purposes of the RFA.[5] The proposed amendment to reporting requirements primarily impacts FCMs. Similarly, members of contract markets and foreign brokers report only if carrying or holding reportable, *i.e.,* large positions. Therefore, the Chairman, on behalf of the Commission, hereby certifies, pursuant to 5 U.S.C. 605(b), that the action taken herein will not have a significant economic impact on a substantial number of small entities. The Commission invites comments from any firm believing that these rules would have a significant economic impact on its operation.

B. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) (PRA), which imposes certain requirements on federal agencies (including the Commission) in connection with their conducting or sponsoring any collection of information as fined by the PRA, does not apply to this rule. The Commission believes that the proposed rule amendment does not contain information requirements which require the approval of the Office of Management and Budget. The purpose of this rule is to establish a specific reporting level for TRAKRS.

List of Subjects in 17 CFR Part 15

Brokers, Reporting and recordkeeping requirements.

In consideration of the foregoing, and pursuant to the authority contained in the Act, and in particular sections 4g, 4i, 5, 5a and 8a of the Act, 7 U.S.C. 6g, 6i, 7, 7a and 12a, as amended, the Commission hereby proposes to amend Part 15 of Chapter I of Title 17 of the Code of Federal Regulations as follows:

PART 15—REPORTS—GENERAL PROVISIONS

1. The authority section for part 15 continues to read as follows:

Authority: U.S.C. §§ 2, 5, 6a 6c, 6f, 6g, 6i, 6k, 6m, 6n, 7, 7a, 9, 12a, 19, and 21, as amended by the Commodity Futures Modernization Act of 2000, Appendix E of Pub. L. No. 106–554, 114 Stat. 2763 (2000); 5 U.S.C. 552 and 552(b).

2. Section 15.03 is proposed to be amended by revising paragraph (b) to read as follows:

§ 15.03 Reporting levels.

* * * * *

(b) The quantities for the purpose of reports filed under parts 17 and 18 of this chapter are as follows:

Commodity	Number of contracts
Agricultural:	
Wheat	100
Corn	150
Oats	60
Soybeans	100
Soybean Oil	200
Soybean Meal	200
Cotton	50
Frozen Concentrated Orange Juice	50
Rough Rice	50
Live Cattle	100
Feeder Cattle	50
Lean Hogs	100
Sugar No. 11	400
Sugar No. 14	100
Cocoa	100
Coffee	50
Natural Resources:	
Copper	100
Gold	200
Silver Bullion	150
Platinum	50
No. 2 Heating Oil	250
Crude Oil, Sweet	350
Unleaded Gasoline	150
Natural Gas	175
Financial:	
Municipal Bond Index	300
3-month (13-seek) U.S. Treasury Bills	150
30-Year U.S. Treasury Bonds	1,000
10-Year U.S. Treasury Notes	1,000
5-Year U.S. Treasury Notes	800
2-Year U.S. Treasury Notes	500
3-Month Eurodollar Time Deposit Rates	1,000
30-Day Fed Funds	300
1-month LIBOR Rates	300
3-month Euroyen	100
Major-Foreign Currencies	400
Other Foreign Currencies	100
U.S. Dollar Index	50
S&P 500 Stock Price Index	1,000
E-Mini S&P Stock Price Index	300
S&P 400 Midcap Stock Index	100
Dow Jones Industrial Average Index	100
New York Stock Exchange Composite Index	50
Amex Major Market Index, Maxi	100
NASDAQ 100 Stock Index	100
Russell 2000 Stock Index	100
Value Line Average Index	50
NIKKEI Stock Index	100
Goldman Sachs Commodity Index	100
Security Futures Products:	
Individual Equity Security	1,000
Narrow-Based Index of Equity Securities	200
TRAKRS	[1] 25,000
All Other Commodities	25

[1] For purposes of part 17, positions in TRAKRS should be reported by rounding down to the nearest 1000 and dividing by 1000.

Issued in Washington, DC this 30th day of July, 2002, by the Commission.

Catherine D. Dixon,

Assistant Secretary of the Commission.

[FR Doc. 02–19608 Filed 8–2–02; 8:45 am]

BILLING CODE 6351–01–M

[5] 47 FR 18618–20 (Apr. 30, 1982).

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1926

[Docket No. H–011G]

RIN No. 1218–AB89

Hearing Conservation Program for Construction Workers

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Advance notice of proposed rulemaking (ANPR); request for information and comment.

SUMMARY: OSHA is considering rulemaking to revise the construction noise standards to include a hearing conservation component for the construction industry that provides a similar level of protection to that afforded to workers in general industry. OSHA is not, at this time, requesting information regarding the appropriateness of the permissible exposure limit (PEL) or exchange rate. This document asks the public to comment on whether specific provisions of OSHA's general industry hearing conservation amendment should be applied to the construction industry or if alternative strategies would be easier to implement and more cost effective.

DATES: Comments must be submitted by the following dates:

Hard Copy: Your comments must be submitted (postmarked or sent) by November 4, 2002.

Facsimile and electronic transmission: Your comments must be sent by November 4, 2002. (Please see the **SUPPLEMENTARY INFORMATION** provided below for additional information on submitting comments.)

ADDRESSES: *Regular mail, express delivery, hand-delivery, and messenger service:* You must submit three copies of your comments and attachments to the OSHA Docket Office, Docket No. H–011G, Room N–2625, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, D.C., 20210. OSHA Docket Office and Department of Labor hours of operation are 8:15 a.m. to 4:45 p.m., EST .

Facsimile: If your comments, including any attachments, are 10 pages or fewer, you may fax them to the OSHA Docket Office at (202) 693–1648. You must include the docket number of this notice, Docket No. H–011G, in your comments.

Electronic: You may submit comments through the Internet at *http://ecomments.osha.gov*.

FOR FURTHER INFORMATION CONTACT: For general information and press inquiries, contact Ms. Bonnie Friedman, OSHA, Office of Information and Consumer Affairs, N–3647,200 Constitution Avenue, NW., Washington, DC 20210; telephone: (202) 693–1999. For technical inquiries, contact Mr. Neil Davis, Directorate for Health Standards Programs, OSHA, N–3718, 200 Constitution Avenue, NW., Washington, DC 20210; telephone: (202) 693–2281. For additional copies of this **Federal Register** document, contact OSHA, Office of Publications, U.S. Department of Labor, Room N–3101, 200 Constitution Avenue, NW, Washington, DC, 20210; telephone (202) 693–1888. Electronic copies of this **Federal Register** document, as well as news releases and other relevant documents, are available at OSHA's web page on the Internet at *http://www.osha.gov*.

SUPPLEMENTARY INFORMATION:

Submission of Comments on This Notice and Internet Access to Comments and Submissions

You may submit comments in response to this notice by (1) hard copy, or (2) FAX transmission (facsimile), or (3) electronically through the OSHA Webpage. Please note that you cannot attach materials, such as studies or journal articles, to electronic comments. If you have additional materials, you must submit three copies of them to the OSHA Docket Office at the address above. The additional materials must clearly identify your electronic comments by name, date, subject and docket number so we can attach them to your comments. Because of security-related problems there may be a significant delay in the receipt of comments by regular mail. Please contact the OSHA Docket Office at (202) 693–2350 for information about security procedures concerning the delivery of materials by express delivery, hand delivery and messenger service.

All comments and submissions will be available for inspection and copying at the OSHA Docket Office at the address above. Comments and submissions posted on OSHA's Webpage are available at *www.osha.gov*. OSHA cautions you about submitting personal information such as social security numbers and birth dates. Contact the OSHA Docket Office at (202) 693–2350 for information about materials not available through the OSHA Webpage and for assistance in using the Webpage to locate docket submissions.

Table of Contents

I. Background
- A. Occupational Noise Exposure Standards in Construction
- B. Occupational Noise Exposure Standard for General Industry
- C. Recommendations of NIOSH and Other Groups
- D. Noise Induced Hearing Loss
- E. Noise Exposure In Construction

II. Request for Information, Data and Comments
- A. Hearing Conservation Program Provisions
- B. Other Hearing Conservation Issues Raised by NIOSH in its Criteria Document
- C. Noise and Safety on the Construction Site
- D. Noise Exposure Control

III. Authority

I. Background

The Federal Government has recognized the hazardous conditions caused by noise on construction projects for many years. OSHA's current noise standard for construction stems from the occupational noise standard originally published in 1969 by the Bureau of Labor Standards under the authority of the Construction Safety Act (40 U.S.C. 333). OSHA adopted the construction noise standard in 1971 (36 FR 7340, 4/27/71) and later recodified it at 29 CFR 1926.52. Another section of the construction standard (29 CFR 1926.101) contains a provision requiring employers to provide hearing protection devices when needed. Both sections 1926.52 and 1926.101 apply to employers engaged in construction and renovation work when high noise levels are present.

A. Occupational Noise Exposure Standards in Construction

Paragraph (a) of section 1926.52 requires protection against the effects of noise exposure when 8-hour time-weighted average sound levels exceed a permissible exposure limit (PEL) of 90 decibels (dBA) measured on the A scale of a sound level meter set at slow response. The exposure level is raised 5 dB for every halving of exposure duration as shown in Table D–2 of the standard.

TABLE D–2.—PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	Sound level DBA slow response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

Paragraph 29 CFR 1926.52(b) states that when employees are subjected to noise doses exceeding those shown in Table D–2, feasible administrative or engineering controls must be used to lower employee noise exposure. If such controls fail to reduce sound to the levels shown in the table, personal protective equipment must be provided and used to reduce noise exposure to within those levels.

Paragraph (c) defines continuous noise as noise levels where the maxima occur at intervals of 1 second or less, and paragraph (d)(1) requires that a ''continuing, effective hearing conservation program'' be administered whenever levels exceed those in the table. However, no details are given about the components of such a program. Paragraph (d)(2) gives instruction on how to calculate an employee's noise exposure when the employee is exposed to two or more periods of noise at different levels, and paragraph (e) states that exposure to impulsive or impact noise should not exceed a peak sound pressure level of 140 dB.

The requirements of 29 CFR 1926.101 are: (a) Hearing protection devices shall be provided and used wherever it is not feasible to reduce the noise exposure (level times duration) to within the Permissible Exposure Limit (PEL) specified in Table D–2 (see above); (b) hearing protection devices inserted in the ear shall be fitted by competent persons; and (c) plain cotton is not an acceptable protective device.

B. Occupational Noise Exposure Standard for General Industry

Workers in general industry are covered by the Agency's Occupational Noise Standard (29 CFR 1910.95), which sets maximum noise exposure levels and certain other requirements that are similar to those found in 29 CFR 1926.52 and 1926.101. However, the general industry noise standard provides more protection for general

industry workers than the construction standards provide for construction workers, due to the provisions of OSHA's 1983 Hearing Conservation Amendment (HCA), which added a requirement for employers to implement a hearing conservation program if employee noise exposures exceed a time-weighted average level (TWA) of 85 dBA over an 8-hour workday, using an exchange rate of 5 dB for each doubling or halving of exposure time. The HCA program (29 CFR 1910.95(c) through (o)) includes, among other things:

- Baseline and annual audiometric testing,
- Monitoring of noise exposure levels,
- Requirements to provide effective hearing protection devices (HPDs),
- Training and education, and
- The maintenance of employee exposure and hearing loss records.

OSHA requests information and data on whether the general industry requirements should be applied to construction work and, if so, how these requirements should be adapted for the construction industry.

C. Recommendations of NIOSH and Other Groups

In 1998, the National Institute for Occupational Safety and Health (NIOSH) published ''Criteria for a Recommended Standard; Occupational Exposure to Noise; Revised Criteria'', in which NIOSH recommended a maximum 8-hour TWA of 85 dBA and a 3-dB exchange rate (Ex. 2–1). NIOSH originally recommended an 8-hour TWA of 85 dBA and a 5-dB exchange rate in 1972. The revised 1998 NIOSH Criteria document also recommends specific requirements that they believe should be included in hearing conservation programs, such as noise exposure assessment; engineering and administrative controls and work practices; hearing protectors; medical surveillance; hazard communication; training; program evaluation; and recordkeeping. Some of the NIOSH recommendations are discussed in later sections along with questions about how an OSHA standard on noise in construction might implement the NIOSH recommendations. The American Conference of Governmental Industrial Hygienists also recommended an 85 dBA 8-hour TWA with a 3 dB exchange rate in 1994. (ACGIH, Threshold Limit Values and Biological Exposure Indices for 1994, Ex. 2–14)

In recent years, several groups have expressed a renewed interest in the issue of hearing loss in construction workers. For example, the Laborers Health and Safety Fund of North America is sponsoring a Construction Noise Control Partnership made up of interested parties from labor, industry, academia, and government to discuss noise and hearing conservation issues. The Laborers Health and Safety Fund has also co-sponsored several conferences to discuss the best practices for preventing hearing loss in the construction industry.

D. Noise Induced Hearing Loss

In the preamble to the HCA, first issued on January 16, 1981 (46 FR 4078), OSHA described the risk of ''material impairment'' of health resulting from a working lifetime of noise exposure based on data developed by three organizations: The International Organization for Standardization (ISO), the U.S. Environmental Protection Agency (EPA), and NIOSH. The risk estimates are presented in Table 1 as reprinted in the 1998 NIOSH criteria document (Ex. 2–1).

TABLE 1.—ESTIMATED EXCESS RISK OF INCURRING MATERIAL HEARING IMPAIRMENT [1] AS A FUNCTION OF AVERAGE DAILY NOISE EXPOSURE OVER A 40-YEAR WORKING LIFETIME [2]

Reporting organization	Average daily noise exposure (dBA)	Excess organization Risk (%) [3]
ISO	90	21
	85	10
	80	0
EPA	90	22
	85	12
	80	5
NIOSH	90	29
	85	15
	80	3

[1] For purposes of comparison in this table, material hearing impairment is defined as an average of the Hearing Threshold Levels (HTLs) for both ears at 500, 1000, and 2000 Hz that exceeds 25 dB.

[2] Adapted from 39 FR 43802.

[3] Percentage with material hearing impairment in an occupational-noise-exposed population after subtracting the percentage who would normally incur such impairment from other causes in an unexposed population, i.e., the percentage of the risk attributable to noise exposure at work.

This table shows that about one in four workers will experience impaired hearing when exposed to average daily noise levels of 90 dBA over a 40-year working lifetime. The risk is lower but still about one in eight workers at 85 dBA over 40-year working lifetime. As a result of this residual risk, OSHA established an ''action level'' of 85 dBA for an 8-hour TWA in its general industry noise standard (even at 80 dBA, EPA and NIOSH report a small risk of hearing impairment). When employees are occupationally exposed at or above the action level, the general industry noise standard requires employers to take certain steps to prevent noise-exposed workers from developing hearing loss. The steps required by the HCA include: Noise exposure monitoring, audiometric testing, the provision of hearing protectors, and recordkeeping.

Noise-induced hearing loss can be a serious disability. Once noise exposure damages the sensory-neural mechanism of the inner ear, the hearing loss is permanent (permanent threshold shift). The likelihood of permanent hearing loss increases with prolonged exposure. Noise-induced hearing loss can cause difficulty in hearing and understanding critical verbal instruction and warning sounds at work. It can also cause problems in hearing and perceiving spoken communication, thus interfering with normal social interaction outside the workplace.

Exposure to other agents can adversely affect the auditory system and may worsen noise-induced hearing loss (Ex. 2–1). These agents include some organic solvents, physical agents, such as whole-body vibration, and gases, such as carbon monoxide. Excessive noise may also accelerate age-related hearing loss in exposed workers, causing more serious auditory impairment than might have otherwise occurred.

E. Noise Exposure In Construction

Many construction jobs, such as concrete work, site excavation, highway construction, and carpentry involve high levels of noise. Major noise sources include heavy equipment, such as loaders, dozers, and cranes, as well as tools like jackhammers and chipping guns. Excessive noise at construction sites not only causes hearing loss, but can create a safety hazard by masking the sounds of oncoming vehicles (Ex. 2–2). Hearing loss and the use of hearing protectors by those with pre-existing hearing loss may further interfere with the workers' ability to hear and perceive the sounds of danger. Although these difficulties occur in many occupational settings, they are a particular problem in construction, where a variety of moving vehicles, back-up alarms, and other signals and activities may occur simultaneously.

