

<b>JAGUAR ENERGY SERVICES, LLC</b> <b>310 N Parkerson Ave</b> <b>Crowley, LA 70526</b>	<b>Hearing Conservation</b>
<b>Original Date of Implementation: October 2013</b> <b>New Effective Date:</b>	<b>Plan Revision Date:</b> <b>Page 1 of 20</b>
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## Section 40.0 HEARING CONSERVATION PROGRAM

### A. Purpose

**JAGUAR ENERGY SERVICES, LLC** has developed and implemented a Hearing Conservation Program to comply with OSHA in 29 CFR 1910.95. Final Rule, issued March 8, 1983, by the U. S. Department of Labor's Occupational Safety and Health Administration (OSHA).

The "Hearing Conservation Program" for **JAGUAR ENERGY SERVICES, LLC** personnel, is designed to protect employee's hearing against the adverse affects of work related noise.

### B. Scope

Employees that are assigned to work in areas exceeding the action level of 85 dB, (85 decibels, measured on the "A" scale over an 8 hour time weighted average), or the equivalent of a dose of 50%, shall be included in this continuing effective program.

### C. Responsibilities

1. The Safety Coordinator or his/her designee is responsible for is responsible for ensuring that employees have completed the training required by this procedure and the documentation of this process.
  - (a) Additional responsibilities include:
    - (i) Implementation of the Hearing Loss Prevention Program.
    - (ii) Making available a copy of the Hearing Loss Prevention Program and the noise survey to all employees.
    - (iii) Posting a copy of Hearing Loss Prevention Program in the workplace.
2. The Safety Director is responsible for:
  - (a) Noise monitoring.
  - (b) Investigating employee complaints.
  - (c) Reviewing equipment specifications for noise monitoring requirements.

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- (d) Reviewing the program for changes to regulatory requirements.
  - (e) Maintaining hearing test and evaluation records, noise measurement tests of audiometric test facility, and their calibration records.
  - (f) Notifying affected employee that they will be working in high noise areas.
  - (g) Notifying affected employee that they are covered under **JAGUAR ENERGY SERVICES, LLC's** Hearing Loss Prevention Program.
  - (h) Coordinating of annual audiogram testing and notification to the employee of testing appointment.
  - (i) Insuring that the test results are forwarded to **JAGUAR ENERGY SERVICES, LLC's** doctor for review.
  - (j) Providing proper hearing protection to employee.
  - (k) Insuring that the employee properly uses hearing protection.
  - (l) Advising employee of pre-testing requirements, such as avoidance of non-occupational noise exposure for 14 hours prior to testing.
  - (m) Ensuring that each covered employee complete their baseline and annual hearing tests.
  - (n) Providing employees that have demonstrated a significant threshold shift one-on-one training.
3. The Supervisor is responsible for providing assistance in the implementation of this policy.
4. **JAGUAR ENERGY SERVICES, LLC** personnel and/or each affected employee shall:
- (a) Complete the annual hearing conservation training.
  - (b) Complete initial baseline and annual hearing tests.
  - (c) Select and use appropriate hearing protective devices provided by **JAGUAR ENERGY SERVICES, LLC**.
  - (d) Wear the provided hearing protection device(s) and to observe all safety regulations.

#### **D. The Hearing Process Related to Sound**

1. **Procedure**  
Hearing Loss Prevention Program (HLPP).
- (a) Hearing, once lost, cannot be replaced!

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- (b) The "Hearing Loss Prevention Program" for **JAGUAR ENERGY SERVICES, LLC** employees, is designed to protect employee's hearing against the adverse affects of work related noise.

2. **JAGUAR ENERGY SERVICES, LLC** employees assigned to field duties routinely work in areas with areas designated by customers as "high noise areas".

- (a) Therefore, immediately upon assignment to work in the field, all employees shall be notified that they are enrolled in **JAGUAR ENERGY SERVICES, LLC's** Hearing Loss Prevention Program and are covered by this procedure.
- (b) Employees shall also be informed of the potential consequences of noise exposure and the methods of preventing noise-induced hearing loss.
- (c) In addition, for the general well being of our employees and their families, it is strongly encouraged that hearing protection be properly used when engaged in noise generating activities at home or at play.

3. **HLPP Action Level.**

Employees that are assigned to work in areas exceeding the action level of 85 dB, (85 decibels, measured on the "A" scale over an 8 hour time weighted average), or the equivalent of a dose of 50%, shall be included in this program.

- (a) Employees designated to be included in the HLPP will be provided the following at no expense to the employee:
  - (i) Monitoring – **JAGUAR ENERGY SERVICES, LLC** shall monitor noise levels in the workplace to identify employees exposed to noise at or above the action level of 85 dBA.
  - (ii) Audiometric testing including a baseline audiogram, an annual audiogram, and audiogram evaluation, will be provided.
  - (iii) Hearing protection, including its proper selection, use, care, and fitting.
    - (i) The supervisor in charge will ensure that the employee wears the hearing protection.
    - (ii) Hearing protection will be replaced as necessary at no cost to the employee.
  - (iv) Initial and annual training for this program.

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#### 4. Objectives of Hearing Protection

Normally functioning ears are continuously responsive to sounds.

- (a) Should damaging noise exposure exceed recommended levels and continue over time, hearing loss progressively spreads throughout the frequencies critical for discrimination of speech sounds.
- (b) Some excellent reasons to protect your hearing:
  - (i) To preserve the ability to listen selectively.
  - (ii) To preserve the ability to understand conversational speech.
  - (iii) To maintain safe working conditions.

#### 5. Warning Signs

Warning signs shall be posted and clearly visible at the entrance to, or the periphery, of areas where noise exposures routinely equal or exceed 85 dBA as an 8-hr. TWA.

- (a) Client locations should have warning signs posted.
- (b) All warning signs shall be in English and, where applicable, in the predominant language of workers who do not read English.
- (c) Employees unable to read the warning signs shall be informed verbally about the instructions printed on signs in hazardous work areas of the facility.
- (d) The warning sign shall textually and graphically contain the following information:



**WARNING**  
**NOISE AREA HAZARD**

*Use of Hearing Protectors Required*

#### 6. Exchange Rate

- (a) Health affects depend on exposure level and duration.
- (b) The time/intensity relationship is commonly referred to as the exchange rate.
- (c) It is also referred to as the "doubling rate."
- (d) The 3-dB exchange rate is used in this program.
- (e) It is also known as the equal energy rule, because a 3-dB increase/ decrease represents a doubling or halving of the sound energy.

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- (f) Equal amounts of sound energy will produce equal amounts of hearing impairment regardless of how the sound energy is distributed in time.
- (g) The 3-dB exchange rate protects hearing at the 4000 HZ frequency.
- (h) The exchange rate can be used to increase or decrease the exposure time depending upon the noise level present.

#### **7. Noise Dose**

The Hearing Loss Prevention Program is based upon the noise dose that would result from a continuous 8-hour exposure to a sound level of 90 dB.

- (a) At 90 dB, over 8 hours, the noise dose is assigned a value of 100%. If a noise level higher than 90 dB were sustained for 8 hours, the dosage would exceed 100%.
- (b) Although the HLPP is based upon the noise dosage received in an 8-hour period, it must account for the actual times of exposure to specific noise levels.

#### **8. Permissible noise exposure**

Occupational noise exposure shall be controlled so that employee exposures are less than the combination of exposure level and duration as shown in the following table.

- (a) The table represents the maximum exposure level and the corresponding duration during the day that is permissible without causing damage to one's hearing.
- (b) The noise ceiling level above which no unprotected exposure is permitted is 115 dBA, regardless of the duration of exposure.

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**Table 1-1. Combinations of noise exposure levels and durations that no worker exposure shall equal or exceed**

Exposure level, <i>L</i> (dBA)	Duration, <i>T</i>			Exposure level, <i>L</i> (dBA)	Duration, <i>T</i>		
	Hours	Minutes	Seconds		Hours	Minutes	Seconds
80	25	24	—	106	—	3	45
81	20	10	—	107	—	2	59
82	16	—	—	108	—	2	22
83	12	42	—	109	—	1	53
84	10	5	—	110	—	1	29
85	8	—	—	111	—	1	11
86	6	21	—	112	—	—	56
87	5	2	—	113	—	—	45
88	4	—	—	114	—	—	35
89	3	10	—	115	—	—	28
90	2	31	—	116	—	—	22
91	2	—	—	117	—	—	18
92	1	35	—	118	—	—	14
93	1	16	—	119	—	—	11
94	1	—	—	120	—	—	9
95	—	47	37	121	—	—	7
96	—	37	48	122	—	—	6
97	—	30	—	123	—	—	4
98	—	23	49	124	—	—	3
99	—	18	59	125	—	—	3
100	—	15	—	126	—	—	2
101	—	11	54	127	—	—	1
102	—	9	27	128	—	—	1
103	—	7	30	129	—	—	1
104	—	5	57	130-140	—	—	<1
105	—	4	43	—	—	—	—

### 1. Monitoring

The purpose of the Hearing Loss Prevention Program is to protect employees from suffering work-related hearing losses.

