP                                      | 6.  | Conduct medical surveillance for HCP requirements.  |
|  | 7.  | Notify WRPS Records staff when an employee is found to have a Threshold Shift or STS.   |
|  | 8.  | Provide written notification to employee within 21 days of the determination.   |
|  | 9.  | Interview employee and provides information on hazardous noise exposure, hearing protection, and medical relevance.   |
| SME                                      | 10. | Request a meeting with the employee to perform an exposure assessment of their current work assignment.   |
|  | 11. | Communicate results of exposure assessment to employee and line manager.  |
|  | 12. | Report appropriate STS to Worker Compensation Administrator for OSHA 300 log inclusion.   |
| Workers<br>Compensation<br>Administrator | 13. | Report STS injuries as part of OSHA 300 log within seven calendar days.   |

#### 4.3.2 Trend Analysis

Trend analysis for occupational noise injuries is a required action in accordance with 10 CFR 851.26 (b)-(1). The SME will compile and report trend data for STSs.

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|-------------|----|---|
| SME         | 1. | Establish tracking mechanism for company audiogram reports. |
|             | 2. | Conduct trend analysis monthly using STS reports.           |
|             | 3. | Ensure HCP-identified employees are part of trend analysis. |
| S&H Records | 4. | Accept audiograms from OMP.                                 |
|             | 5. | Provide SME with updated HCP personnel list quarterly.      |

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| IH | 6. | Use trend analysis to focus work process hazardous noise sampling and monitoring.                                  |
|    | 7. | Provide work process feedback to SME on hazardous noise controls (see Attachment A) in areas most affected by STS. |

#### 4.4 Communication of Health Risk and Analysis

##### 4.4.1 EJTA Completion

The completion of the EJTA is crucial for the capture of employees' enrollment in the HCP. EJTA completion supports 10 CFR 851.25 (a)-(b) and WRPS TFC-ESHQ-S\_IH-C-17, current revision.

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|---|----|--|
| Line Manager and Contractor Procurement | 1. | Responsible for completion of new-hire and current employee EJTA.              |
|   | 2. | Consult IH regarding updated information.                                      |
|   | 3. | Mark/update EJTA in reference to potential or actual hazardous noise exposure: |

WRPS will interpret the following Potential Exposure Hazard definitions in the EJTA as follows:

1b =  $\leq$  82 dBA producing equipment or environments

1c =  $>$  82 dBA to  $<$  85 dBA producing equipment or environments

2 =  $\geq$  85 dBA producing equipment or environments for less than 30 days a year

NOTE: Employee will be placed on HCP requiring audiogram and additional training.

3 =  $\geq$  85 dBA producing equipment or environments for greater than or equal to 30 days a year

NOTE: Employee will be placed on HCP requiring audiogram and additional training. Mandatory for employees who have experienced a confirmed STS.

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| IH | 4. | Review EJTA's for inclusion of ranking system for noise hazards as information is updated.                                  |
|    | 5. | Provide updated information to line management to ensure standardization of EJTA.   |
|    | 6. | Recommend correction of EJTA's in the event conditions change for employees after exposure assessment results are verified. |

- SME
7. Review EJTA for employees placed in the HCP.
  8. Provide feedback to IHs on EJTA completeness.

#### 4.4.2 Training

HCP training will be conducted as specified in OSHA 29 CFR 1910.95 (k). The SME must review and approve training provided to professionals and technical staff to ensure incorporation of programmatic goals, objectives and milestones.

Training provided for HCP participants is reviewed annually by SME.

Training prior to work or during activities will be approved by an IH for technical accuracy.

#### 4.4.3 Required Employee Communication

Each employee in the HCP will receive training and feedback as specified in OSHA 29 CFR 1910.95 and 10 CFR 851. See Table 1 for a list of requirements.

**Table 1. Employer HCP Communication Requirements.**

<b>SOURCE</b>	<b>SECTION</b>	<b>REQUIREMENT</b>	<b>RESPONSIBLE PARTY</b>
OSHA 29 CFR 1910.95	(f)	Employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted.	IH, FWS
	(i)(5)	Employer shall ensure proper initial fitting and supervise the correct use of all hearing protection.	IH, FWS
	(k)(3)(i-iii)	The employer shall ensure each employee is informed of the following [...] selection, fitting, use, and care [of hearing protection].	Training Provider, IH, FWS
	(l)(1)	The employer shall make available to the employees or their representatives copies of [OSHA CFR 1910.95] and shall also post a copy in the workplace.	Line Manager
10 CFR 851	851.23(a)	[...] ensure that all workers exposed or potentially exposed to hazards are provided with the training and information on that hazard [...]	Line Manager, IH, Training Provider

## 5.0 DEFINITIONS

**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.

**A-Weighted Sound Pressure Level.** 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.

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.