There is a large body of literature describing occupational hearing loss from noise exposure (see, e.g., Exs. 2–2, 2–3, 2–4, 2–5, 2–6). OSHA

commissioned several studies during 1997–1999 to provide recent information targeted specifically to the construction population. One, by Alice H. Suter, Ph.D., is entitled ''Construction Noise: Exposure, Effects, and the Potential for Remediation'' (Ex. 2–2). Three by Dale Hattis, Ph.D., of the Center for Technology, Environment, and Development, Clark University, are: ''Preliminary Analysis of OSHA Inspection Data for Noise Exposures in Construction'' (1997) (Ex. 2–3); ''Occupational Noise Sources and Exposures in Construction Industries,'' *Human and Ecological Risk Assessment* 4:1417–1441(1998) (Ex. 2–4); and ''Expected Hearing Loss and Disability from Noise Exposures in Construction'' (co-author, Anna Makri) (1999) (Ex. 2–5). Dr. Suter also wrote a monograph in 1992 on the effects of noise on workers' ability to communicate entitled ''Communication and Job Performance in Noise: A Review,'' *ASHA Monographs* No. 28 (American Speech-Language-Hearing Association, Rockville, Maryland) (Ex. 2–6).

These studies show that as many as 750,000 U.S. construction workers are currently exposed to hazardous noise levels (defined as a time weighted average of 85 dBA or above for 8 hours) on the job and that regular hearing protector use in the construction industry averages only about 15 to 33 percent among these noise-exposed workers (Exs. 2–2, 2–5). Hattis and Makri quantified the extent of hearing loss disability expected to occur among construction workers. Their measure of disability was based on the United Kingdom's ''% disability method'', which expresses the magnitude and duration of hearing loss disability in units of %-disability life-years, where one %-disability life-year is equal to the loss of one percent of overall hearing ability for one year (Ex. 2–5). Among the entire population of 5 million construction workers, Hattis and Makri estimated that between 25 million and 65 million %-disability life-years would accumulate each year taking into account age-related hearing loss, prevailing noise exposures, and current practice with regard to use of hearing protection (Ex. 2–5, pp. 49–52). To place the Hattis and Makri estimates of hearing disability in perspective, assume that the average age of the 750,000 most highly exposed workers is 38 and that workers are employed in the construction industry an average of 13 years (based on 1997 data for British Columbia workers, see Table 21 of Ex. 2–5). Assuming also that the average life span is 75 years, the estimated 25 million to 65 million %-disability life-years that are predicted to accumulate each year among the 750,000 most highly exposed construction workers means that construction workers exposed at or above 85 dB are predicted to lose, on average, between 12 and 30 percent of their hearing over their employment in the construction industry, and that the disability will persist for the remaining 37 years of life.[1] The authors conclude in their summary section that ''it is clear that construction worker noise-induced hearing loss is a significant national problem'' (Ex. 2–5).

Dr. Suter's review of the literature shows that the highest concentrations of workers with potentially hazardous noise exposures occur in highway and street construction, carpentry, and concrete work (Ex. 2–2). According to a 1995 study of Canadian workers by Sinclair and Haflidson, the average noise exposure for workers engaged in various types of construction is 98.8 dB, based on TWA sound levels using the 3-dB exchange rate. The average exposure would be lower if the 5-dB exchange rate were used. Boilermakers and ironworkers are particularly heavily exposed, largely as a result of pneumatic tool use (Ex. 2–7).

OSHA believes that these studies show that many U.S. construction workers suffer hearing loss from noise at their worksites. Other information shows that hearing conservation programs can be effective in reducing occupational hearing loss (Ex. 2–8). Therefore, OSHA is publishing this ANPR to solicit data, comments, and information about initiating rulemaking to revise the construction industry noise standard to include a hearing conservation component that will protect construction workers against further hearing loss.

[1] The derivation of the 13 (it is actually closer to 12) to 30 percent hearing loss for the average worker was calculated as follows. The Hattis and Makri population estimate of 25 million to 65 million % disability life-years accumulated each year was divided by the estimated 750,000 workers currently at and above 85 dBa eight hour TWA. This gives, on average, between 33.3 and 86.6% disability life-years accumulated each year by an individual worker over his entire lifetime. The resulting annualized individual risk is then multiplied by the average 13 years of employment to obtain the aggregate % disability life-years experienced by the typical worker as a result of his total exposure. if the typical worker is 38 years old and has an average life span of 75 years, then the disability life-years is divided by his remaining 37 years of life to obtain the 12 to 30 percent hearing loss estimate.

(a) $(25{,}000{,}000 \times 13) / 750{,}000 \times 37) = 11.7$ percent

(b) $(65{,}000{,}000 \times 13) / (750{,}000 \times 37) = 30.4$ percent

II. Request for Information, Data and Comments

OSHA solicits data and information on the following issues related to the prevention of work-related hearing loss in construction workers. In your response to these questions, please refer to the section and subsection headings (e.g. Section II.A.2.a. Hearing Conservation Program Provisions—Monitoring—Area Monitoring) as well as the specific question being referenced. Also, include relevant data and analyses to support your response.

A. Hearing Conservation Program Provisions

OSHA seeks information on whether and how the provisions of the general industry Hearing Conservation Amendment (paragraphs (c) through (o) of 29 CFR 1910.95) could be applied to the construction industry. Do the general industry requirements need to be altered to reflect the unique characteristics of the construction industry? For example, what methods have construction employers adopted to obtain baseline and periodic audiograms and to keep the records of these tests up-to-date and accessible? What approaches have employers found useful in achieving effective hearing protection device use in this industry? OSHA is particularly interested in receiving information on the results of hearing loss prevention program evaluations in the construction industry. The following paragraphs raise specific questions about selected provisions of the Hearing Conservation Amendment and their potential applicability in the construction environment.

1. Methods of Compliance

In paragraphs (c) and (d) of the general industry noise standard (29 CFR 1910.95), OSHA requires the employer to conduct an initial noise evaluation when exposure is expected to exceed 85 dBA. If this requirement was applied in a construction setting, a new evaluation might be required for each new construction site. Alternatively, in the asbestos standard (29 CFR 1926.1101(e)) and lead standard (29 CFR 1926.62(d)(2)) for construction activities, OSHA adopted a different approach of identifying tasks that are presumed to have high exposures and workers engaged in these tasks are protected by a combination of engineering and administrative controls supplemented by the use of personal protective equipment. Which approach is more appropriate to evaluate and control noise exposures in construction?

Please provide noise data from construction sites to support your position. If a certain set of procedures or tasks were identified by OSHA as having presumed significant noise exposure, which are the best criteria to use: Equipment type, task type, or job title by type of construction and phase of work? OSHA also believes that the time of tool use or time spent at a task is an essential or required element in any exposure calculation. Please provide your experience and data regarding the relative efficacy of the above criteria.

The British Columbia regulation requires employers to implement a written program that includes noise measurement, education and training, engineered noise control, hearing protection, posting of noise hazard areas, hearing tests, and annual program review (Ex. 2–9). The British Columbia program presumes that employees in specific construction occupations are routinely exposed to noise in excess of the exposure limits. These occupations are carpenters, plumber pipefitters, sprinkler installers, mobile equipment operators, steel erectors, welders/fabricators, sandblasters, drillers, electricians, concrete workers operating concrete pumps, vibrators, jack hammers or powered finishing equipment, and drywallers shooting track or boarding (Ex. 2–10). Are the trades identified in British Columbia as highly exposed, and therefore presumptively covered under the HCP, reasonable and comparable to United States conditions? Are there other occupations that should be presumed to be noisy enough to be a part of a hearing conservation program?

Investigators at the University of Washington are also conducting a series of studies on Washington state construction apprentices and journeymen. These study populations include bricklayers, carpenters, operating engineers, ironworkers, electricians, insulation workers, sheet metal workers, laborers and cement masons. (Ex. 2–12, 2–13) These studies will provide additional noise-related risk data on a current U.S. construction population. Are there any other investigations on the effects of hearing conservation programs in other populations of U.S. construction workers? If so, please provide study descriptions and data.

2. Monitoring

Paragraph (d)(1)(i) of the general industry noise standard (29 CFR 1910.95) addresses noise exposure monitoring. It requires monitoring when information indicates that any employee's exposure may equal or exceed an 8-hour TWA of 85 dBA. Employers may design their own sampling strategy so long as employees above this action level are included in the program. How much noise monitoring is currently being done at construction sites?

Many construction firms are small; approximately 85 percent of the firms employing 50 percent of the construction workforce have less than 20 employees. (U.S. Census Bureau, County Business Patterns, 1997) Should OSHA provide specific sampling strategies for the construction industry? Should these strategies be mandatory or recommended? When is exposure monitoring appropriate in the construction industry? What criteria should trigger noise exposure monitoring?

a. Area Monitoring

Paragraph (d)(1)(ii) of the general industry noise standard (29 CFR 1910.95) permits employers to use area monitoring under certain circumstances, but where conditions such as high worker mobility, significant variations in sound level, or a significant component of impulse noise makes area monitoring inappropriate, representative personal sampling must be performed. These latter conditions characterize most construction sites. Are there any circumstances in the construction industry where area monitoring would be appropriate?

b. Continuous, Intermittent and Impulsive Sound

Paragraph (d)(2)(i) of the general industry noise standard (29 CFR 1910.95) requires that all continuous, intermittent and impulsive sound levels from 80 dB to 130 dB be integrated into the measurement of noise exposure. The range of 80 to130 dB as opposed to a range of 80 to 140 dB reflected the technological limitations of sound level meters and dosimeters at the time of the standard's promulgation. OSHA, in the preamble of the 1981 rulemaking, stated the intent to increase the upper limit to 140 dB, as improved dosimeters became readily available (46 FR 4135, 1/16/81). OSHA believes that most, if not all, of today's dosimeters and integrating sound level meters are capable of dynamic ranges from 80 dB to 140 dB. The NIOSH revised noise criteria (Ex. 2–1) and the ACGIH TLV for noise (Ex. 2–11) recommend the inclusion of all continuous, intermittent, and impulsive noise from 80 to 140 DBA in the calculation of employee exposure or dose. OSHA seeks information on the characterization of construction workers' exposures to impulse or impact noise, particularly in the range of 130–140 dB. Is the integration of all noise levels between 80 dBA and 140 dB the appropriate criteria for calculating construction workers' noise dose? Please support your answer. What are the additional costs associated with this requirement and how can they be minimized? Is 140 dB the appropriate ceiling level for impulse noise?

c. Repeat Noise Monitoring

Paragraph (d)(3) of the general industry noise standard (29 CFR 1910.95) requires that monitoring be repeated whenever a change in production, process, equipment or control increases noise exposures to the extent that additional employees may be exposed at or above the action level, or the attenuation provided by hearing protectors may be rendered inadequate. OSHA is seeking information on whether it would be practical to apply such a requirement in the construction environment. Would employers know when to repeat noise exposure monitoring? Should there be a more specific requirement, such as the NIOSH recommendation for remonitoring every 2 years or if workers are developing significant threshold shifts (STSs)(Ex. 2–1)? Would such a requirement be useful, feasible, or effective in the construction industry? Are there any alternative monitoring schemes that would be easier for construction employers to follow that would obtain the same objective?

d. Secondary Sources of Noise Exposure

The construction noise literature and field observations indicate that there are multiple sources of significant noise exposure during many phases of different types of construction projects (Ex 2–12). Many times the primary sources of exposure are tools or equipment being used by co-workers nearby (jackhammer) or by another craft working nearby (e.g. welder's compressor affecting electricians). Are there other methods, besides direct employee noise monitoring on a site-by-site basis that would characterize elevated noise exposure to other or co-workers who are not using tools or equipment generating loud noise? Please provide data showing the prevalence of noise exposures near or exceeding 85 dBA (1) to coworkers or helpers doing a supporting task, or (2) to other trades receiving secondary exposures they did not create. Also provide, if available, information on the trades, type of construction, tasks, tools or equipment used, and the range of exposure levels and distances from

noise source. Has any exposure or prediction modeling been done in this area? How can information concerning expected or measured secondary exposure be incorporated into training requirements, hazard warnings and the general phasing of work in different types of construction?

3. Employee Notification

Paragraph (e) of the general industry noise standard requires that employers notify each employee exposed at or above an 8-hour TWA of 85 dBA of the results of the employee's noise monitoring. No time limit is given for this notification. Is a similar notification requirement appropriate for the construction industry? Should employers be required to notify construction workers within a certain period, such as 1, 5, 10 or 15 days, of the results of noise exposure monitoring?

4. Audiometric Testing Program

Paragraph (g) of the general industry noise standard requires employers to make audiometric testing available, at no cost, to all employees who are exposed at or above the action level of 85 dBA. Is a similar requirement appropriate and feasible for the construction industry? How can this service be delivered in a cost-effective way to a mobile workforce of predominantly small employers? In general industry the trigger for audiometric testing is an employee exposure at or above 85 dBA. Are there alternative triggers that might be more appropriate or less burdensome to initiate audiometric testing in the construction industry? For example, should OSHA require audiometric testing for those in specified construction trades? Does OSHA need more precise provisions in terms of audiometric procedures, equipment, and sound booth requirements so as to reduce the variability between audiograms or has this variability been anticipated in the general industry hearing conservation standard? Please specify and support recommended alternatives, if any.

a. Baseline Audiograms

Paragraph (g)(5) of the general industry noise standard calls for a baseline audiogram to be performed within 6 months of an employee's first exposure at or above the action level unless the audiometric provider uses a mobile van, in which case the waiting period may be up to a year. Because of the mobility of many construction workers from employer to employer, these provisions, if adopted, would result in some construction workers not receiving baseline audiograms even after many years of noise exposure. OSHA seeks information on the best way to ensure that construction workers are given a baseline audiogram prior to exposure to harmful levels of noise. Should the maximum waiting period for baseline audiograms be shorter or longer than 6 months? For example, NIOSH recommends an audiogram within 30 days after hire. What length of time with a given employer should trigger the requirement to provide an audiometric test? Should the trigger for audiometric testing be by exposure level, type of construction, job process, job title or equipment type or should there be multiple triggers? Alternatively, should baseline audiograms be considered for all workers entering construction employment?

Paragraph (g)(5)(ii) of the general industry noise standard requires workers whose exposures equal or exceed the action level to use hearing protectors until a baseline audiogram is completed, if the employer is using the one-year period allowed when mobile test vans are used. Should a construction worker be allowed to have exposures above the action level but less than the PEL without hearing protectors for any amount of time before the baseline audiogram is obtained? Should the use of hearing protectors in this circumstance be advisory rather than mandatory if exposures are between the action level and the PEL?

Paragraph (g)(5)(iii) of the general industry noise standard requires that a baseline test be preceded by at least 14 hours without exposure to workplace noise. Should this requirement be extended to the construction industry?

b. Annual Testing

Paragraph (g)(6) of the general industry noise standard requires that employers obtain audiograms at least annually for employees exposed at or above the action level. The NIOSH Criteria Document (Ex. 2–1) contains a similar recommendation. OSHA is requesting information on the feasibility and desirability of annual audiograms for construction workers. Should the frequency of audiometric testing vary by the type of work and the degree of anticipated exposures? For example, should audiograms be required every six months for workers with exposures that are consistently above 100 dBA? Should audiograms be less frequent for workers whose measured or expected exposures are between 85 and 90 dBA? Is there a way to make sure that construction workers who move from one site to another during the year are identified and given annual audiometric tests?

c. Retest Audiograms

Paragraph (g)(7)(ii) of the general industry noise standard gives employers the option to retest an employee within 30 days if an STS has occurred and to consider the retest as the annual audiogram. Considering the high mobility of the construction workforce and NIOSH's recommendation for immediate retesting (Ex 2–1, pp 49–50), should there be a requirement for an immediate retest if an STS has occurred? Is a confirmatory retest within 30 days desirable or feasible for construction workers? Should there be a requirement or recommendation that the retest be preceded by 14 hours without exposure to workplace noise and should hearing protectors be allowed to substitute for this pre-test ''quiet''?

d. Follow-up Procedures for Audiograms Showing Hearing Loss

Paragraph (g)(8)(ii) of the general industry noise standard details follow-up procedures triggered by an STS unless a physician determines that the STS is neither work related nor aggravated by occupational noise exposure. These procedures include: (A) Fitting with hearing protectors and training in their use and care; (B) refitting and retraining for those already wearing hearing protectors; (C) referral for a clinical audiological or otological examination if additional testing is necessary or if an ear pathology (medical problem) is determined to be related to the wearing of hearing protectors; and (D) informing the worker of a need for an otological exam if an ear pathology is deemed unrelated to the use of hearing protectors.