- (a) Therefore, noise levels in the work area shall be monitored.
- (b) The HLPP provides guidelines for approved monitoring procedures and for performing personal and area noise level surveys.

### 2. Purpose of Monitoring

Monitoring provides a means of:

- (a) Identifying employees who must be enrolled in the Hearing Conservation Program.
- (b) Identifying employees for whom hearing protection is mandatory.
- (c) Determining the amount of noise reduction that hearing protectors must provide.
- (d) Familiarizing **JAGUAR ENERGY SERVICES, LLC** and its employees with the degree of the noise hazard.

### 3. Sound Level Measurements

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All continuous, intermittent, and impulsive sound levels between 80 and 130 decibels shall be integrated into these noise measurements.

- (a) Two types of instruments are used to measure noise exposures, the sound level meter and the dosimeter.
- (b) Only calibrated instruments shall be used to ensure accuracy of noise measurements.
- (c) At the minimum, these instruments shall conform to ANSI specification for sound level meters, (ANSI S1.4-1983 & S1.4A-1985, Type 2) or ANSI specification for personal noise dosimeters, (ANSI S 1.25-1991).
- (d) Sound level meters, if used, shall be set at SLOW.

4. A sound level meter measures the intensity of sound generated by a noise source at a given moment.
  - (a) Peak and average readings may be obtained for each monitored sound source.
  - (b) Since the sound level meter provides a measure of sound intensity at only one point at a time, it is generally necessary to take a number of measurements to determine noise level for the work area.
  - (c) These multiple measurements over a period of time during the workday allow compilation of a noise survey map of the work area.

5. A dosimeter is similar to a sound level meter except that it stores sound level measurements and integrates the measurements over time.
  - (a) This provides an average noise exposure for a given time period, usually an 8-hour day.

#### 6. **Noise Monitoring Procedures**

The HLPP provides two methods for monitoring workplace noise, area, and personal monitoring.

- (a) **JAGUAR ENERGY SERVICES, LLC** may use either, or both, of these procedures as appropriate to the work environment.

#### 7. **Personal Monitoring**

When information indicates that an employee exposure may be equal or exceed the 8 hour-weighted average of 85 decibels, **JAGUAR ENERGY SERVICES, LLC** will include them in the

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monitoring program to identify if they need to be included in the hearing conservation program.

- (a) This method is used for determining individual exposures to noise, particularly in work areas where employees move about frequently or where the noise intensity tends to fluctuate greatly over time.
- (b) An individual most likely to receive maximum exposure is selected to wear (at shoulder height) a dosimeter.
- (c) The dosimeter automatically records sound levels wherever the employee moves in the work environment.
- (d) At the end of the desired time period (usually the full workday), the dosimeter provides a direct read-out of the total "at-the-ear" noise, expressed as a dosage (percentage).
- (e) An individual's total noise dosage may be converted to an equivalent decibel sound level value, as if the employee had been exposed to the noise level over an 8-hour work shift.
- (f) The action level criteria are met if the total dose is equal to or greater than 50% of the 8-hour time-weighted average equals or exceeds 85 dB.

#### 8. **Area Monitoring**

Generally, **JAGUAR ENERGY SERVICES, LLC** uses this method to determine if an area is to be posted as a "High Noise Area."

- (a) If an area is so designated, all employees must wear approved hearing protection while in that area.
- (b) The area monitoring procedure can also be used to estimate the noise exposure of individual employees, when the noise levels are relatively constant and the employees are relatively stationary.
- (c) By using the area noise survey map and knowing information about employee location and duration of exposure in that location, estimates of total individual exposure levels can be developed.