Dose. The measure of exposure to noise energy with reference to the stated Threshold Limit Value (TLV), calculated in accordance with the ACGIH TLVs. A 100% TLV dose is equivalent to 85 dBA as an eight-hour time-weighted average (85 dBA, eight-hour TWA).

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.

Exposure Assessment. The determination of potential and actual exposure to noise, including initial and subsequent qualitative and quantitative exposure assessment activities.

Impulse or Impact Noise. Noise characterized by a sharp rise and rapid decay in sound levels and is less than 1 second in duration.

Noise (Hazardous Noise). Noise, in terms of federal occupational health standards, is a level equal to or exceeding 85 dBA TWA or an equivalent noise dose.

Noise Reduction Rating (NRR). The amount of attenuation, in dB, 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.

Occupational Exposure Limit (OEL). A term used to represent: (1) the concentration or intensity of a physical or biological agent that is allowable, and/or (2) the time period over which workplace concentrations are averaged to compare with the allowable exposure. The OEL is the level at which employees are enrolled in the HCP and the level where noise controls are implemented. The OEL is established as 85 decibels, A scale for an eight-hour exposure.

OSHA Recordable Threshold Shift. Generally, a threshold shift of 25 dB avg. or more at 2000, 3000, and 4000 Hertz (Hz) when compared with the original (earliest) baseline audiogram.

Standard Threshold Shift (STS). A loss in the hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

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 work shift.

## **6.0 RECORDS**

The following records are generated during the performance of this procedure:

- TOC Noise Sampling Data Reports.

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM\_DC-C-02. When complete, TOC Sampling Data Reports are saved in IDMS via the Industrial Hygiene database (SWIHD).

## **7.0 SOURCES**

### **7.1 Requirements**

1. 10 CFR 851, Section 23, "Safety and Health Standards."
2. 29 CFR 1910, Subpart G, Section 95, "Occupational Noise Exposure."
3. 29 CFR 1926, Subpart D, Section 52, "Occupational Noise Exposure."
4. "2005 Threshold Limit Values for Noise," American Conference of Governmental Industrial Hygienists.
5. TFC-PLN-34, "Industrial Hygiene Exposure Assessment Strategy."

### **7.2 References**

1. ANSI Z535, "Safety Alerting Standards," American National Standards Institute.
2. TF-OPS-IHT-019, "Use of the CIRRUS CR: 110AIS Personal Noise Dosimeter Reader Unit and the QUEST 2200 Sound Level Meter."
3. TFC-BSM-IRM\_DC-C-02, Records Management.
4. TFC-ESHQ-S\_IH-C-17, "Employee Job Task Analysis."
5. TFC-ESHQ-S\_IH-C-46, "Industrial Hygiene Reporting and Records Management."
6. TFC-ESHQ-S-STD-18, "Safety Signs, Tags, Barriers, and Color Coding."

**ATTACHMENT A – HAZARDOUS NOISE CONTROLS**

- A. When noise exposure levels are identified as having the potential to equal or exceed the time weighted average, a noise control strategy will be developed to include:
  1. Evaluation and use of feasible engineering controls;
  2. Isolation of source or personnel, and/or;
  3. Use of administrative controls such as posting or labeling of sources, and/or;
  4. Use of hearing protection to supplement engineering and administrative controls.
  
- B. The table below offers examples of the hierarchy of controls that may be used to mitigate noise hazards. These techniques should be used in conjunction with an exposure assessment from an Industrial Hygienist.

	<b>Controls</b>	<b>Examples</b>
Most Effective	Elimination	Elimination of noise hazard through changes in procedure or process
	Substitution	Changes in equipment use to facilitate noise mitigation
	Other	Automation of process, isolation, enclosure or dampening
	Administrative	Rotation of workers, work schedule adjustment, warning signs, equipment labels, training
	Least Effective	Personal Protection

- C. Posting and labeling must meet American National Standards Institute (ANSI) standard Z535.1.2.3.4.5 and WRPS procedure TFC-ESHQ-S-STD-18, current revision.

Examples may include:

