



Program For Occupational Hearing Conservation  
And Noise Control Specification  
Global Common

SD-020

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## Table of Contents

1.	Sound Level Survey.....	7
2.	Employee Sound Exposure Assignment from Nexteer Automotive Sound Survey.....	13
3.	Action Level Requirements.....	14
4.	Hierarchy Of Health And Safety Controls.....	15
5.	Noise Control Program.....	17
6.	Personal Protective Equipment.....	21
7.	Employee Training.....	23
8.	Audiometric Testing.....	24
9.	Employee Notification and Record Keeping.....	28
10.	Evaluation of Overall Program Effectiveness.....	30
11.	Technical Training Programs.....	31
12.	Program Documentation.....	32

## Annex

A.	Model Noise Control Program Structure.....	33
B.	Program Checklist.....	36

## List of Figures

Figure 1:	Hearing Conservation and Noise Control Program.....	6
Figure 2:	Uniform Plant Sound Survey.....	12
Figure 3:	Hierarchy Of Health and Safety Controls.....	15
Figure 4:	Chart Program Effectiveness.....	30

## PREFACE

An effective Hearing Conservation and Noise Control Program is required by Federal, State and Provincial Occupational Health & Safety Regulations. This specification has been prepared by the Nexteer Automotive Industrial Hygiene Council for use by all Nexteer Automotive operations. The document specifies the areas and supporting activities necessary to achieve an effective program.

Other documents that support and are an integral part of the NEXTEER Hearing Conservation & Noise Control program are:

- NEXTEER AUTOMOTIVE Specification SD-019, Nexteer Automotive Uniform Plant Sound Survey Procedure
- NEXTEER AUTOMOTIVE Specification SD-018, Nexteer Automotive Sound Level Specification for the Purchase of Machinery, Power Tools, and Equipment.

## NEXTEER AUTOMOTIVE INDUSTRIAL HYGIENE COUNCIL ANNUAL MEETING

The Nexteer Automotive Industrial Hygiene Council will meet annually to review and evaluate the progress and status of the Nexteer Automotive Program for Occupational Hearing Conservation and Noise Control.

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**NEXTEER AUTOMOTIVE RESTRICTED MATERIAL**

## INTRODUCTION

The requirements and procedures specified in the "Nexteer Automotive Program for Hearing Conservation and Noise Control" insure an effective program for the health and safety of Nexteer Automotive. This document provides the requirements for development, implementation, and maintenance of an effective Hearing Conservation (HC) and Noise Control (NC) program.

A complete HC & NC Program consists of three fundamental elements:

1. Monitoring
2. Hierarchy of Health and Safety Controls
3. Evaluation of Overall Program Effectiveness

**Monitoring:** The Nexteer Automotive Uniform Plant Sound Survey Specification – SD-019 (Ref. Section 1) provides documentation for identifying employees for inclusion in your plant's hearing conservation program, and for the proper selection of personal hearing protectors. In addition, the Nexteer Automotive Survey Specification identifies critical noise problems and provides the basis to prioritize the noise problems to be addressed in the plant's Noise Abatement Program.

**Hierarchy of Health and Safety Controls:** The Hierarchy of Controls (Ref. Section 3) consists of well-known standard principles of "accident" prevention in order of greatest effectiveness and highest priority. This hierarchy applied to a HC & NC Program consists of five identifiable elements: source elimination and engineering controls, medical surveillance utilizing audiometric evaluations, employee education and training, and the use of personal hearing protection devices.

**Evaluation of Overall Program Effectiveness:** The effectiveness of a plant's Hearing Conservation and Noise Control Program must be evaluated on a regular basis. This can be done by charting effectiveness indicators on a yearly basis, such as the percent or number of employees whose exposure exceeds a specified limit, or the percent or number of employees with an occupational related Standard Threshold Shift.

An effective HC & NC Program must involve the commitment and participation of the entire plant organization. A plant Hearing Conservation and Noise Control Committee, responsible for the program implementation should consist of representatives from Plant/Environmental Engineering, Operations Personnel, Medical, Safety, Industrial Hygiene, Financial and Purchasing, and the Joint Health and Safety Committee. This committee shall be chaired by the "key person" as appointed by the Plant Manager. This team should have documented meetings quarterly to review progress and assign priorities.

The scope of the Nexteer Automotive Occupational Hearing Conservation and Noise Control Program goes beyond the minimal requirements of federal, state and provincial regulations to insure a successful program. To evaluate the plant program completeness and alignment relative to the Nexteer Automotive Program for Occupational Hearing Conservation and Noise Control, a "HEARING CONSERVATION & NOISE CONTROL PROGRAM CHECKLIST" is included in Appendix A.

A strong commitment to a hearing conservation program can be shown by following these policies:

- Strive for excellence in the program rather than just meeting minimal requirements.
- Integrate the program into the overall plant safety and health program.
- A key person, appointed by the plant manager, to be responsible for coordination of the plant's Hearing Conservation and Noise Control program.
- Strive for simplification and continuity of the program's operating procedures.

## OVERVIEW

### Hearing Conservation Program

Employees whose assigned Job Function has an associated sound level exposure equal to or greater than an 8-hour time-weighted average of 85 dB(A) (or equivalently a dose of fifty percent) as determined in accordance with the SD-019 Nexteer Automotive Uniform Plant Sound Survey Specification shall participate in the Plant Hearing Conservation Program.

Employees, whose regular Job Function assignment has an associated sound level exposure less than an 8-hour time weighted average of 85 dB(A) (or equivalently a dose of fifty percent), but infrequently works a Job Function with associated TWA<sub>8</sub> 85 dB(A) shall participate in the Plant Hearing Conservation Program.

Employees determined to have a Standard Threshold Shift (STS) in their hearing ability shall be required to wear personal ear protection in area =85 dBA TWA<sub>8</sub>.

### Noise Control Program

Where employee(s) exposure exceeds 90 dBA (TWA) or 140 dB Peak impact/impulse sound pressure level:

- Employee(s) shall be required to wear "Personal Protective Equipment" in accordance with the requirements set forth in Section 6 of this document.
- The plant shall have a Noise Abatement Program which addresses current and future planned utilization of feasible controls involving noise source elimination, substitution, engineering controls and/or administrative controls.
- The Noise Abatement Program activities SHALL be documented.
- The Local Joint Health and Safety Committee shall annually review the plant's Noise Abatement Program with plant management and the Shop Committee for the purpose of evaluating program effectiveness and making recommendations designed to improve upon it. Information provided and used in this evaluation shall include:
  1. Copies of the plant's current Master Sound Survey Report.
  2. Copies of the plant's noise abatement program.
  3. Summary of audiometric tests (# Employees annually tested as a percentage of the # Employees required to be annually tested).
  4. The number of employees confirmed to have experienced a standard threshold shift (STS) based on his/her last audiometric examination, and the historical trend (both number and percent) of STS incurred by plant employees. (Reference Section 10).
  5. The number of employees that are required to wear hearing protection based on the plant's last Annual Sound Survey, and the historical trend (both # and percent total) of employees required to wear hearing protection. (Reference Section 10).

### Access To Information

Copies of Federal, State, or Provincial Regulations for Occupational Noise Exposure shall be posted in the workplace and/or made available to employees as required.

All training materials pertaining to Noise Exposure Standard requirements will be made available, upon request, to the appropriate Regulatory agency.

All records required by Federal, State or Provincial Noise Exposure Regulations shall be provided upon request to employees/former employees, or designated representative, and appropriate Federal, State or Provincial agencies.

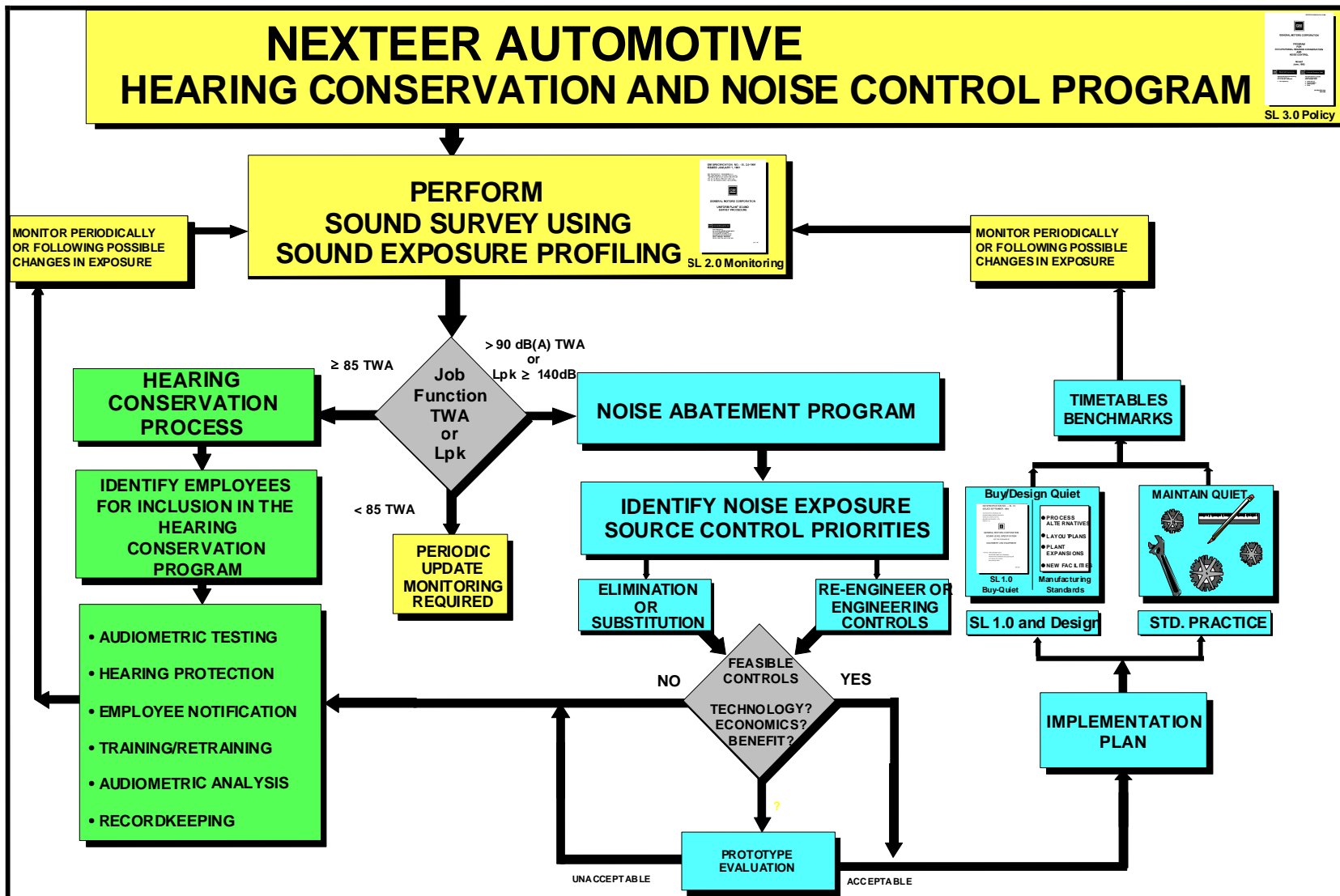


Figure 1: Hearing Conservation and Noise Control Program

## **1. Sound Level Survey**

### **1.1 Nexteer Automotive's Requirements:**

Each Nexteer Automotive facility shall conduct an annual plant sound survey (Baseline or Up-date) in accordance with the Nexteer Automotive Specification SD-019, Plant Sound Survey Specification.

### **1.2 Assignment Of Responsibility:**

The facility manager shall assign responsibility for coordination of the annual plant sound survey.

### **1.3 Qualified Surveyor:**

The annual plant sound survey data shall be collected by a qualified person -- either a Nexteer Automotive employee or an employee of the Nexteer Automotive Partner for Sound Survey.

### **1.4 Responsibility For Reports:**

All required reports will be generated by the Nexteer Automotive Partner or the surveyor.

### **1.5 Survey Environment:**

Plants are to be surveyed based on the work environment conditions and practices that exist at the time of survey.

### **1.6 Supplemental Reports:**

Any projected changes due to anticipated shift length changes, etc. will be contained in a Supplemental Report, separate from the required reports specified in Section 1.4.

### **1.7 Frequency Of Survey:**

#### **1.7.1 Baseline Survey**

A complete plant wide Baseline survey shall be conducted, and the sound level exposures documented for all Job Functions (actual or representative) in each department.

A new Baseline shall be established and maintained after a plant or department renovation.

#### **1.7.2 Baseline Survey Update**

The plant-wide Baseline survey shall be reviewed annually and updated where necessary. Departments or jobs where known changes in Job Function (new or with changed employee work activities), production, processes, equipment or controls have occurred shall be scheduled for a detailed re-survey during the baseline update.

All plant groups shall be "spot checked" to ensure that a change has not occurred due to some unexpected or unknown circumstance. Where changes have occurred that indicate a potential change in Job Function Exposure Category (Example: TWA8, < 85 dBA, = 85 dBA or > 90 dBA), a detailed re-survey of the Job Function is required.

All employee Job Functions must be reviewed at least every five (5) years.

## 1.8 Reporting

### 1.8.1 Plant Level

1. The following reports, with content as specified in Section 5 of Nexteer Automotive Specification SD-019, shall be developed from the plant's sound exposure survey database and submitted to the Plant's Joint Health and Safety Committee for distribution to the appropriate plant department or activity.

Four (4) – Master Sound Survey Reports.

One (1) – 11" x 17" plastic laminated color-coded plant layout per plant.

2. The Nexteer Automotive Sound Status Report, which reflects the status of the plant in terms of employee exposures, and the plant's hearing conservation and noise control program's progress and expenditures in the past calendar year shall be submitted annually to the Global Industrial Hygienist for tabulation and summary no later than April 1 of each year.

### 1.8.2 Divisional Level

1. A Summary Report, with content as specified below, shall be developed by the Corporate Partner and provided to their Global Safety Manager for his/her respective Facilities.

The report shall be divided into four (4) categories:

#### a. Employee Sound Exposures

Employee sound exposure risk shown for the Corporation as a whole and for the individual operating units (plants) in the Corporation for the "Year ending" and historically. Reporting shall consist of actual number of employees and the percent of total plant employees at risk between 85 dBA and 90 dBA TWA<sub>8</sub>, and > 90 dBA TWA<sub>8</sub>.

#### b. Hearing Conservation Program

Information shall include status of Audiometric Testing and Analysis, annual rates of Standard Threshold Shifts (STS), employee hearing protection use, and status of training for the Corporation as a whole and for the individual operating units (plants) in the Corporation. Reporting shall consist of actual number of employees and the percent of total plant employees.

#### c. Noise Abatement Program

Information shall include measures to gauge activity to control noise, expenditures for noise control, and rating of equipment meeting Nexteer Automotive Specification SD-018 for the Corporation as a whole and for the individual operating units (plants) in the Corporation.

#### d. Sound Status Report Summary

A table summary of Plant Sound Status Reports ordered by Plant.



### 1.8.3 Corporate Level (Nexteer)

1. A Corporate Summary Report that reviews the state of the Nexteer Automotive Program using indices specified in Nexteer Automotive SD-020 Specification, with content as specified below, shall be developed and presented to the Nexteer Automotive Industrial Hygiene Council at its' Annual Meeting June 1 of each year (or the following Monday if 6/1 occurs on a weekend).
2. The Chairman of the Nexteer Automotive Central Noise Committee will present a Corporate Summary Report to the Nexteer Automotive Safety Manager.
3. The Corporate Summary Report shall consist of separate report sections for the Nexteer Automotive organizational group. Each Organizational Group will be reported by Plant.

Each Organizational Group report will summarize for the Organizational Group as a whole, for each Plant within the Group, and for each Plant in the corporation "Year ending" and Historical Data in four (4) categories:

a. Employee Sound Exposures

Employee sound exposure risk reporting by actual number of employees and the percent of total divisional and plant employees at risk between 85 dBA and 90 dBA TWA<sub>8</sub>, and >90 dBA TWA<sub>8</sub>.

b. Hearing Conservation Program

Information shall include status of Audiometric Testing and Analysis, annual rates of Standard Threshold Shifts (STS), employee hearing protection use, and status of training. Reporting shall consist of actual number of employees and the percent of total divisional and plant employees.

c. Noise Abatement Program

Information shall include measures to gauge activity to control noise, expenditures for noise control, and rating of equipment meeting Nexteer Automotive SD-018 Specification.

d. Sound Status Report Summary

A table summary Plant Sound Status Reports ordered by Corporate and Plant.

### 1.9 Database Software

The Nexteer Automotive Systems TWACALC™ Version 2.0 (or latest revision) computer program, or equivalent, shall be used to establish a database of sound exposure information, determine the Job Function TWA, and print the required reports.

## 1.10 Color Coded Plant Layouts [Reference Example at end of this Section (Section 1)]

- 1.10.1 Color Coded plant layouts are to be generated for purposes of identifying hearing protection boundaries and satisfying the posting requirements for employee notification of sound survey results.
- 1.10.2 Rules for applying monitoring results to establishing program boundaries must be consistent and consider employee sound exposure potential as indicated by Job Function TWA, not workstation sound levels.
- 1.10.3 Boundaries must recognize the effects of employee mobility between Job Functions within Job Code Groups, and effective administration of any Hearing Conservation Program requirements.
- 1.10.4 The coding scheme shall follow the color codes specified herein and be easily discernable with a legend defining the coding scheme as follows:
  - RED Areas/departments where Job Function sound exposure profiles indicate potential for employee sound exposure to exceed 85 dBA TWA<sub>8</sub>.
  - White Areas/departments where Job Function sound exposure profiles indicate potential for employee sound exposure to be less than 85 dBA TWA<sub>8</sub>.
  - Crosshatched Areas/departments where Job Function sound exposure profiles indicate potential for employee sound exposure to exceed 90 dBA TWA<sub>8</sub> only when specific equipment is used and that use is intermittent or variable.
  - Gray Areas/departments under construction or for other reason not operative.

Layouts may show additional information such as:

- Location of in-frequently used equipment which may provide sound exposure levels above the color-coded area in which they are located.

## 1.11 Record Keeping

The Master Sound Survey Report shall be retained on file at each plant consistent with the requirement for retaining medical records.

Each plant is responsible for maintaining archival data disks of the baseline and each update survey.

Individually measured noise doses are to be considered the employee's noise exposure assessment and retained as described in Section 8.

The most current sound survey results must be used to determine employees' "most recent noise exposure assessment" at the time of the employees' annual audiometric test, and to determine mandatory hearing protection area boundaries. The department responsible for conducting the sound survey must ensure that copies of the Medical and Safety Report are sent to the plant medical and safety departments. The employee's "noise exposure assessment" shall be included in the employee's annual audiometric test record as described in Section 8.

## 1.12 Employee Notification

All employees whose assigned Job Function has an associated sound level exposure equal to or greater than an 8-hour time-weighted average of 85 dB(A) (or equivalently a Dose of fifty percent) shall be notified of the results of the monitoring (see Section 9.1)

## 1.13 Posting

- 1.13.1 Plant areas or workstations where an employee's eight (8) hour Time Weighted Average (TWA) sound exposure requires the use of hearing protection must be "posted." Posting should consist of a sign requiring MANDATORY HEARING PROTECTION.

NOTE: Ontario regulations require "clearly visible warning signs shall be posted at the approaches to an area where the sound level is more than 90 decibels."

- 1.13.2 Posting may include a Departmental bulletin board display of the color-coded plant layout with a "You Are Here" designation indicating posting location on plant layout as illustrated at the end of this section (Section 1).

## **1.14 Surveyor Requirements**

### **1.14.1 General:**

All person(s) conducting the annual plant sound survey (baseline or update) shall:

- Be technically competent in the use of sound level measuring equipment to determine time-weighted average exposure.
- Be knowledgeable in the philosophy of the "Nexteer Automotive Uniform Plant Sound Survey Procedure" and the procedures necessary for completing the survey requirements.
- Have attended either Nexteer Automotive's 40-hour "Industrial Noise Control" class (CTIS 0213), Nexteer Automotive's 24-hour "Nexteer Automotive' Sound Survey Procedure" training class (CTIS 0369), the Nexteer Automotive' Partner's internal training program on Sound Survey Procedure or equivalent program.
- Be knowledgeable in the use of the NEXTEER AUTOMOTIVE' software program "TWACALC" or equivalent to develop a sound survey database.

The Nexteer Automotive person(s) appointed by the Plant Manager as responsible for conducting the plant sound survey, and/or responsible for supervising and coordinating the survey being done by the Nexteer Automotive' s Partner, shall have attended either the 40-hour "Industrial Noise Control" (CTIS 0213) or the 24-hour "Nexteer Automotive Sound Survey Procedure" (CTIS 0369) training program (or their equivalent).

Refer to Section 11, TECHNICAL TRAINING PROGRAMS.

### **1.14.2 Use of the Nexteer Automotive Partnership.**

1. If a plant's annual sound survey is not conducted by qualified plant personnel, (or other qualified Nexteer Automotive personnel), the survey SHALL be done by the Nexteer Automotive Partner.

## **1.15 Quality Audit**

A Quality Audit of the survey results shall be performed by a qualified plant representative prior to acceptance of the final survey report and contractor release. Any discrepancies between the audit results and the contractor survey results must be resolved prior to acceptance of the final survey report.

## **1.16 Observation Of Monitoring**

Any employee impacted by the survey, or the employee's designated representative may observe any sound level measurements conducted in conjunction with the sound survey procedure.

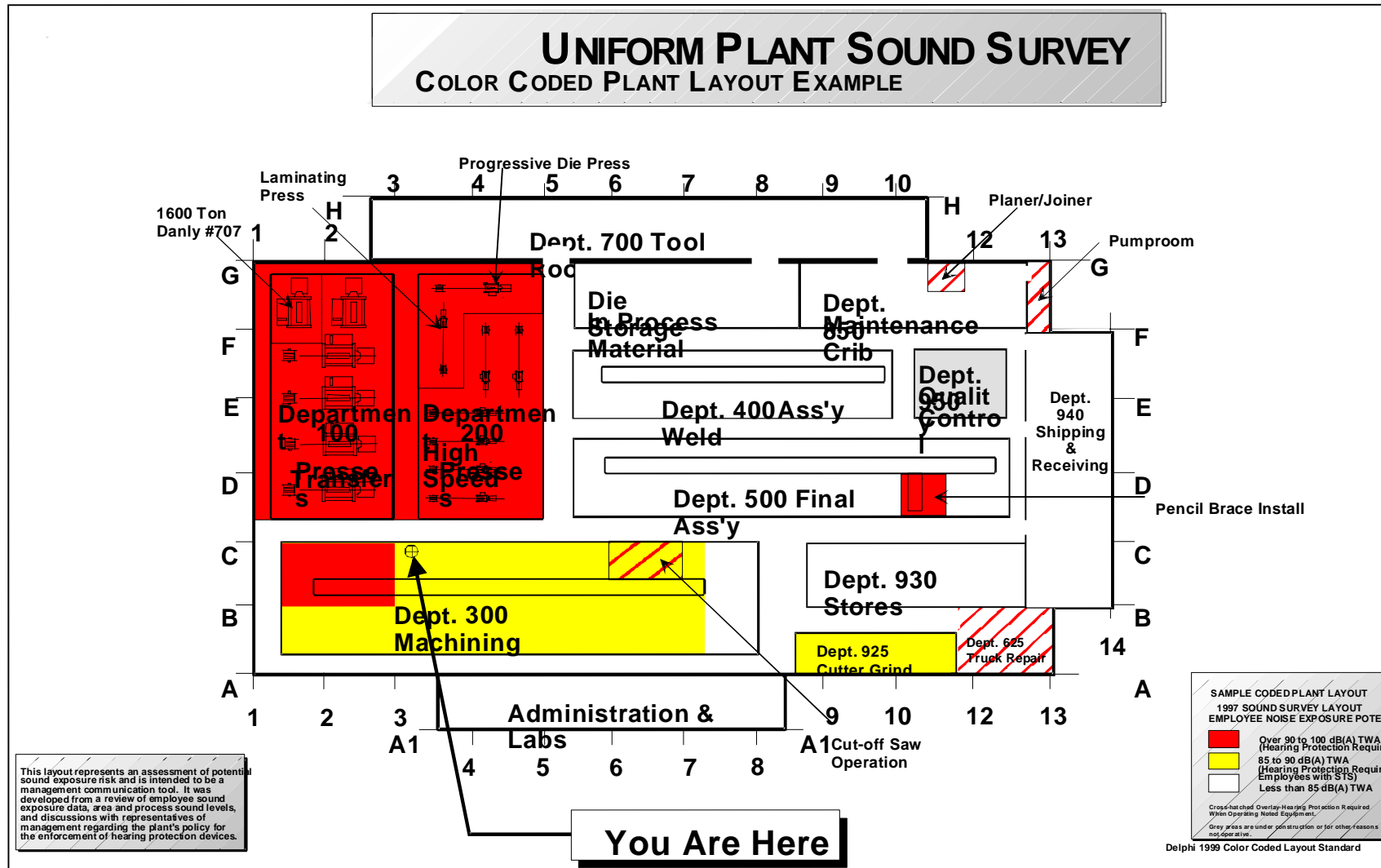


Figure 2: Uniform Plant Sound Survey

## 2. Employee Sound Exposure Assignment from Nexteer Automotive Sound Survey

### 2.1 Assignment Of Employee "Noise Exposure Assessment" And Number of Employees Working Between 85 To 90 dB(A) TWA<sub>8</sub> or > 90 TWA<sub>8</sub> Based On Job Function Assignment.