#### 9. **Frequency of Monitoring**

The frequency of noise monitoring will depend upon conditions, which are specific for the work area.

- (a) Monitoring shall be repeated whenever changes in process or equipment increase noise exposures such that additional employees (i.e. not previously included in the Hearing Loss Prevention Program) may be exposed at or above the action level.



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- (b) Also, **JAGUAR ENERGY SERVICES, LLC** shall evaluate such factors as employee complaints and equipment specifications to determine the frequency of monitoring.
- (c) The adequacy of hearing protector attenuation shall be re-evaluated whenever noise levels increase to the extent that the hearing protection provided is no longer sufficient to provide proper attenuation.
- (d) More effective hearing protection shall then be provided.

#### 10. **Noise Monitoring Results**

**JAGUAR ENERGY SERVICES, LLC** has performed extensive noise monitoring surveys and area mapping of high noise levels.

- (a) The conclusions from these surveys are that any personnel working in a High Noise Area must wear appropriate hearing protection and not exceed the maximum noise exposure.

#### 11. **Noise Data**

The following table represents a sampling of the noise levels, (sound pressure levels) for different work locations.

- (a) This may, or may not, reflect actual field conditions, as other sources of noise at a customer location must be taken into consideration.

#### **NOISE LEVEL EXAMPLES**

	<b>DECIBELS</b>	<b>NOTE BELOW</b>	
	Rocket Launching	180	
	Jet aircraft	140	xxxx
	Gunshot blast	150	xxxx
Pneumatic rock drill	130		
Automobile horn	120	xxx	
Sandblasting	112		
<u>Generator Package</u>	112		
<u>Diesel Crane (Full throttle)</u>	110		
<u>Low gas compressor</u>	100		
<u>HP Well manifold</u>	100		
Woodworking shop	100		
Boiler shop	100		
Hydraulic press	100		
Punch press	100		
Can manufacturing plant	100		
Quintplex hydraulic pump (enclosed)	95		
<u>Diesel Crane (idle)</u>	93		
<u>Glycol Reboiler</u>	93		
Printing press	90	xx	

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Average factory	85	
Very loud speech	85	x
<u>Triplex electric pump, enclosed</u>	82	
Noisy restaurant	80	
Heavy traffic	75	
Typical conversational speech	65	
Average home	50	
Quiet office	40	
Birds singing	40	
Whisper	35	
Leaves rustling	20	
Hearing threshold	0	

(NOTE) Underlined examples were obtained from producing operation surveys.  
The x'ed dB levels represent the minimum noise level needed to produce the reactions noted below:

- (b) x 85 dB: Long exposure to noise may lead to hearing loss.
- (c) xx 90 dB: Long exposure to noise will lead to hearing loss.
- (d) xxx 120 dB: Discomfort felt.
- (e) xxxx 140 dB: Pain felt.

## 12. Conclusions

Based upon the noise survey, employees working in field locations may be exposed to sound pressure levels that exceed the Recommended Exposure Limit of 85 dBA, (TWA).

- (a) Therefore, all employees assigned to work in the field are included in the Hearing Loss Prevention Program at no cost to the employee.
- (b) Employee right to observe and receive the results of monitoring.
  - (i) **JAGUAR ENERGY SERVICES, LLC** affords each affected employee the right to observe the monitoring process.
- (c) Each employee exposed at or above the action level shall be notified of the results of monitoring.

## 13. Recordkeeping

- (a) Employee Noise Exposure Measurements
  - (i) The Safety Director shall establish and maintain an accurate record of all noise exposure measurements.
  - (ii) The noise exposure measurement records shall be retained for a minimum of at least two years.

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- (b) Noise Exposure Assessment Records
- (c) The records shall include at the minimum:
  - (i) Name of the employee being monitored.
  - (ii) Employee badge number.
  - (iii) Duties performed and job location.
  - (iv) Dates and times of measurements.
  - (v) Brand, model, and size of hearing protection used.
  - (vi) Identification of person taking the measurements.

**14. Audiometric Testing Program.**

**JAGUAR ENERGY SERVICES, LLC** has established and will maintain an Audiometric Testing Program for employees that may be exposed equal/exceed the 8 hr time-weighted avg. of 85 decibels, at no cost to the employee.

- (a) An audiometric test, or hearing test, monitors the sharpness or acuity of a person's hearing over a period of time.
- (b) The testing program includes a valid baseline audiogram shall be performed within 6 months of an employee's first exposure at or above the action level when an affected employee is initially hired, or when a transfer into an affected position occurs.
  - (i) When a mobile van is used, the baseline shall be established within a year.
- (c) Annually thereafter, an audiogram shall be performed to indicate whether hearing loss is prevented through this program.

**15. Audiometric Testing Requirements**

- (a) Audiometric tests shall be, air conduction, hearing threshold examinations with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 hertz.
- (b) Testing at each frequency shall be performed individually for each ear. To enhance the decision about probable etiology, testing at 8000 hertz is recommended.
- (c) Audiometric tests shall be performed either by a licensed or certified audiologist, otolaryngologist, or other physician, or by a certified technician that is responsible to an audiologist, otolaryngologist, or other physician.
- (d) Audiometric tests shall be conducted with audiometers, (including microprocessor audiometers), that meet the specifications of, and are maintained and used in accordance with, ANSI S3.6-1996.

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- (e) Pulsed tone and self-recording audiometers, if used, shall meet the minimum requirements of OSHA 1910.95, Appendix C, Audiometric Measuring Instruments.
- (f) Audiometric examinations shall be conducted in a room where ambient noise levels conform to all requirements specified within ANSI S3.1-1991.
- (g) Instruments used to measure ambient noise shall conform to ANSI S1.4-1983, S1.4A-1985 Type 1, and S1.11-1986.
- (h) Permanent testing facilities ambient noise levels shall be checked at least annually.
- (i) For mobile testing facilities, ambient noise levels shall be tested daily or each time the facility is moved, whichever is more often.
- (j) Ambient noise measurements shall be obtained under conditions representing the typical acoustical environment likely to be present when audiometric testing is performed.
- (k) Ambient noise levels shall be recorded on each audiogram or made otherwise accessible to the professional reviewer of the audiograms.

#### 16. **Audiometer Calibration**

Acoustical calibration of audiometers shall be checked:

- (a) Prior to administering the test in accordance with OSHA 1910.95, "Audiometer Calibration".
- (b) At least annually in accordance with OSHA 1910.95, Appendix E, "Acoustical Calibration of Audiometers".
- (c) A complete calibration of the audiometer must be performed every two years in accordance with OSHA 1910.95 AND ANSI specification for Audiometers, S3.6-1996.

#### 17. **Baseline Audiogram**

The baseline audiogram is the reference against which future audiograms are compared.

- (a) A baseline audiogram must be provided within six months of employment, transfer into an affected position, or an employee's first exposure at or above an 8-hour time weighted average of 85 dB.
  - (i) When a mobile van is used, the baseline shall be established within 1 year.
- (b) An employee shall not be exposed to workplace noise at or above 85 dBA for a minimum of 14 hours preceding the baseline audiometric test.

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- (i) Hearing protection may be used to meet this requirement.
- (c) Wearing hearing protection in lieu of this required quiet period is ***not permitted by JAGUAR ENERGY SERVICES, LLC policy***, however they may be used as per 29 CFR 1910.95.
- (d) The employee shall also be notified to avoid high levels of non-occupational noise for the same period of time.

**18. Annual Audiogram**

An audiogram shall be conducted within one year of the baseline and annually thereafter as long as the employee remains in the affected position.

**19. Audiogram Evaluation**

The annual audiogram shall be compared to the baseline audiogram to determine whether the audiogram is valid and to determine whether the employee has lost any ability to hear, i.e. if a standard threshold shift, (STS), has occurred.

- (a) A STS is an average shift relative to the baseline audiogram, in either ear of 10 dB or more at 2000, 3000, and 4000 hertz.

**20. Follow-up Procedures for Standard Threshold Shift**

When the review of an employee's audiogram detects a standard threshold shift, the employee shall receive written notification within 21 days of the determination.

- (a) A confirmation audiogram within 30 days shall be provided.
  - (i) This confirmation test shall be conducted under the same conditions as those of a baseline audiometric test.

**21. Confirmation of STS**

Should the confirmation audiogram show the persistence of a STS, an audiologist or physician shall review the audiograms and other appropriate records including a copy of this program.

- (a) If this review validates the STS, the STS shall be considered to be a significant threshold shift.
- (b) This STS shall be recorded in the employee's medical record, and the confirmation audiogram shall serve as the new baseline and shall be used to calculate any subsequent significant threshold shift.