OSHA is seeking comments and information on whether there are follow-up actions that should be taken even when an STS has not occurred, and specifically on the provisions of paragraph (g)(8)(ii)(C) of 1910.95, which require referral in cases where additional testing is necessary to obtain a valid audiogram or a medical problem is related to the wearing of hearing protectors, and paragraph (g)(8)(ii)(D) of 1910.95, informing the worker of a need for an otological exam regardless of whether the problem is related to the use of hearing protectors. Are there other circumstances where follow-up actions should be either required or recommended for construction workers, such as counseling in the event of an STS or pathology of the ear?

5. Hearing Protectors

The studies by Suter (Ex. 2–2) and Hattis and Makri (Ex. 2–5) report that currently available data (1998) on the use of hearing protectors among U.S. construction workers show that, at best, hearing protector use among workers routinely exposed to high noise levels is about 33%, with a range from 1% to 50% for workers in different trades. These authors note that this figure is likely to be an overestimate. This was an apparent improvement from the NIOSH NOES survey, 1981–1983, where the overall average use was 15% for workers exposed to 85 dBA or greater (Ex. 2–2). Are other data available on current hearing protector use in the U.S. construction industry? If yes, please provide such data or indicate where they may be obtained.

Dr. Suter's studies point out that construction workers need to hear warning signals and to communicate in noisy backgrounds (Exs. 2–2, 2–6). Operators of heavy mobile equipment and other workers who need to communicate with them need to be able to maintain effective two-way or multi-way communication while protecting their hearing. It is also essential for all construction workers to be able to hear and identify the location of warning signals, backup alarms, and spoken or shouted communication (localization). Workers who have already incurred hearing impairments and who must wear hearing protectors will experience difficulty hearing in those situations. The use of hearing protectors and the need for communication and identifying the location of co-workers complicate efforts to prevent noise-induced hearing loss. OSHA solicits information from employers, employees, and safety and health professionals on their experience with regard to the ability to communicate or other risks that may be incurred while wearing hearing protectors. This includes information on the effectiveness of traditional hearing protectors and particularly on the effectiveness of newer devices (both plugs and muffs) with uniform attenuation, active attenuators, and communication systems developed, at least in part, to address these problems.

a. When Should Hearing Protectors Be Required?

Paragraphs (i)(1) and (2) of the general industry noise standard require that hearing protectors be made available to all employees exposed at or above the action level of 85 dBA, but do not require workers to wear these devices until their exposures exceed the PEL or the worker has experienced a work-related STS. Should the requirement be contingent upon incurring an STS or waiting for a baseline audiogram, as in the general industry noise standard? Is there an increased hazard for these workers that is caused by the inability to hear warning signals at moderate noise levels, such as 80–85 dBA, when wearing hearing protectors?

Paragraph (b)(1) of OSHA's general industry noise standard requires that employers use feasible engineering or administrative controls whenever employees are exposed above the 90 dBA PEL. Whenever these controls fail to reduce sound levels to or below the PEL, employers must issue hearing protectors to employees and employees are required to use these devices. Similar requirements are found in 29 CFR 1926.52 and 1926.101 covering the construction industry. Whether workers must wear their hearing protectors for the entire workshift or only when noise levels exceed 90 dBA is not addressed. OSHA is aware of the potential safety hazard of overprotection during periods of relative quiet or even moderate noise levels.

The Agency is requesting information on the use of hearing protectors in varying noise environments, especially in the intermittent noise environments that characterize many construction exposures. Should construction workers be required to wear hearing protectors only in noise levels that exceed the PEL of 90 dBA, an action level of 85 dBA, or should they be required to wear hearing protectors in all noise environments where exposures are expected to exceed a certain TWA? If the requirement is only for levels above the action level, how would workers know when to put on their hearing protectors?

b. Selection of Hearing Protectors

Paragraph (i)(3) of the general industry noise standard states that employees must be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer. This requirement has been interpreted to mean that at least one variety of plug and one variety of muff must be available (Ex. 2–14). Is a choice between two protectors sufficiently protective where noise exposure is often intermittent and communication may be of particular importance? The Agency solicits information on the appropriate type and number of hearing protectors which should be offered to construction workers.

c. Hearing Protector Attenuation

The general industry noise standard's paragraph (j)(1) requires employers to use one of the evaluation methods described in Appendix B, ''Methods for Estimating the Adequacy of Hearing Protection Attenuation'' to evaluate the amount of protection the hearing protector is likely to provide under workplace conditions. The vast majority of employers and hearing conservation professionals use the Noise Reduction Rating (NRR), which, according to an EPA regulation, must be printed on the hearing protector package. The NRR represents the noise reduction potential of the protector under laboratory conditions. There are, however, large differences between the hearing protector attenuation measured in the laboratory and that found in actual field use. Therefore, it is current OSHA policy to adjust the NRR when the use of hearing protectors is, under certain circumstances, permitted in lieu of engineering noise controls. Appendix B of the general industry noise standard calls for an additional reduction in the estimated attenuation of 7 dB when the average C-weighted noise level in the worker's environment is not known. In addition, the OSHA Technical Manual (Section III, Chapter 5) and OSHA's Enforcement Directive for Noise Enforcement (CPL 2–2.35A) use a safety factor of 50%, which is applied by further dividing the NRR by 2. Thus an earplug with an NRR of 28 dB would be considered to have useful attenuation of only 10.5 dB when the NRR is subtracted from the average A-weighted noise level in the worker's environment ($28 - 7 = 21 \div 2 = 10.5$).