2.1.1 Employees assigned to, or regularly rotated into, a Job function that has an associated 8-hour time-weighted average sound level exposure (TWA<sub>8</sub>) between 85 and 90 dBA or > 90 dBA:

1. This TWA<sub>8</sub> **SHALL** be recorded on the employee's audiogram as the employee's most recent "Noise Exposure Assessment."
2. The employee **SHALL** be included in the headcount of employees with a TWA<sub>8</sub> 85 to 90 dBA or TWA<sub>8</sub> > 90 dBA.
3. The employee **SHALL** be included in the plant Hearing Conservation Program.

2.1.2 Employees, whose regular Job assignment has a TWA<sub>8</sub> < 85 dBA, but infrequently work a Job Function with associated TWA<sub>8</sub> between 85 and 90 dBA or > 90 dBA due to an unusual circumstance - such as absenteeism:

1. The TWA<sub>8</sub> associated with the employee's **regular** Job Function **SHALL** be recorded on the employee's annual audiogram as the employee's most recent "Noise Exposure Assessment."
2. The employee **SHALL NOT** be in the headcount of employees with TWA<sub>8</sub> 85 to 90 dBA or TWA<sub>8</sub> > 90 dBA.
3. The employee **SHALL** be included in the plant Hearing Conservation Program.

NOTE: Section 2.1 requirements apply when an employee's regular Job Function TWA<sub>8</sub> exposure is increased due to overtime work assignment.

### 2.2 Obtaining Employee Names & Linking Names to Job Function Exposures

2.2.1 Employee names shall be obtained from the plant VIP (hourly) and PRISM (salaried) databases. These systems will list employees by Shift, Department, Job Code and Job Classification. Reference Nexteer Automotive Specification SD-019 for specific employee Noise Exposure Assessment assignment.

NOTE: Supervisors are responsible for forwarding to Medical, names of employees rotated into their area of responsibility after the annual survey is completed, and who are assigned Job Functions with TWA<sub>8</sub> equal to or greater than 85 dBA.

### 3. Action Level Requirements

#### 3.1 Nexteer Requirements

After completing the data processing steps of the survey procedure, the employees that should be included in the plant's Hearing Conservation Program must be identified based on the following rules. These rules are to be applied to all employees in each organizational Job Code Group using the Job Function with the highest TWA level as the basis for determination. If the Job Function related Exposure is equal to or greater than 85 dB(A), said employee must be included in the plant Hearing Conservation Program.

##### 3.1.1 Job Function TWA Less Than 85 dB(A)

If the 8-hour, time-weighted average sound level associated with a specific Job Function assignment, as determined by sound level/exposure time measurement(s), is less than 85 TWA (or equivalently a dose less than fifty percent), a Hearing Conservation Program is not required.

##### 3.1.2 Job Function TWA Between 85 And 90 dB(A)

If the 8-hour, time-weighted average sound level associated with a specific Job Function assignment, as determined by sound level/exposure time measurement(s) is 85 to 90 dB(A) (or equivalently a dose between fifty and one hundred percent), a Hearing Conservation Program is required. Employees with confirmed Standard Threshold Shifts must wear personal hearing protection. Plants may elect to require mandatory ear protection for all employees working these Job Functions.

##### 3.1.3 Job Function TWA Greater Than 90 dB(A)

If the 8-hour, time-weighted average sound level associated with a specific Job Function assignment, as determined by sound level/exposure time measurement(s), is greater than 90 dB(A) (or equivalently a dose greater than one hundred percent), a Hearing Conservation Program and ear protection are required. Investigation and the implementation of feasible engineering and/or administrative controls are required.

##### 3.1.4 Maximum Impact / Impulse $L_{PK}$ Exceeds 140 dB.

If the maximum impact/impulse  $L_{PK}$  exceeds 140 dB a Hearing Conservation Program and ear protection are required. Investigation and the implementation of feasible engineering controls is required.

##### 3.1.5 Fractional Sum > Unity or Sum OF Acoustic Energy (SAE) > 160 (Quebec, Canada)

If the Fractional Sum of the impact noises exceeds unity or the Sum of Acoustic Energy exceeds 160, a Hearing Conservation Program and mandatory full shift ear protection are required until feasible engineering controls are implemented.

##### 3.1.6 $L_{MAX}$ Equal or Greater Than 90 dB(A) (Quebec, Canada)

If the maximum sound level during any activity associated with a specific Job Function is equal to or greater than 90 dB(A), feasible measures shall be taken to reduce the sound level to below 90 dB(A).

## 4. Hierarchy of Health and Safety Controls

### 4.1 Nexteer Automotive Practice

Employee health and safety is a top priority at Nexteer Automotive. Nexteer Automotive engineers and operations people have to design safety into every process. Engineers are directly responsible for designing feasible engineering controls into facilities, machines, equipment, and tooling. "Designed-in" controls offer the opportunity for cost-effective, innovative approaches. All employees (Union and Management) must utilize and maintain the safety engineering controls implemented. Employees must also implement the training they have received and, where necessary, protect themselves in the interim with personal protective equipment. The "Hierarchy of Health and Safety Controls", shown below, represent standard principles of accident prevention in highest priority.



Effectiveness	Levels of Control	Value	Cost
Most	Elimination or Substitution	Hazards are eliminated or reduced.	Long-term cost reduced or eliminated.
↓	Safeguarding (Engineering Controls)	Exposure to hazards is controlled.	Potential for higher initial cost, however, offset by reduced long term cost.
↓	Warnings	Alerts people that hazards exist.	Cost to maintain and implement
↓	Training and Procedures	Only trained personnel operate and maintain equipment. Safe operating practices and procedures are established.	Cost associated with training / retraining. Resources to establish Safe Operating Practices.
Least	Personal Protective Equipment	Provides a personal / last resort barrier to the hazard	Recurring operating cost associated with the use and maintenance of personal protective equipment.

Figure 3: Hierarchy Of Health and Safety Controls

#### **4.2 Elimination Or Substitution**

The most effective way to control a safety hazard, such as noise, is to eliminate it by design or by substitution in accordance with Design –In Principles Process. The time to accomplish “Elimination” or “Substitution” is during the design and/or development stage. These can often be affected without extra trouble or cost for the designer and/or manufacturer, and in many instances result in reduced costs and improved operating efficiencies. For example, eliminating the use of a noisy and costly compressed air blow off for part and scrap removal by incorporating a mechanical/gravitational process into the machine design. “Elimination” and “Substitution” are the least defeat able of all control measures because they do not rely on a user interaction to be effective. These higher order controls must be considered in the earliest stages of concept, cost estimating and processing proposals.

#### **4.3 Engineering Controls**

If the safety hazard cannot be eliminated by design or substitution, then feasible engineering controls should be implemented. Like “Elimination” or “Substitution” the time to most effectively implement engineering controls is during the design, pre-bid, and development stage. Competitive bid proposals should have feasible controls described and broken out as a line item in the bid. The equipment designer and manufacturer are in the best and earliest position to incorporate the most functional, durable, cost effective, and efficient engineering controls. Deferring consideration of engineering controls until the machine/equipment/process is being assembled or is already built and operational results in attempting to retrofit a control which may be makeshift, cumbersome, expensive and result in less than optimum performance in controlling the hazard. For example, the use of an enclosure to control noise is better incorporated into the design of the machine than retrofitted to the machine after it has been built. If the machine was not designed to accommodate an enclosure, the enclosure may interfere with operator job function activities, maintenance accessibility, the manufacturing process, etc. “Engineering controls” are second in the hierarchy of least defeat able controls. It must be remembered that the safety hazard (like noise) still exists but is “controlled” as long as the engineering control (such as an enclosure) is used and maintained. If the engineering control is removed or disabled, exposure can result in a potential hazard.

#### **4.4 Warnings, Training and Procedures, Administrative Controls, And Personal Protective Equipment**

If the safety hazard cannot be controlled by elimination, substitution, or feasible engineering controls, then warnings (such as signs utilizing both verbal and graphic), training (instruction as to the dangers of the safety hazard, procedures, administrative controls (job rotation, medical surveillance) and the use of personal protective equipment must be utilized. Warnings, training, administrative controls, and personal protective equipment rely on human effort to work; hence they have a high degree of defeat ability proneness. In addition, while the “up-front” costs may look minimal compared to design and engineering costs, these controls are very expensive in the long term since they are never ending.

The using of warnings, training, administrative controls, and personal protective equipment are interim safety measures until the feasible higher-order controls - “Elimination”, “Substitution”, “Engineering” can be implemented.



## **5. Noise Control Program**

### **5.1 Nexteer Automotive Systems Requirements**

Where an employee Noise Exposure Assessment exceeds 90 dBA (TWA<sub>8</sub>) or 140 dB Peak impact/impulse sound pressure level, a plant will have in place a detailed NOISE CONTROL PROGRAM that addresses the utilization of feasible Elimination, Substitution, Engineering, and Administrative Controls.

### **5.2 A Model Noise Control Program Structure Is Detailed in Appendix A.**

### **5.3 Program Evaluation**

The plant Noise Control Program activities shall be documented. The Local Joint Health and Safety Committee shall annually review the plant's Noise Control Program with plant management and the Shop Committee for the purpose of evaluating program effectiveness and making recommendations designed to improve upon it.

Information provided and used in this evaluation shall include:

- Copies of the plant's current Master Sound Survey Report
- Copies of the plant's noise control program
- Summary of audiometric tests (# Employees annually tested as a percentage of the # Employees required to be annually tested).
- The number of employees confirmed to have experienced a standard threshold shift (STS) based on his/her last audiometric examination, and the historical trend (both number and percent) of STS incurred by plant employees. (Reference Section 10)
- The number of employees that are required to wear hearing protection based on the plant's last Annual Sound Survey, and the historical trend (both # and percent total) of employees required to wear hearing protection. (Reference Section 10)

## 5.4 Elimination / Substitution / Engineer Controls

Feasible controls must be determined and implemented in an orderly and preplanned manner considering the categories of purchase of new and rebuilt machinery and equipment, retrofit of existing "on-the-floor" equipment, and building acoustics. One person must be designated to direct engineering control efforts.

### 5.4.1 Feasibility Determination

The installation of controls involves two feasibility tests:

#### 1. Technological Feasibility

- a. The equipment is available on the market and has been used before with success in the same or similar applications.
- b. Be adaptable to the equipment in question (the control will not render the equipment unusable, inefficient or restrict maintenance).
- c. Reduce the employee noise exposure level significantly.

#### 2. Economic Feasibility

The costs and benefits of a control must be evaluated. Costs and benefits include, but are not limited to:

COSTS	BENEFITS
Design	Reduced OSHA Required Training
Rearrangement	Reduced Audiometric Training
Production Losses	Reduced Hearing Protection
Equipment	Reduced Potential Work-Comp Liability
Installation	Reduced Employee Hearing Loss
Maintenance	Reduced Energy Costs
	Reduced Administrative Costs
	Potential Reduced Absenteeism

3. An attempt made by any facility to pioneer or advance the state of the art is experimental and is not to be considered an admission that control is either technologically or economically feasible. Experimentation to develop feasible controls is encouraged.

### 5.4.2 Implementation

1. Nexteer Automotive Specification SD-018, "Nexteer Automotive Sound Level Specification for Purchase Of New, Rebuilt And Relocated Machinery Power Tools And Equipment."

All new and rebuilt machinery, power tools and equipment **SHALL** be purchased using Nexteer Automotive Specification SD-018, "Nexteer Automotive Sound Level Specification for the Purchase of New and Rebuilt Machinery, Power tools and Equipment".

Engineers are directly responsible for ensuring that the Hierarchy of Health and Safety Controls is applied when designing feasible controls into facilities, machines, power tools, equipment, and tooling. "Designed-in" controls offer the opportunity for cost-effective, innovative approaches. The time to accomplish "Elimination", "Substitution", or effectively implement "Engineering" controls is during the design and/or development stage. The equipment designer and manufacturer are in the best and earliest position to incorporate the most functional, durable, cost effective, and efficient controls. Deferring consideration of elimination/substitution-/engineering controls until the machine/equipment/process is built and operational is **TOO LATE**. Engineering is then in the position of attempting to retrofit a control which may be makeshift, cumbersome, expensive and result in less than optimum performance in controlling the noise.

Crucial to the successful implementation of Nexteer Automotive SD-018 Specification:

- a. Nexteer Automotive SD-018 Specification and any supplemental local specifications **SHALL BE ISSUED** when the Request for Quotation is issued.

- b. At the time of competitive bid, the quotation must present a separate line item cost for elimination, substitution and/or feasible engineering controls. When alternate feasible engineering controls exist, separate line items shall be provided for each engineering approach. In a separate section titled "Noise Control," a detailed description of the controls and costs required to meet the sound specification limits must be presented in sufficient detail to allow complete evaluation by the purchaser. These line items are not to be considered as optional. Safety is not an Option.
- c. The quoted noise reduction techniques and any recommendations must be reviewed prior to and during the pre-award. Certified sound level data must be reviewed, evaluated, and approved prior to machine acceptance and permission to ship. Persons with engineering noise control responsibilities **SHALL** be included in the review.
- d. Plant noise control personnel should express to the supplier their willingness to participate in the development of the equipment, to ensure that focus remains on the Nexteer Automotive SD-018 - Sound Specification throughout design and construction. Plant personnel should also notify the vendor of the plant's intention to attend a runoff under load as a final check.
- e. Documentation of purchased equipment, using the Specification, must include: a description of the technique(s), noise levels, and costs. Where appropriate, photographs, sketches, diagrams, or other visual representations, and material specifications should be included.
- f. Equipment not meeting Nexteer Automotive SD-018 - Sound Specification requirements must be approved by written waiver indicating reason(s) for acceptance and permission to ship.

2. Installation of feasible controls on existing equipment

Installation of engineering controls on existing equipment typically includes:

- Schedules with projected and actual completion dates.
- Documentation of incorporated noise reduction measures whether successful or not. This documentation should include before and after noise levels, costs, and where appropriate, photographs, sketches, diagrams and material specifications. If a control is determined to be unsuccessful either immediately after installation or at some later time, the reason(s) should be documented.

3. Acoustical treatment of manufacturing buildings

Evaluate the feasibility of acoustically treating manufacturing areas of existing plants and new construction.

4. Engineering Studies

Engineering study recommendations must be implemented or rejected. If rejected, the rationale must be documented.

5. Maintenance of Engineering Controls

Engineering controls, when proven effective and feasible, must be maintained. In cases where the control was believed to be feasible but is proven to be infeasible because of excessive maintenance costs, the reason(s) for this determination must be documented before the control can be removed.

## 5.5 Administrative Controls

Administrative controls are measures which limit the amount of time that an employee works in areas where the 8-hour time weighted average sound level (TWA) exceeds 90 dB(A). This type of control can be broadly defined by two (2) distinct approaches:

- Rotating employees between areas above and below 90 dB(A) on a scheduled basis such that the accumulated Job Function exposure does not exceed the equivalent of an 8-hour time weighted average of 90 dB(A).
- Limiting the operating time of equipment to reduce an employee's 8-hour time weighted average sound exposure level to below 90 dB(A) by scheduling the equipment to run a portion of a work shift each day of the work week rather than run the full shift for only a few days of the work week.

In order to be considered as an Administrative Control scheduling must be documented.

NOTE: The use of personal hearing protection devices, such as earplugs or earmuffs, is not an administrative control.

### 5.5.1 Feasibility Determination

The installation of administrative controls involves two feasibility tests:

#### 1. Administrative Feasibility

- a. Be adaptable to the operation(s) in question (machine operating schedule allows for part-shift operation, competent personnel are available, alternate "quiet" operations are available, Job Classification and lines-of-demarcation agreements are not restrictive, etc.).
- b. Reduce the employee noise exposure level significantly.

#### 2. Economic Feasibility

The implementation of administrative controls must involve a cost-benefit evaluation. Costs and benefits include, but are not limited to:

COSTS	BENEFITS
Job-skill Training	Reduced OSHA Required Training
Wage Leveling	Reduced Audiometric Testing
Production Losses	Reduced Hearing Protection
Scheduling Administration	Reduced Potential Work-Comp
Liability	
Reduced Employee Hearing Loss	
Reduced Energy Costs	
Reduced Administrative Costs	
Potential Reduced Absenteeism	

### 5.5.2 Implementation

1. Administrative controls are to be reviewed with labor relations and the local Joint Health and Safety Committee.
2. Determination of permissible time working in areas exceeding 90 dBA (TWA<sub>8</sub>) for affected individuals must be made by a person having an understanding of the Federal/State/Provincial noise regulations and the "Nexteer Automotive Program for Occupational Hearing Conservation and Noise Control."
3. Supervisors in charge of operations utilizing feasible administrative controls are responsible and accountable for effecting scheduled employee rotation.
4. Constraints which may limit the use of administrative controls include local labor agreements, availability of qualified / trained employees to perform the work effectively, availability of quiet operations, etc.

## 6. Personal Protective Equipment

### 6.1 Nexteer Automotive Requirements

**Nexteer Automotive** requires Full Shift Hearing Protection for employees with Job Function Exposure  $TWA_8 > 90$  dB(A), and for employees with Job Function Exposure  $TWA_8 \geq 85$  dB(A) who have a Standard Threshold Shift (STS) in their hearing.

Nexteer Automotive strongly endorses the wearing of personal hearing protection for the entire work shift by all employees in areas where the eight-hour time-weighted average sound level ( $TWA_8$ ) (or its equivalent) equals or exceeds 85 dB(A).

### 6.2 Minimum Hearing Protection Requirements

- 6.2.1 Hearing protection shall be available to all employees in plant areas where the 8-hour time-weighted average sound level equals or exceeds 85 dB(A) (or equivalently a dose of fifty percent).
- 6.2.2 Hearing protection must be worn during the entire shift in plant areas where the 8-hour time-weighted average sound level exceeds 90 dB(A) (or equivalently a dose of one hundred percent).
- 6.2.3 Employees working in a plant area where the 8-hour time-weighted average sound level equals or exceeds 85 dBA ( $TWA$ ) must wear hearing protection during the entire shift until a baseline audiogram is established.
- 6.2.4 Employees with a standard threshold shift must wear hearing protection during the entire shift in plant areas where the 8-hour time-weighted average sound level equals or exceeds 85 dB(A).

(Standard threshold shift is defined as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.)

NOTE: Employees whose baseline audiogram is revised due to a persistent STS must continue to wear appropriate personal hearing protection the entire shift in plant areas where the 8-hour time-weighted average sound level (or its equivalent) equals or exceeds 85 dB(A), even though subsequent annual audiograms show no STS relative to the revised baseline audiogram.

### 6.3 Attenuation

Several kinds of personal hearing protectors shall be made available to employees. The type of personal hearing protector selected by an employee must provide a level of protection ( $L_{Protect}$ ) to or below an 8-hour time-weighted average sound level of 85 dB(A) in the employee's work environment. Calculation of the level of protection will be based on the NIOSH Method 1 or the NRR (Noise Reduction Rating) Method.

### 6.4 Fitting

The initial set of hearing protectors (including earmuffs) must be fit by the plant medical department. Hearing protectors available in more than one size must be issued under the authority of the plant medical department.

### 6.5 Training

Training in the use and care of the hearing protectors is required on an annual basis.

### 6.6 Enforcement

Local plant management must enforce wearing of hearing protection by affected hourly and salaried employees. Documentation of enforcement efforts must be maintained.

### 6.7 Wearing

All persons entering posted noise areas are to wear hearing protection regardless of the anticipated exposure period.

### 6.8 Interim Procedures During Start-Up Of New Operations

If during start-up it is not possible to perform a detailed survey because "line-speed" has not been reached, further monitoring may be delayed until full operation is attained, so long as adequate hearing protection has been provided and its use required, where necessary.

## 6.9 Radio / Cassette Players

- 6.9.1 The use of personal radios, cassette/CD players, or similar devices equipped with headphones is **PROHIBITED**.

NOTE: This policy does not apply to properly monitored radio headsets which are used for communication within a plant or are utilized as a part of the employee's Job Function.

- 6.9.2 Where the use of personal radios, cassette/CD players, or similar devices without headphones is allowed, the volume at which they are played **SHALL NOT** result in elevating employee exposure to equal or exceed an 8-hour time-weighted average of 85 dBA or result in requiring the use of personal hearing protection.

## **7. Employee Training**

### **7.1 Nexteer Automotive Requirements**

Nexteer Automotive **requires the following training as a part of the** Nexteer Automotive Hearing Conservation Program.

### **7.2 Annual Training**

All employees whose assigned Job Function has an associated sound level exposure equal to or greater than an 8-hour time-weighted average ( $TWA_8$ ) of 85 dB(A) (or equivalently a dose of fifty percent), and employees whose normally assigned Job Function  $TWA_8$  exposure is less than 85 dB(A) but infrequently work a Job Function with associated  $TWA_8 \geq 85$  dB(A) as determined in accordance with the Nexteer Automotive Uniform Plant Sound Survey Procedure shall be trained annually and informed in the following:

- The effects of noise on hearing.
- The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use and care.
- The purpose of audiometric testing and an explanation of test procedures.

### **7.3 Supplemental Training**

It is recommended that annual training also include:

- Instruction in employee responsibility to use and maintain noise control devices on existing equipment.
- Off the job safety information as it relates to hearing conservation.
- Training of apprentices and skilled employees in specific noise abatement techniques which can be applied as a part of their regular job assignments.

### **7.4 Employee Attendance Documentation**

- 7.4.1 If training is done in groups, documentation of employee attendance must consist of a group Registration containing employees' signature, social security/insurance number, and date indicating attendance.
- 7.4.2 If training is done "one-on-one", such as at the time of the annual audiometric test, documentation of employee attendance must consist of said employee's signature, social security/insurance number, and date on some document (or the audiogram) indicating attendance.

### **7.5 Suggested Sources for Training Materials**

- 7.5.1 NRR (Noise Reduction Rating) of hearing protectors.
- 7.5.2 Executive summary to the "Occupational Safety and Health Administration Notice of Public of Final Hearing Conservation Rules" (48FR9738, March 8, 1983).
- 7.5.3 Criteria Document (Publication #98-126) Occupational Noise Exposure US Department of Health and Human Services NIOSH (1-800-356-4674).

## 8. Audiometric Testing

### 8.1 Nexteer Automotive Requirements

An audiometric testing program shall be established and maintained for all employees whose assigned Job Function has an associated sound level exposure equal to or greater than an 8-hour time-weighted average of 85 dB(A) (or equivalently a dose of fifty percent) ), and employees whose normally assigned Job Function TWA<sub>8</sub> exposure is less than 85 dB(A) but infrequently work a Job Function with associated TWA<sub>8</sub> ≥ 85 dB(A) as determined in accordance with the Nexteer Automotive Uniform Plant Sound Survey SD-019 Specification.

The program shall contain the following:

#### 8.1.1 Audiometric Test

1. Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist or physician or by a nurse or technician who is certified by the Council of Accreditation in Occupational Hearing Conservation or has demonstrated competence. The person(s) who performs audiometric tests shall be responsible to the plant physician.
2. Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hertz. Tests at each frequency shall be taken separately for each ear.

#### 8.1.2 Baseline Audiograms

1. Post Hire / Pre-placement baseline audiograms shall be taken for all employees. Employee is to complete the "Audiometric Questionnaire", prior to audiometric testing. Reference Appendix C.
2. For those current employees without baseline audiograms, a baseline shall be established within 6 months of that employee's assignment to a Job Function where the 8-hour time-weighted average sound level equals or exceeds 85 dB(A). Employee is to complete the "Audiometric Questionnaire", prior to audiometric testing. Reference Appendix C.

Exception: If mobile test vans are used, the baseline shall be obtained or established within one year; however, the employee must be required to wear personal hearing protection during the entirety of the work shift, until the baseline has been established.

3. All employees must wear hearing protection for the entirety of the work shift when assigned initially to an area where the 8-hour time-weighted average sound level equals or exceeds 85 dB(A) until a baseline audiogram is obtained.
4. Testing to establish a baseline shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used to meet this requirement. Employees shall also be notified of the need to avoid non-occupational noise prior to baseline testing.
5. The baseline audiogram shall be revised by substituting an annual audiogram for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:
  - a. The Standard Threshold Shift (STS) revealed by the annual audiogram is persistent; or
  - b. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

#### 8.1.3 Annual Audiograms

1. Annual audiograms shall be completed for all employees whose assigned Job Function has an associated sound level exposure equal to or greater than an 8-hour time-weighted average of 85 dB(A) (or equivalently a dose of fifty percent) as determined in accordance with the Nexteer Automotive Uniform Plant Sound Survey SD-019 Specification. Employees showing significant changes in hearing threshold levels or who work in "high" sound level areas should be tested more often. Employee is to complete the "Audiometric Questionnaire" prior to audiometric testing. Reference Appendix C.
2. Annual audiograms may be conducted at any time during the work shift but must be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used to meet this requirement. Employees shall also be notified of the need to avoid non-occupational noise prior to audiometric testing.



3. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the annual audiogram is valid and if a STS has occurred. This comparison may be done by a physician, nurse or technician as defined in 8.1.1.1.
4. If the annual audiogram indicates an STS, a retest SHALL be done within 30 days and considered to be the annual audiogram.
5. If the annual audiogram indicates an STS, the employee SHALL be immediately notified in writing using the "Audiometric Testing Interim Notification of Hearing Loss" form. Reference Appendix C.
6. A physician, audiologist, or otolaryngologist shall review all problem audiograms to determine whether there is a need for further evaluation.

If an employee is referred to an outside audiologist, otolaryngologist, or physician, the following information shall be provided to this person:

- a. A copy of the requirements of the Hearing Conservation Amendment;
- b. The baseline audiogram and most recent audiogram of the employee to be evaluated;
- c. Measurements of background sound pressure levels in the audiometric test room;
- d. Records of Daily, Acoustic and Exhaustive audiometer calibrations.

#### 8.1.4 Standard Threshold Shift (STS)

1. An STS is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.
2. In determining whether an STS has occurred, allowance shall be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described applicable Federal, State, or Provincial Occupational Health and Safety Regulations.
3. If upon RETEST, the STS is determined to be persistent, THE EMPLOYEE SHALL BE NOTIFIED IN WRITING OF A STANDARD THRESHOLD SHIFT IN HEARING LEVEL WITHIN 21 DAYS OF THE DETERMINATION—REGARDLESS OF CAUSE using the "Audiometric Testing Notification of Persistent Standard Threshold Shift" form. Reference Appendix C.
4. There must be a review and documentation of the employee's exposure to noise.
5. Employees not wearing hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
6. Employees wearing hearing protectors shall be refitted, retrained, and reinstructed in their use, and provided with hearing protectors offering greater attenuation if necessary.
7. Unless a physician determines that the STS is not work related or aggravated by occupational noise exposure, when an STS occurs:
  - a. The employee shall be referred for a clinical audiological evaluation or otological examination, as appropriate if additional testing is necessary, or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
  - b. The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.
  - c. The STS shall be recorded on OSHA 200 as an Occupational Illness.
8. If subsequent audiometric testing of an employee indicates that the STS is not persistent:
  - a. The employee shall be informed of the new audiometric results.

- b. Required use of hearing protectors may be discontinued unless this conflicts with a plant policy for wearing hearing protectors in areas where the 8-hour TWA is equal to or greater than 85 dB(A). (Refer to Personal Protective Equipment requirements, Section 6.)
- c. The OSHA 200 Form SHALL be amended to reflect this change.

#### 8.1.5 Audiometer Requirements

1. Audiometers (manual or automatic) shall meet, be maintained, and used in accordance with requirements for limited range pure tone audiometers prescribed in ANSI S3.6-1969 (CSA Standard Z107.4-1975 [R-1980]) (or latest versions).
2. Pulse tone and self-recording audiometers shall meet the requirements of 29-CFR 1910.95 Appendix C (CSA Z107.4-1975 [R-1980]) (or latest versions).
3. **Biological Calibration:** Before and after use each day, a biological calibration of the audiometer must be performed and documented by testing a person or persons with a stable audiometric level. Records are to be maintained for each audiometer.

The audiometer's output must also be listened to make sure the output is free from distorted or unwanted sounds.

If the biological calibration "after use each day" indicates unreliable readings, all audiograms taken that day must be re-measured.

Deviations of 10 decibels or greater require an acoustical calibration.

NOTE: An "electronic ear" may be used for the daily "biological calibration" in lieu of a "standard" person.

4. **Acoustical Calibration:** Audiometers shall be acoustically calibrated on an annual basis, in accordance with applicable Federal, State, or Provincial Occupational Health and Safety Regulations. Deviations of 15 decibels or greater require an exhaustive calibration.

An exhaustive calibration is required if any deviations are greater than 10 dB at any frequency. (Where deviations exceed the tolerances specified in CSA Z107.4-1975 [R-1980] --3 dB @ 500 to 3000 Hz, 4 dB @ 4000 Hz, and 5 dB at 6000 Hz—an exhaustive calibration is required). Records are to be maintained for each audiometer.

5. **Exhaustive Calibration:** An exhaustive calibration shall be performed at least every two years in accordance with Sections 4.1.2; 4.1.3; 4.1.4.3; 4.2; 4.4.1; 4.4.2; 4.4.3; and 4.5 of the American National Standard Specification for Audiometers, ANSI S3.6-1969 (CSA Z107.4-1975 [R-1980]) (or latest versions). Test frequencies below 500 Hz and above 8000 Hz may be omitted from this calibration. This calibration must be carried out by either the manufacturer or other qualified agency. Records are to be maintained for each audiometer. (It is recommended that calibration be done at the plant site to avoid calibration damage due to shipping.)

NOTE: If audiometric testing is done by an outside contractor at a remote site or in a mobile test van at the plant site, a copy of the required daily, Acoustic, and Exhaustive audiometer calibration certifications shall be required and kept on file in the plant medical or personnel department.

#### 8.1.6 Audiometer Test Room Requirements

1. Audiometric test rooms SHALL be checked for background sound pressure levels at the time of the annual sound survey. Background sound pressure levels SHALL NOT exceed the following under the worst background noise conditions existing when audiograms are to be taken:

**MAXIMUM BACKGROUND OCTAVE-BAND SOUND PRESSURE LEVELS**

Octave Band Center Freq. (Hz)	250	500	1000	2000	4000	8000
Sound Pressure Level (dB) [U.S.]		40	40	47	57	62
Sound Pressure Level (dB) [Ontario]	40*	30*	29.5	34.5	42	45
* May be exceeded						

2. Measurement and certification of audiometric test room(s) maximum background sound pressure levels SHALL be done annually at the time of the annual plant sound survey. Records must be maintained for each audiometric test room.

NOTE: If a mobile test van is used, measurement and certification of audiometric test room(s) background sound pressure levels SHALL be done following the site location of the van and prior to conducting ANY audiometric examinations. Background sound pressure levels SHALL NOT exceed those specified in the Table above under the worst background noise conditions existing when audiograms are to be taken. A copy of the measured background levels shall be required and kept in the plant Medical or Personnel Department.

#### 8.1.7 Audiometric Test Records

1. Audiometric test records shall be maintained as part of the employee's medical record. This record shall include:
  - a. Name, social security/insurance number, and job classification of the employee.
  - b. Date of the audiogram.
  - c. The examiners name.
  - d. Date of the last acoustic or exhaustive calibration of the audiometer.
  - e. Employee's most recent noise exposure assessment. (The most current plant sound survey results must be used for obtaining an employee's "most recent noise exposure assessment.")
  - f. The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

## 9. Employee Notification and Record Keeping

### 9.1 Nexteer Automotive Requirements

Nexteer Automotive requires the following employee notification and record retention as a part of the Nexteer Automotive Hearing Conservation Program.

### 9.2 Employee Notification

All employees with associated Job Function exposures equal to or greater than an 8-hour time-weighted average sound level of 85 dB(A) must be notified of the following:

- 9.2.1 The availability of copies of applicable Federal, State, or Provincial Occupational Health and Safety Regulations. A copy of said Regulations must also be posted in the workplace. (Due to the nature of the plant "work floor" environment, a notice may be posted indicating availability and on-site location of said Regulations).
- 9.2.2 The results of the monitoring conducted in the Annual Plant Sound Survey. Although the plants will need to use that form of notification which works best for them, it is strongly recommended that some form of sign posting designation of affected areas be utilized.
- 9.2.3 The posting designation which is being utilized by the plant to identify those areas in which hearing protection is required.
- 9.2.4 His/her most recent noise exposure assessment.
- 9.2.5 The mandatory requirement to wear personal hearing protection for the entirety of the work shift:
  - 1. If working in an area where the 8-hour time-weighted average sound level (or its equivalent) is designated as exceeding 90 dB(A) (TWA). [85 dB(A) (TWA) subject to plant policy—Ref. Section 5 PERSONAL PROTECTIVE EQUIPMENT, Nexteer Automotive's endorsement of 85 dB(A) (TWA)]
  - 2. If working in an area where the 8-hour time-weighted average sound level (or its equivalent) is equal to or greater than 85 dB(A) (TWA) AND the employee's annual audiogram results show a standard threshold shift (STS).
  - 3. If a new-hire or current employee assigned to an area where the 8-hour time-weighted average sound level equals or exceeds 85 dB(A) until a baseline audiogram is obtained.
- 9.2.6 Audiograms
  - 1. The date, time and place that the baseline and the annual audiogram will be given.
  - 2. If a comparison of the baseline and annual audiograms indicates a Standard Threshold Shift, the employee SHALL be immediately notified in writing using the "Audiometric Testing Interim Notification of Hearing Loss" form. Reference Appendix C.
  - 3. If upon RETEST, the STS is determined to be persistent, THE EMPLOYEE SHALL BE NOTIFIED IN WRITING OF A STANDARD THRESHOLD SHIFT IN HEARING LEVEL WITHIN 21 DAYS OF THE DETERMINATION-REGARDLESS OF CAUSE using the "Audiometric Testing Notification of Persistent Standard Threshold Shift" form. Reference Appendix C.
  - 4. Unless a physician determines that the standard threshold shift (STS) is not work related or aggravated by occupational noise exposure, when an STS occurs:
    - a. The employee shall be referred for a clinical audiological evaluation or ontological examination as appropriate if additional testing is necessary, or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
    - b. The employee is informed of the need for an ontological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.
  - 5. If the Standard Threshold Shift is not persistent, the employee shall be informed of the new audiometric interpretation.

6. Prior to the baseline, the annual, or the retest audiometric examination, employees shall be informed of the need to avoid non-occupational noise.

#### 9.2.7 Training

1. The effects of noise on hearing.
2. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of the various types available. Instructions on the selection, fitting, use and care.
3. The purpose of audiometric testing and an explanation of test procedures.
4. It is recommended that employee training also include the following:
  - a. Instruction in the use and maintenance of noise control devices on existing equipment.
  - b. Off the job safety as it relates to hearing conservation.
  - c. Specific noise abatement techniques which can be applied as a part of the regular job assignment.

#### 9.3 Record Retention

- 9.3.1 Noise exposure records resulting from the annual plant sound survey must be retained in line with the practice for retaining medical records.
- 9.3.2 Audiometric test records must be retained as a part of the employee's medical record.
- 9.3.3 Documentation of employee attendance in annual required training programs must be retained in line with the practice for retaining medical records.

## 10. Evaluation of Overall Program Effectiveness

### 10.1 Nexteer Automotive Requirements

The effectiveness of your plant's Occupational Hearing Conservation and Noise Control Program SHALL be evaluated on a regular basis. This can be done by charting effectiveness indicators on a yearly (Historical) basis. Three indicators that are to be used are:

- 10.1.1 The number of employees (and percent of total employees) at risk of exposure at or above the 8-hour equivalent 85 dBA (TWA) Action Level.
- 10.1.2 The number of employees (and percent of total employees) at risk of exposure above the 8-hour equivalent 90 dBA (TWA) Criterion Level.
- 10.1.3 The number of employees (and percent of total employees) with occupationally related Standard Threshold Shift (STS) cases per year.

NOTE: In each case it is useful to plot the indicators as a percentage of the total plant population to normalize the effect of changing plant employment levels from year to year. If your plant program is effective, the percent of employees at risk of exposure at or above 85 dBA (TWA) and above 90 dBA (TWA), and the percent of STS cases should show a downward trend from year to year.

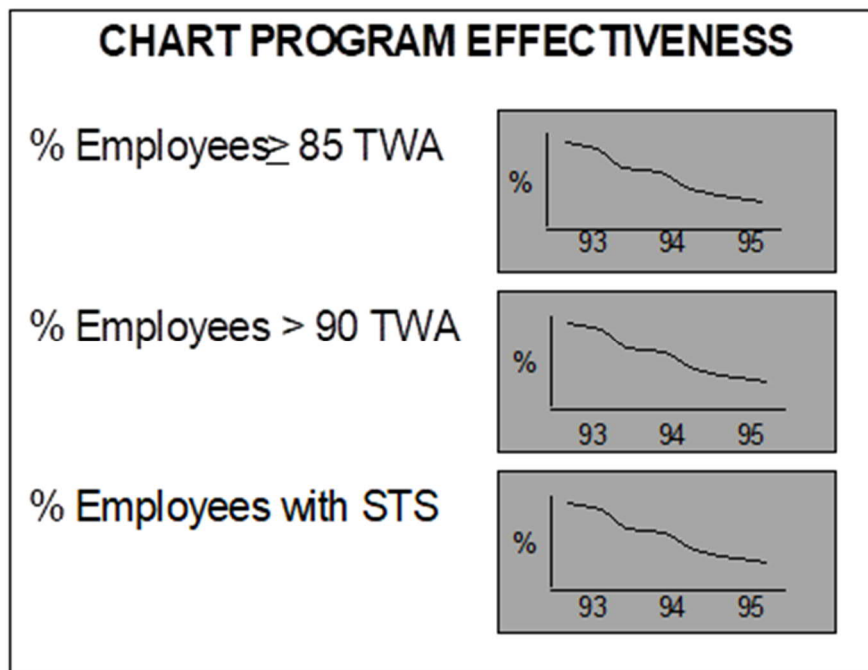


Figure 4: Chart Program Effectiveness

## 11. Technical Training Programs

### 11.1 Nexteer Automotive Requirements

Nexteer Automotive has programs dedicated to training employees responsible for noise control activities in the elements of a plant noise abatement program and the techniques for implementing such a program.

- 11.1.1 Industrial Noise Control (Ctis #0213): A forty-hour (5-day) "NOISE CONTROL" program is intended for those working on noise reduction on a daily basis. All noise control engineers and coordinators of the plant noise control program should receive this training or the equivalent.
- 11.1.2 Industrial Noise: A sixteen-hour "INDUSTRIAL NOISE" program is conducted at the plant. Program scheduling is flexible—determined on a plant-by-plant basis. The program is intended for upper-level management responsible for implementing a noise compliance program and for those having responsibilities for controlling noise as a part of their regular job assignment.
- 11.1.3 Nexteer Automotive Sound Level Specification (SD-018) For the Purchase of Machinery and Equipment: A two-hour program entitled "Nexteer Automotive Sound Level Specification for the Purchase of Machinery and Equipment" is conducted at the plant. It is designed for engineering personnel who have responsibility for purchasing and/or follow-up of new or rebuilt machinery, power tools and other equipment.
- 11.1.4 Nexteer Automotive Uniform Plant Sound Survey Specification (SD-019): A twenty-four-hour (3-day) program entitled "Nexteer Automotive Uniform Plant Sound Survey Procedure" is intended for those persons responsible for conducting the annual plant sound survey, or those responsible for supervising and coordinating the survey being done by an outside contracting firm.
- 11.1.5 A Specialized Program Can Be Developed to Suit the Particular Needs of Individual Plants: These programs should be repeated as necessary to educate and train new personnel and existing personnel that have new job assignments.

NOTE: To obtain more information contact Nexteer Automotive Global Industrial Hygienist.

## 12. Program Documentation

### 12.1 Nexteer Automotive Practice

The following are documentation practices supportive of Nexteer Automotives' goal to preserve employee hearing. Documentation need not be elaborate but should be up to date and structured as an integral part of daily Operations.

- 12.1.1 Annual Sound Survey Results
- 12.1.2 Nexteer Automotive Sound Status Reports and All Supporting Information
- 12.1.3 Plant Noise Control Program
- 12.1.4 Noise Related Costs and Benefits for All New/Rebuilt Machinery and Equipment
- 12.1.5 Acoustical Treatment, Administrative and Engineering Control Feasibility Studies Including Infeasible Controls. Disagreements With Study Results Must Be Resolved and Documented
- 12.1.6 Retrofit Noise Reduction Projects Including Scheduled Implementation of Successful Solutions in Other Areas
- 12.1.7 Document Future Plans and Projects with Cost Estimates and Locally Determined Completion Schedules
- 12.1.8 Previously Installed Noise Reduction Items Must Be Maintained or Documented to Be Infeasible
- 12.1.9 Posting Of High Noise Areas
- 12.1.10 Instructions To Employees Regarding Selection, Use, And Care of Personal Hearing Protectors
- 12.1.11 Records Of Employees That Have Incurred a Standard Threshold Shift (Sts) Or Other Hearing Problems, And the Corrective Action Taken Based Upon Analysis of Audiograms
- 12.1.12 Special Plant Expense Account Numbers for Noise Control Work Within the Plant
- 12.1.13 Records Of Formal Discipline for Failure to Wear Hearing Protection
- 12.1.14 Records Of Employee Training Including: Name, Date and A Copy Of Materials Covered, Passed Out, Etc.
- 12.1.15 Audiometer Calibration Records (Daily, Acoustical, & Exhaustive)
- 12.1.16 Audiometric Test Booth(S) Certified Background Octave Band Sound Pressure Levels



## A. Model Noise Control Program Structure

### A.1 Determination Of Job Functions Requiring Detailed Engineering Analysis and Design.

These Job Functions are determined from the annual plant sound survey conducted in accordance with Nexteer Automotive Specification SD-019, "NEXTEER AUTOMOTIVE UNIFORM PLANT SOUND SURVEY PROCEDURE". Job Functions (not machines) that have an associated eight-hour time-weighted average sound exposure ( $TWA_8$ ) exceeding 90 dBA require investigation and implementation of feasible engineering controls. Reference Section 5.

NOTE: The need for an engineering study is based on the Job Function Exposure not a machine, process, or workstation sound level. Just because a machine, process, or workstation has an  $LAVG > 90$  dBA does not mean the Job Function exposure is  $> 90$  dBA. Exposure is a function of the sound level(s) (dBA) and the duration time(s) of exposure to the different sound levels during the performance of the various activities associated with the employee's Job Function assignment. The NEXTEER TWACALC Version 2.0 (or latest revision) computer program shall be used to establish the database of sound exposure information and determine the Job Function  $TWA_8$ .

### A.2 Identification Of Specific Major Contributing Noise Sources.

The major Job Function Activities break-down in each Job Function Engineering Report description allows determination of the contribution of each activity to the overall  $TWA_8$  exposure exceeding 90 dBA. The noise sources associated with the major contributing activities (based on exposure not  $LAVG$ ) are then identified. (This may have been done during the survey and included as a part of the survey database). Reference the "JOB FUNCTION SOUND EXPOSURE PROFILE DATA COLLECTION FORM" in Nexteer Automotive Specification SD-019. (If noise sources are inputted into the NEXTEER TWACALC sound survey database, a listing can be obtained using the "Noise Source Report" or the "Noise Sources Profile Report".

### A.3 Noise Source Listing.

The list of major contributing noise sources should be separated into at least three groups:

- Those noise sources for which current feasible control technology exists. (Example: maintenance related noise sources, compressed air, material/parts handling, blowers and fans).
- Those noise sources for which there is no known current feasible control technology existing, however the noise source and/or process may be treated by partial or total enclosure.
- Those noise sources for which there is no known current feasible control technology existing and would require extensive R & D.

### A.4 General Noise Control Recommendations with Expected dB Reductions.

This section is confined to those noise sources where a feasible control exists. Feasible controls shall consider the utilization of Elimination/Substitution and Engineering controls. Not only should there be an evaluation of expected decibel reduction of the source noise, but also an expected dB reduction in the Job Function Exposure. (NEXTEER TWACALC should be used for this evaluation). This evaluation should be carried out for each as well as the combination of all major contributing noise sources associated with a given Job Function Exposure.

### A.5 Budgetary Cost for Noise Control.

Knowing plant labor costs and the commercial costs of feasible controls, use the "NOISE CONTROL FEASIBILITY DETERMINATION FORM" to calculate the \$ cost for control once all sources are identified.

### A.6 Prioritization Of Noise Control Projects.

A priority listing of feasible noise control projects shall be established through the joint and cooperative efforts of plant management, the Local Health and Safety Committee, and the Shop committee. This priority listing shall be based on Job Function  $TWA$ , number of employees affected, Technological Feasibility and Economic Cost, and the amount of Exposure Reduction ( $TWA_8$ ) expected. The "NOISE CONTROL FEASIBILITY DETERMINATION FORM" (included at the end of this section) can be used to summarize this information for documentation and decision making.

Each project, based on complexity, shall have target dates assigned for charting the progress of various phases of the project including a project completion date. As these dates come due, the progress of the project must be evaluated.

If the targeted level of accomplishment has not been achieved by the assigned due date an accountability must be made.

Where a noise control project involves the purchase of new equipment, said equipment shall be purchased in accordance with Nexteer Automotive Specification SD-018 "NEXTEER AUTOMOTIVE SYSTEMS SOUND LEVEL SPECIFICATION FOR THE PURCHASE OF NEW AND REBUILT MACHINERY, POWERTOOLS AND EQUIPMENT."

The priority listing should be left some-what open ended and modifiable based on plant considerations such as phase-out of process, relocation, replacement, maintenance costs, production impact, etc.

## NOISE CONTROL FEASIBILITY DETERMINATION FORM

MACHINE / OPERATION	S.T. #	BAY LOCATION	ZONE #
NOISE PROBLEM			DEPT. #
CONTROL DESCRIPTION			LEVEL

**TECHNOLOGICAL FEASIBILITY**

CONTROL IS COMMERCIALY AVAILABLE? ☐ YES ☐ NO ☐ ?

COMMENTS: \_\_\_\_\_

CONTROL IS APPLICABLE TO THIS PROBLEM? ☐ YES ☐ NO ☐ ?

COMMENTS: \_\_\_\_\_

IMPACT OF IMPLEMENTATION IS UNDERSTOOD? ☐ YES ☐ NO ☐ ?

COMMENTS: \_\_\_\_\_

**ECONOMIC FEASIBILITY**

Estimated Cost or Impact (High, (M)oderate, (L)ow, (?)

	COST	OR	IMPACT
INITIAL COSTS			
ENGINEERING STUDY AND ANALYSIS	\$	H M L ?	
DESIGN OF CONTROL	\$	H M L ?	
CONSTRUCTION	\$	H M L ?	
INSTALLATION	\$	H M L ?	
PRODUCTION LOSSES DURING INSTALLATION	\$	H M L ?	
RECURRING COSTS (Annual)			
UPKEEP	\$	H M L ?	
REPLACEMENT COSTS = (INITIAL COSTS/USEFUL LIFE)	\$	H M L ?	
EFFECTS ON PRODUCTION	\$	H M L ?	
EFFECT ON MAINTENANCE	\$	H M L ?	
OTHER COSTS	\$	H M L ?	

	INITIAL COSTS	RECURRING COSTS
Total Estimated Impact	\$	\$
# of Employees Affected		
Cost per Affected Employee	\$	\$

**SIGNIFICANT BENEFIT TO EMPLOYEES** (BASED ON INTRODUCING CONTROL INTO EXISTING ENVIRONMENT)

ESTIMATED EFFECT ON EMPLOYEE NOISE EXPOSURE LEVEL

	TO BELOW 100 TWA	BY 5 dB OR TO BELOW 90 TWA	TO BELOW 85 TWA	NO BENEFIT / OTHER REDUCTION

X LEVEL ESTIMATE

**DISPOSITION**

FEASIBILITY STATUS: ☐ FEASIBLE ☐ NOT FEASIBLE ☐ INDETERMINATE

FURTHER ACTION REQUIRED:

IMPLEMENTATION SCHEDULE:

Signature of Examiner \_\_\_\_\_ Date \_\_\_\_\_

## B. Program Checklist

This checklist summarizes the Nexteer Automotive Program For Occupational Hearing Conservation and Noise Control. It is intended to assist plant personnel in evaluating the completeness and effectiveness of the plant's Occupational Hearing Conservation and Noise Control Program.

NO.	REQUIREMENT	NEXTEER	YES	NO	COMMENTS
		HC & NC REF NO.			
1.	<b>PROTECTION AGAINST NOISE</b> a) Must be provided when sound levels exceed an equivalent 8-hour time-weighted average level (TWA) 90 dBA measured with slow response.	OVERVIEW			
2.	<b>NOISE CONTROL PROGRAM</b> a) A Noise Control Program is in place utilizing Elimination, Substitution, Feasible engineering, or administrative controls for employees exceeding TWA 90 dBA. b) Impulse or impact noise should not exceed 140 dB peak sound pressure level	OVERVIEW			
3.	<b>HEARING CONSERVATION PROGRAM</b> a) The program includes ALL employees whose noise exposures equal or exceed 85 dBA, 8-hr TWA (action level)	OVERVIEW			
4.	<b>HEARNG CONSERVATION and NOISE CONTROL COMMITTEE/COORDINATOR</b> a) A joint plant Local Health and Safety Committee exists for the coordination and implementation of the HC & NC Program. b) The joint plant Local Health and Safety Committee meets periodically to review & evaluate progress, make recommendations for improvement, and assign priorities. Materials available for review & evaluation include: <ul style="list-style-type: none"> <li>Copies of the Plant Noise Abatement Program</li> <li>Summary of audiometric tests.</li> <li>The number of employees that experienced a Standard Threshold Shift.</li> <li>The number of employees that are required to wear hearing protection</li> </ul> Who provides this information? Where are these records kept?  One person is assigned to coordinate the plant HC & NC Program.	INTRODUCTION  INTRODUCTION  10.0.3  10.01 10.02  INTRODUCTION			
5.	<b>MONITORING (ANNUAL PLANT SOUND SURVEY)</b> a) Annual survey (Baseline or Update) conducted in accordance with Nexteer Specification SD-019 (latest version), b) Survey conducted by Nexteer personnel, c) Survey conducted by Nexteer Corporate Partner d) Person conducting Survey was Technically Competent e) Person conducting Survey was knowledgeable in the Nexteer SD-019 Specification	Section 1 1.0  1.2, 1.14. 1.14.2.2 1.2, 1.14 1.14.2.1 1.2 1.14.1  1.14.1			

NO.	REQUIREMENT	NEXTEER HC & NC REF NO.	YES	NO	COMMENTS
	f) Who conducted the Survey	1.2			
	g) Survey data was submitted to Nexteer IH Manager for processing and Required Reports generation.	1.3			
	h) NEXTEER TWACALC Version 2.0 (or equivalent) used to determine Job Function exposures	1.3			
	i) Required Reports: <ul style="list-style-type: none"> <li>One (1) Annual Nexteer Sound Status Report</li> <li>Four (4) Master Sound Survey Report</li> </ul>	1.8 1.8.1 1.8.1			
	j) <b>POSTING</b> <ul style="list-style-type: none"> <li>One (1) 11" x 17" plastic laminated Color-Coded Plant Layout <b>IS POSTED</b> with "You Are Here" (Conform to Nexteer color legend requirements)</li> <li>Are areas of the plant requiring Hearing Protection are identified and posted?</li> </ul>	1.13 1.13.2 1.13.1			
	k) <b>CALIBRATION OF SOUND SURVEY INSTRUMENTATION</b>  Instruments used in annual sound survey are calibrated annually by a qualified instrumentation laboratory and Calibration certificates on file.	Survey Procedure SL2.0-1999			
	l) <b>REMONITORING</b>  Where changes take place that may increase a Job Function related exposure, employees) are required to wear hearing protection until a re-survey is completed.  Are departments or jobs where changes in Job Function, Activities, Production processes, Equipment or Controls scheduled for re-survey?	1.7 1.7.2			
	m) <b>Survey Record Retention</b>  Survey records retention consistent with requirements for retaining medical records.	1.11 9.2.1			
	n) <b>Employee Notification</b>  Employee(s) with assigned Job Function Exposure equal to or greater than 85 dBA (TWA) have been notified of the results of the sound survey.  Posting of "clearly visible" signs requiring <b>MANDATORY HEARING PROTECTION</b> where exposures exceed 90 dBA (TWA). (May be required =>85 dBA (TWA) per individual plant policy) [Ontario requires posting where sound levels exceed 90 dBA]  o Employee notification of TWA at time of annual audiometric examination.	9.1 1.12 1.13 9.1.2 9.1.4 1.13.1 9.1 1.12			

NO.	REQUIREMENT	NEXTEER HC & NC REF NO.	YES	NO	COMMENTS
	<b>o) Surveyor Requirements</b>	1.2			
	Person(s) conducting the plant sound survey are technically qualified, knowledgeable in the Nexteer Sound Survey Procedure, and knowledgeable in the use of NEXTEER "TWACALC" (or equivalent) computer program.	1.3			
	<b>p) Observation of Monitoring</b> Employee or their reps may observe noise monitoring.	1.16			
	<b>q) HEARING CONSERVATION PROGRAM ACTION LEVEL REQUIREMENTS</b>	Section 3			
<b>6.</b>	<b>NOISE CONTROL PROGRAM</b>	Section 5			
	a) Feasible elimination/substitution and engineering controls where employee(s) exposure exceed 90 dBA (TWA <sub>8</sub> ), or impulse or impact noise exceed 140 dB Peak sound pressure level.	5.0 APPENDI X A			
	b) Machinery & Equipment Purchases: The Nexteer Sound Level Specification SL 1.0 (latest version) is issued and used as part of the purchasing requirements for <b>ALL</b> noise-generating equipment of all new and rebuilt equipment	5.3.2.1			
	o Specification issued with RFQ	5.3.2.1.1			
	o Bid presents separate line-item cost for feasible engineering controls.	5.3.2.1.2			
	o Certified sound level data reviewed, evaluated and approved prior to acceptance.	5.3.2.1.3			
	o "Out-of-Spec" equipment is approved by written waiver indicating reason for acceptance	5.3.2.1.6			
	c) Implementation	5.3.2			
	o Engineering control activities are documented (Successful or not).	5.3.2.2			
	o Feasible engineering controls are being utilized for problem noise sources identified	5.3.2.2 5.4.2			
	o Implemented engineering controls are maintained to assure effectiveness.	5.3.2.5			
<b>7.</b>	<b>ADMINISTRATIVE CONTROLS</b>	Section 5.4			
	a) Feasible administrative controls where employee(s) exposure exceed 90 dBA (TWA).	5.0			
	b) Implementation	5.4			
	o Administrative/Economic feasibility evaluated	5.4.1			
	o Adequate records. (i.e. employee Job Function schedules verify effective implementation)	APPENDI X A			
<b>8.</b>	<b>HEARING PROTECTION</b>	Section 6			
	a) Available to all employees exposed at or above 85 dBA (TWA) and replaced as necessary.	6.0 6.1.1			
	b) Initial set fitted and issued by the plant medical department.	6.3			
	c) Employee has a choice of type of protection.	6.2			
	d) Are the hearing protectors replaced as necessary?	6.3			
	e) Subsequent sets issued by medical department or authorized representative.	6.3			
	f) Worn the entire work-shift by employees when:				
	o Exposed to greater than 90 dBA (TWA)	6.1.2			

NO.	REQUIREMENT	NEXTEER	YES	N O	COMMENTS
		HC & NC REF NO.			
	<ul style="list-style-type: none"> <li>o Exposed to 85 dBA (TWA) or above when               <ul style="list-style-type: none"> <li>– Required by plant policy</li> <li>– no baseline after 6 months, or</li> <li>– STS occurs</li> </ul> </li> <li>a) Employees select from a variety of suitable hearing protectors.</li> <li>b) Employees are trained in, proper care and use of personal hearing protectors by medical department upon first issuance and subsequent issuances.</li> <li>c) Who conducts this training?</li> <li>d) Employer ensures proper initial fitting and supervises correct use.</li> <li>e) Hearing protector attenuation evaluated for specific noise environments according to one of the following methods:               <ul style="list-style-type: none"> <li>o Noise Reduction Rating (NRR)</li> <li>o NIOSH Method 1, 2, or 3</li> </ul> </li> <li>f) Hearing protectors must attenuate to at least 85 dBA.</li> <li>g) Re-evaluate attenuation when Noise Exposure Levels increase, or employee is determined to have an STS.</li> <li>h) <u>ALL</u> persons entering mandatory hearing protection areas must wear hearing protection regardless of anticipated exposure period.</li> <li>i) Use of personal radios, cassette/CD players or similar devices with headphones is prohibited.</li> <li>j) If personal radios, cassette/CD players or similar devices, without headphones are allowed, they are played at a volume that does not result in an employee exposure =&gt;85 dBA (TWA) or require use of PHP.</li> </ul>	6.0 Nexteer Endorsed 6.1.3, 8.2.3  6.1.4 6.2  6.4			
		6.3			
		6.2			
		6.2			
		6.6			
		6.8.1			
		6.8.2			
9.	<b>EMPLOYEE TRAINING</b>				
	a) A formalized training program has been developed and implemented to educate all employees exposed to 85 dBA (TWA) or above.	7.1			
	b) Who does the training?				
	c) The training program is repeated annually, and materials are updated.	7.1			
	d) Employee participation in annual training program is documented by a signed record bearing employee's signature and date of training.	7.3			
	e) Where are the training records kept?				
	f) Training must include	7.1			
	o The effects of noise on hearing	7.1			
	o The purpose of hearing protectors, the advantages, disadvantages, attenuation of various types available, instructions on selection, fitting, use and care.	7.1			
	o The purpose of audiometric testing with an explanation of the test procedures.	7.1			
	o Employee responsibility to use and maintain noise control devices on existing equipment.	7.2			
	o Off the job hearing conservation.	7.2			
	o Noise abatement techniques that can be applied as a part of the employees' job assignment	7.2			

NO	REQUIREMENT	NEXTEER HC & NC REF NO.	YES	NO	COMMENTS
10.	<b>AUDIOMETRIC TESTING</b>	Section 8			
	a) An audiometric testing program is established and implemented for all employees exposed at or above 85 dBA (TWA).	8.0			
	b) Tests performed by a certified audiometric technician or equivalent.	8.1.1			
	c) Audiograms meet Federal, State or Provincial Requirements.				
	d) Audiometers meet ANSI S3.6-1969 (or latest version)	8.5.1			
	e) Pulsed tone and self-recording audiometers meet Federal, State, or requirements	8.5.2			
	f) Tests conducted at the frequencies 500, 1000, 2000, 3000, 4000, and 6000 Hertz (Hz). (Nexteer also requires 8000 Hz)	8.1.2			
	g) Background octave band sound pressure levels in audiometric test room(s) are checked annually and certified to be less than the following limits:	8.6.1, 8.6.2			
<b>AUDIOMETRIC TEST BOOTH</b> <b>MAXIMUM PERMISSABLE OCTAVE-BAND BACKGROUND SOUND PRESSURE LEVELS</b> <b>Octave Band Center Frequency (Hz)</b>					
	<b>500</b>	<b>1,000</b>	<b>2,000</b>	<b>4,000</b>	<b>8,000</b>
<b>Maximum Sound Pressure Levels (dB)</b>					
<b>US</b>	40	40	47	57	62
<b>ONTARIO</b>	40	29.5	34.5	42	45
	h) <b>Baseline Audiogram</b>				
	o Establish within 6 months – or within 1 year if using mobile van - for all employees exposed at or above 85 dBA TWA).	8.2.2			
	o Preceded by at least 14 hours without exposure to workplace noise. (Hearing protection can be used to meet this requirement)	8.2.4			
	o Employee notified to avoid high non-occupational noise prior to baseline testing.	8.2.4			
	o Employees complete "Audiometric Questionnaire" prior to test.	APPENDIX C			
	o Annual audiogram becomes baseline	8.2.5			
	– STS is persistent	8.2.5.1			
	– Hearing threshold in annual significantly improved over baseline	8.2.5.2			
	i) <b>Annual Audiogram</b>				
	o Provided for all employees exposed at or above 85 dBA (TWA).	8.3.1			
	o Preceded by at least 14 hours without exposure to workplace noise. (Hearing protection can be used to meet this requirement)	8.3.2			