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- (c) When a significant threshold shift has been validated, **JAGUAR ENERGY SERVICES, LLC** shall take appropriate action to protect the employee from additional hearing loss due to occupational noise exposure.
- (d) **JAGUAR ENERGY SERVICES, LLC** shall:
  - (i) Require the employee not using hearing protection to be fitted and trained in the use, care, and requirement to use hearing protection.
  - (ii) Require the employee already using hearing protection to be refitted and retrained in the use of hearing protection, and if necessary, provide the employee hearing protection with greater attenuation.
  - (iii) Explain to the employee the effects of hearing loss.
  - (iv) As appropriate, the Safety Director may refer the employee for a clinical audiological evaluation or an otological examination for additional testing or if **JAGUAR ENERGY SERVICES, LLC**'s doctor suspects that medical pathology of the ear is caused or aggravated by the wearing of hearing protection.
  - (v) Enter on OSHA 200 Injury and Illness Log.

## 22. Revised Baseline Audiogram

The purpose of the revised baseline is to ensure that the audiogram reflects actual thresholds, so that hearing protection needs are properly evaluated.

- (a) A persistent Standard Threshold Shift is one which has been confirmed by a subsequent audiogram.
- (b) If the professional supervising the audiometric testing program determines that a Standard Threshold Shift is persistent, then the annual audiogram may serve as a revised baseline audiogram.
- (c) This will ensure that the same Standard Threshold Shift is not repeatedly identified in subsequent years.
- (d) An annual audiogram may also be substituted for the baseline audiogram if the hearing thresholds shown in the annual audiogram indicate improved hearing ability.

## 23. If A Standard Threshold Shift Is Not Persistent

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If an audiometric test reveals that a Standard Threshold Shift is not persistent and the exposure to noise is less than an equivalent 90 dB, 8 hour time weighted average, (100% dose), **JAGUAR ENERGY SERVICES, LLC** shall:

- (a) Inform the tested employee that the new audiometric test does not show a persistent Standard Threshold Shift.
- (b) Inform the tested employee that the use of hearing protectors is no longer required, unless specifically indicated by posted "High Noise Area" warning signs.

#### **24. Audiometric Test Recordkeeping**

**JAGUAR ENERGY SERVICES, LLC** shall retain an affected employee's audiometric test records for the duration of their employment with **JAGUAR ENERGY SERVICES, LLC**.

- (a) The records shall include:
  - (i) Employee's name and job classification.
  - (ii) The date of the audiogram.
  - (iii) The name of the examiner.
  - (iv) The date of the last acoustic calibration of the audiometer.
  - (v) The measurements of background sound pressure levels in the audiometric test room.
  - (vi) The employee's most recent noise exposure assessment.
  - (vii) Dates, times, and types of tests (i.e., baseline, annual, retest, confirmation).
  - (viii) Hours since last noise exposure before each test.
  - (ix) Hearing threshold limits at the required audiometric frequencies.
  - (x) The tester's identification and assessment of test reliability.
  - (xi) The etiology of any significant threshold shift.
  - (xii) The identification of the reviewer

#### **25. Hearing Protection**

The most effective approach to NIHL is to remove the hazardous noise from the workplace or to remove the employee from the hazardous noise source.

- (a) Since administrative or engineering controls cannot always prevent excessive noise exposure, it is then necessary for employees to wear a personal hearing protection device.

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- (b) A personal hearing protection device, HPD, is any hearing device designed to reduce the level of sound reaching the eardrum.
- (c) Earmuffs, earplugs, and ear canal inserts are the main types of HPD's.
- (d) Items not specifically designed and manufactured for hearing protection, such as cotton, cigarette filters, etc., must never be used to protect hearing.

## 26. **Sound Attenuation**

The level of sound attenuation depends upon the characteristics of the HPD and how the employee wears it.

- (a) Several methods exist for estimating the sound attenuation that HPD's provide.
- (b) The "Noise Reduction Rating," or NRR is one method that was designed to function as a simplified descriptor of the amount of protection provided by a given HPD.
- (c) All HPD's must be labeled with its NRR.
- (d) As the NRR, and other HPD ratings, are based upon laboratory conditions and may be overestimated as compared to real-world conditions, it has been necessary to de-rate the NRR of HPD's.
- (e) The following NIOSH de-rating is applied to HPD's:
  - (i) Earmuffs - subtract 25% from the manufacturer's labeled NRR.
  - (ii) Formable earplugs - subtract 50% from the manufacturer's labeled NRR.
  - (iii) All other earplugs - subtract 70% from the manufacturer's labeled NRR.

## 27. **Wearing of Hearing Protection Devices**

The Hearing Loss Prevention Program requires that effective hearing protection be properly worn by:

- (a) All employees exposed at or above the action level.
- (b) All employees who have incurred a Standard Threshold Shift.
- (c) All personnel entering posted "High Noise Area" locations.

## 28. **Hearing Protection Requirements.**

For all affected employees required to wear hearing protection, **JAGUAR ENERGY SERVICES, LLC** shall:



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- (a) **JAGUAR ENERGY SERVICES, LLC** will evaluate hearing protection for the specific noise environment in which the protector will be used.
- (b) Provide choices of hearing protection devices appropriate to the work environment.
- (c) Provide training to affected employees by qualified individuals to ensure that the approved hearing protectors are properly fitted.
- (d) Provide continuing on-the-job training to affected employees, covering at the minimum, the correct use and care of the selected hearing protectors.
- (e) Require all affected employees to wear effective hearing protection devices until such time as they are no longer required.

**29. Employee Exposure and Medical Records**  
**JAGUAR ENERGY SERVICES, LLC** will maintain accurate records of all employees exposure measurements and that all records will be maintained as required by the regulations.

- (a) An employee is permitted access to their records following **JAGUAR ENERGY SERVICES, LLC's** procedure "Access to Employee Exposure and Medical Records".

**30. Availability of Records**  
Upon request by an employee or employee's designated representative, or former employee affected under this program, or the Assistant Secretary and the Director, **JAGUAR ENERGY SERVICES, LLC** shall provide access to the records required under this program.

**31. Transfer of Records**  
Should **JAGUAR ENERGY SERVICES, LLC** cease to do business, all records required by this procedure shall be transferred to successor employer.

## **B. Training Requirements.**

Employee training is critical to the success of the program to prevent hearing loss.

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1. Employees included in the HLPP, shall be trained at least annually on the following information regarding hearing protection:
  - (a) The physical and psychological effects of noise and hearing loss.
  - (b) Purpose, advantages, and disadvantages of various types of hearing protectors.
  - (c) The selections, fit, and care of hearing protectors.
  - (d) The purpose and procedures of audiometric testing.
  - (e) Responsibilities of **JAGUAR ENERGY SERVICES, LLC**, managers, and employees in preventing noise induced hearing loss.
2. The training program will be updated consistent to changes in PPE and work process.

#### **C. Training Frequency**

1. **JAGUAR ENERGY SERVICES, LLC** personnel will be trained according to the following schedule:
  - (a) Initially upon hire or within 60 days of employment.
  - (b) Annually thereafter.

#### **D. Definitions**

1. **Action Level** is an 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.
2. **Audiogram** is a chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.
3. **Audiologist** is a professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.
4. **Baseline audiogram** is the audiogram against which future audiograms are compared.
5. **Criterion sound level** is a sound level of 90 decibels.

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6. **Decibel (dB)** is the unit of measurement of sound level.
7. **Hertz (Hz)** is the unit of measurement of frequency, numerically equal to cycles per second.
8. **Noise dose** is the ratio, expressed as a percentage, of
  - (a) The time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure.
  - (b) The product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).
9. **Noise dosimeter** is an instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
10. **Otolaryngologists** is a physician specializing in diagnosis and treatment of disorders of the ear, nose, and throat.
11. **Representative exposure** is the measurements of an employee's noise dose or 8-hour time-weighted average sound level that the employers deem to be representative of the exposures of other employees in the workplace.
12. **Sound level** is ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals. Unit: decibels (dB).
  - (a) For use with this regulation, SLOW time response, in accordance with ANSI S1.4-1971 (R1976), is required.
13. **Sound level meter** is an instrument for the measurement of sound level.
14. **Time-weighted average sound level** is that sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

## E. References

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National Institute for Occupational Safety and Health; Criteria for a Recommended Standard, Occupational Noise Exposure, 1998.