NO	REQUIREMENT	NEXTEER	YES	NO	COMMENTS
		HC & NC REF NO.			
	<ul style="list-style-type: none"> <li>o Employees complete "Audiometric Questionnaire" prior to test.</li> </ul>	APPENDIX C			
	<ul style="list-style-type: none"> <li>o Annual audiogram compared against Baseline for STS determination.</li> </ul>	8.3.3			
	<ul style="list-style-type: none"> <li>o If STS indicated, retest within 30 days.</li> </ul>	8.3.4			
	<ul style="list-style-type: none"> <li>o If STS indicated, notify employee using "Audiometric Testing Interim Notification of Hearing Loss"</li> </ul>	8.3.5			
	<ul style="list-style-type: none"> <li>o Problem audiograms reviewed by a physician, audiologist, or otolaryngologist</li> </ul>	8.3.5			
	<b>j) Audiometer Calibration Requirements</b> <ul style="list-style-type: none"> <li>o Biologically before use each day</li> </ul>	8.5.3			
	<ul style="list-style-type: none"> <li>o Acoustically: <ul style="list-style-type: none"> <li>– Biological calibration deviates by 10 dB or more.</li> </ul> </li> </ul>	8.5.4			
	<ul style="list-style-type: none"> <li>– Annually</li> </ul>	8.5.3			
	<ul style="list-style-type: none"> <li>o Exhaustive <ul style="list-style-type: none"> <li>– Acoustical calibration deviates by 10 dB or more</li> </ul> </li> </ul>	8.5.4			
	<ul style="list-style-type: none"> <li>– Every two (2) years</li> </ul>	8.5.5			
	<ul style="list-style-type: none"> <li>o Records are maintained for each audiometer</li> </ul>	8.5.3, 8.5.4, 8.5.5			
	<b>k) Audiogram Evaluation:</b> <ul style="list-style-type: none"> <li>o Annual test compared to baseline to determine if a Standard Threshold Shift (STS) exists.</li> </ul>	8.3.3			
	<ul style="list-style-type: none"> <li>o If STS, retest within 30 days (optional)</li> </ul>	8.3.4			
	<ul style="list-style-type: none"> <li>o Audiologist, otolaryngologist, or physician reviews problem audiograms and determines need for further evaluation.</li> </ul>	8.3.5			
	<b>l) Standard Threshold Shift:</b> <ul style="list-style-type: none"> <li>o Definition - change relative to baseline of 10 dB or more in average hearing level at 2000, 3000, and 4000 Hz. either ear.</li> </ul>	8.4.1			
	<ul style="list-style-type: none"> <li>o Allowance for aging optional -</li> </ul>	8.4.2			
	<ul style="list-style-type: none"> <li>o Notify employees with confirmed STS after retest, in writing within 21 days of determination using the "Audiometric Testing Notification of Persistent Standard Threshold Shift" form.</li> </ul>	8.4.3			
	<ul style="list-style-type: none"> <li>o Action to be taken (unless physician determines that STS is not work-related)</li> </ul>	APPENDIX C			
	<ul style="list-style-type: none"> <li>– Require ear protection to be worn the entire work shift.</li> </ul>	8.4.7			
	<ul style="list-style-type: none"> <li>– Refit and retrain employees already using ear protection.</li> </ul>	8.4.5			
	<ul style="list-style-type: none"> <li>– Refer employee for a clinical audiological evaluation or ontological examination.</li> </ul>	8.4.6			
	<ul style="list-style-type: none"> <li>– Inform employees with non-work related ear problems of need for an ontological exam.</li> </ul>	8.4.7.1			
		8.4.7.2			

NO	REQUIREMENT	NEXTEER	YES	NO	COMMENTS
		HC & NC REF NO.			
11.	<b>ACCESS</b> a) Copies of OSHA Standard available to employees or their representatives and posted in the workplace. b) Information provided by OSHA available to employees. c) Training materials pertaining to the Hearing Conservation Standard provided upon request to OSHA Assistant Secretary and/or Director. d) Records provided on request to employees, former employees, reps., and OSHA.	9.1.1 9.1.1 9.1.1 9.2			
12.	<b>RECORD KEEPING</b> a) Maintain accurate records of noise exposure measurements. b) Maintain audiometric records with the following information: <ul style="list-style-type: none"> <li>Employee name and job classification</li> <li>Date of audiogram</li> <li>Examiner's name</li> <li>Date of last acoustic or exhaustive calibration</li> <li>Employee's most recent noise exposure assessment</li> <li>Background noise levels in audiometric test room</li> </ul> c) Retain all noise exposure records in line with Nexteer requires retention in line with policy for medical records. (30 years past retirement) d) Retain all audiometric test records at least for duration of employment. (Nexteer requires retention in line with policy for medical records.) e) Retain annual training registrations in line with policy for retaining medical records.	1.11 8.7, 9.2.2 9.2.1 9.2.2 9.2.3			
13.	<b>EVALUATION OF PROGRAM EFFECTIVENESS</b> Is there a current and Historical evaluation of the overall program effectiveness conducted regularly? <ul style="list-style-type: none"> <li>Employees at or above 85 dBA (TWA)</li> <li>Employees above 90 dBA (TWA)</li> <li>Number of occupationally related STS per year</li> </ul> (Trend should be downward from year to year) Who keeps these records?	Section 10 10.1 10.2 10.3			

## Audiometric Questionnaire

Date: \_\_\_\_\_

- ☐ Initial Visit  
☐ Update

Name: \_\_\_\_\_ Birth Date: \_\_\_\_\_ Sex: ☐ Male ☐ Female  
SS#: \_\_\_\_\_ Dept.: \_\_\_\_\_ Shift: \_\_\_\_\_  
Job: \_\_\_\_\_ Cisco: \_\_\_\_\_

1.

Previous Employers	Yrs. Service	Duties	Noise Exposure		Ear Protection	
			Yes	No	Yes	No

2. Were you exposed to noise in the Military Service? ☐ Yes ☐ No

If yes, source: \_\_\_\_\_

3. Have you ever had any of the following?

	Yes	No		Yes	No
Hearing Loss	<input type="checkbox"/>	<input type="checkbox"/>	Diabetes	<input type="checkbox"/>	<input type="checkbox"/>
Ear Surgery	<input type="checkbox"/>	<input type="checkbox"/>	Sinus Problems	<input type="checkbox"/>	<input type="checkbox"/>
Ear Injury	<input type="checkbox"/>	<input type="checkbox"/>	Allergies	<input type="checkbox"/>	<input type="checkbox"/>
Ear Aches	<input type="checkbox"/>	<input type="checkbox"/>	High Blood Pressure	<input type="checkbox"/>	<input type="checkbox"/>
Ear Infections	<input type="checkbox"/>	<input type="checkbox"/>	Head injuries with unconsciousness	<input type="checkbox"/>	<input type="checkbox"/>
Ringing Ears	<input type="checkbox"/>	<input type="checkbox"/>	Medications:	<input type="checkbox"/>	<input type="checkbox"/>
Ear Pressure	<input type="checkbox"/>	<input type="checkbox"/>	_____		

4. Have you ever had routine exposure to any of the following non-occupational noise sources?

	Yes	No		Yes	No
Snowmobiles/Motorcycles	<input type="checkbox"/>	<input type="checkbox"/>	Hunting/Shooting	<input type="checkbox"/>	<input type="checkbox"/>
Power Tools	<input type="checkbox"/>	<input type="checkbox"/>	Lawn Equipment	<input type="checkbox"/>	<input type="checkbox"/>
Farm Equipment	<input type="checkbox"/>	<input type="checkbox"/>	Walkman/Loud Music	<input type="checkbox"/>	<input type="checkbox"/>
Auto Races/Monster Trucks	<input type="checkbox"/>	<input type="checkbox"/>	Other	<input type="checkbox"/>	<input type="checkbox"/>

5. Have you seen a doctor about your ears? ☐ Yes ☐ No

Reason: \_\_\_\_\_

Do you have trouble understanding certain words? ☐ Yes ☐ No

How would you evaluate your own hearing? ☐ Good ☐ Fair ☐ Poor

With which ear do you hear best? ☐ Left ☐ Right ☐ Same

Examination	Left Ear	Right Ear	Comments
Auricle	<input type="checkbox"/>	<input type="checkbox"/>	_____
Canal	<input type="checkbox"/>	<input type="checkbox"/>	_____
Tympanic Membrane	<input type="checkbox"/>	<input type="checkbox"/>	_____

Employee's Signature \_\_\_\_\_ Reviewed by \_\_\_\_\_

Hearing protection was fitted and issued ☐

**AUDIOMETRIC TESTING**  
**Interim Notification of Hearing Loss**

To: \_\_\_\_\_ Date: \_\_\_\_\_

S.S./S.I.# \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Location/Dept.: \_\_\_\_\_ Cisco: \_\_\_\_\_

Job Title: \_\_\_\_\_

This is to notify you that according to your last hearing test on \_\_\_\_\_ a decrease in the level of your hearing  
(date)  
(Right ear, left ear, both ears), compare to your baseline audiogram, was noted.

Federal/State/Provincial Hearing Conservation Laws and Nexteer Automotive requires that employees sustaining a hearing loss **WEAR HEARING PROTECTORS THE FULL SHIFT** during job assignments involving noise exposures equal to or greater than an 8-Hr. Time Weighted Average (TWA) of 85 dBA.

To prevent any further degradation to your hearing the following will be required:

- You will be required to use personal hearing protection during any work assignments involving noise exposures equal to or greater than an 8-Hr. Time Weighted Average (TWA) of 85 dBA until completion of retest.
- If you are already using personal hearing protection, you must be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater noise reduction if necessary.
- You have been scheduled for a hearing retest by direction of the Medical Director on

\_\_\_\_\_ At \_\_\_\_\_  
(date) (location)

If you wish further information contact plant Medical \_\_\_\_\_  
(Phone number)

Please sign and date one copy of this letter and return it to your Medical Department at Mail Station

\_\_\_\_\_  
(Mailing address for Plant Medical)

Respectfully,

\_\_\_\_\_  
Medical Department Representative

Employee's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Part 1 – Employee

Part 2- Plant Manager

Part 3 -Personnel

Part 4 – Employee's Supervisor

## AUDIOMETRIC TESTING NOTIFICATION OF PERSISTENT STANDARD THRESHOLD SHIFT

To: \_\_\_\_\_ Date: \_\_\_\_\_

S.S./S.I.# \_\_\_\_\_

Location: \_\_\_\_\_

Cisco: \_\_\_\_\_

This is to notify you that on your last annual audiometric (hearing) test \_\_\_\_\_ you were found to have a  
(date)  
Standard Threshold Shift in your hearing (right ear, left ear, both ears).  
(Circle one or more)

Governmental Hearing Conservation Laws and Nexteer Automotive requires that employees sustaining a STS hearing loss **WEAR HEARING PROTECTORS THE FULL SHIFT** during job assignments involving noise exposures equal to or greater than an 8-Hr. Time Weighted Average (TWA) of 85 dBA.

To prevent any further degradation to your hearing the following will be required:

- You will be required to use personal hearing protection during any work assignments involving noise exposures equal to or greater than an 8-Hr. Time-Weighted Average (TWA) of 85 dBA.
- If you are already using personal hearing protection, you will be refitted and retrained in the use of hearing protectors and you will be provided with hearing protectors offering greater attenuation if necessary.
- Upon the recommendation of your Nexteer Automotive Medical Doctor you may be referred for further testing and evaluation.

If you wish further information, contact your Safety Department Representative or the plant Medical Department.

This written notice is required by Governmental Hearing Conservation Laws and by Nexteer Automotive.

Please sign and date one copy of this letter and return it to your plant supervisor, or medical department.

Respectfully,

\_\_\_\_\_  
Medical Doctor

Employee's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**NEXTEER AUTOMOTIVE  
PROGRAM FOR HEARING CONSERVATION AND NOISE CONTROL**

• **APPENDIX D**

**PUBLICATIONS**

1. Nexteer Automotive Specification SD-019, "Nexteer Automotive Uniform Plant Sound Survey Specification".
2. Nexteer Automotive Specification SD-018, "Nexteer Automotive Systems Sound Level Specification for the Purchase of Machinery and Equipment".
3. Hierarchy of Health and Safety Controls, UAW-Nexteer
4. A Practical Guide to Effective Hearing Conservation Programs In the Workplace, U.S. Department of Health and Human Services, DHHS (NIOSH) Publication No. 90-120.
5. Department of Labor Occupational Noise Exposure Standard, 29-CFR 1910.95 as amended and effective April 7, 1983.
6. Memorandum of Understanding

## RECORD OF REVISIONS

Revision No	Date	Section	Description
001	01OC99	ALL	Initial release of SL 3.0
002	20OC23	ALL	Reformatted entire document, renamed to SD-020 (from SL 3.0)
003			
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