NIOSH (Ex. 2–1) recommends de-rating (subtracting values from) the NRR, but conditions the amount of de-rating upon the type of hearing protector: 25% for earmuffs, 50% for slow-recovery foam earplugs, and 70% for all other plugs and semi-inserts. NIOSH further recommends that once manufacturers test and label their products using the new ''subject-fit'' method incorporated in ANSI S12.6–1997, the subject-fit noise reduction rating (NRR(SF)) should be used.

Should OSHA continue to recommend the use of the NRR for estimating the attenuation provided by hearing protectors for construction workers? Should a standard for construction recommend or require a 50% de-rating to account for the difference between laboratory and field performance? Should OSHA continue to require the 7-dB subtraction for spectral uncertainty? Should OSHA adopt the NIOSH device-dependent de-rating

formula discussed above? Should OSHA allow or recommend the NRR(SF) or a similar rating based on subject fit data as an alternative to the NRR?

6. Training Program

Paragraph (k) of the general industry noise standard contains requirements for training programs, which must be repeated annually for each employee in the hearing conservation program. These programs must include: Information on the effects of noise on hearing; the type of task or equipment that can cause loud noise and maximum usage time without hearing protection, the purpose of hearing protectors; the advantages, disadvantages, and attenuation of various types of hearing protectors; instructions on selection, fitting, use, and care of hearing protectors; and the purpose of audiometric test procedures. Are these training requirements appropriate for the construction industry? In general industry the trigger for training is an employee exposure at or above 85 dBA. Are there alternative triggers that might be more appropriate and less burdensome in the construction industry?

OSHA is aware that some hearing conservation training programs in general industry use written materials or videos without face-to-face training. The Agency seeks information on the success of such programs. Is there a need for face-to-face training in the construction industry? Why? Also, are there exemplary training programs that are construction or trade specific that should be brought to OSHA's attention? Briefly describe these programs.

7. Recordkeeping

Most construction work is characterized by relatively short job tenures with a given employer (median of 3 to 5 years), temporary or seasonal employment, and employment in very small firms. These features may make periodic audiometric testing and recordkeeping more difficult than in the general industry environment. OSHA is aware of two possible approaches to this logistical problem in construction: (1) Centralized (possibly web based) recordkeeping systems and (2) portable smart cards carried by workers (currently being used in British Columbia). Workers could also take their records manually from one employer to the next. This might work for employment of one or two years, but would be cumbersome and inefficient over a working lifetime. OSHA seeks information on successful approaches for maintaining and transferring medical records used in the construction industry, whether maintained by the company, state, union, trade association, or other groups. What problems have surfaced in these efforts? What costs are incurred and how are the delivery of services structured between the involved parties? In any shared record system, how is the privacy of the employee's medical data protected? For what duration should employers be required to retain records?

B. Other Hearing Conservation Issues Raised by NIOSH in its Criteria Document

Most of the issues raised by NIOSH in their 1998 criteria for a recommended noise standard have been discussed throughout this document. However, NIOSH made additional recommendations, three of which are discussed below.

1. Hazard Communication

a. Warning Signs

The general industry noise standard does not contain a provision for warning signs and regulated areas, although the NIOSH criteria document recommends a requirement stating that warning signs shall be clearly visible at the entrance to or at the periphery of areas where noise exposures routinely equal or exceed a TWA of 85 dBA (Ex. 2–1). Should a hearing conservation rule for construction have such a requirement? If so, should the requirement be for areas where noise levels or noise exposures (TWAs) equal or exceed a certain level? How should these areas be selected? Should OSHA give specific guidance on how to post these areas? Could the posting of warning signs serve as an alternative to noise monitoring under the assumption that the assigned site or project is above the hearing conservation action level?

b. Noise Labeling of Equipment and Tools

Another form of hazard communication is the labeling of equipment for noise levels at a set distance. Suter's report describes a program for labeling products used in construction that has been adopted by the European Economic Community (Ex. 2–2). The European construction noise directive requires manufacturers to display labels showing either the sound power level or sound pressure level at the operator's position. Suter points out that in the United States an ANSI standard is being developed for the purpose of labeling machinery and equipment. OSHA requests data and information, including the outcomes, of any noise labeling programs in the U.S. or abroad, as well as information about the progress of the ANSI working group, S12 WG38. Have employers used noise labels on equipment or tools to communicate risk of hearing loss?

2. Program Evaluation Criteria

The general industry noise standard does not include criteria for evaluating the effectiveness of hearing conservation programs. However, the NIOSH criteria document does contain a section on this topic and there is a draft ANSI standard, S12.13–1991 (currently in the process of revision), that addresses the evaluation of audiometric testing programs. NIOSH recommends a two-step process: (1) The evaluation of an individual worker's hearing loss prevention program at the time of the annual audiometric test, and (2) Annual evaluation on a programmatic level.

OSHA seeks information on methods to evaluate the success of hearing conservation programs in construction. If the occurrence of an STS is used as the measure of hearing loss, what rates of STSs are seen in effective programs, i.e., when does an employer know that the program is working? What other benchmarks can be used to evaluate a successful program in construction? OSHA also seeks information on the advisability of using the provisions of the draft ANSI standard, S12.13, for evaluating the effectiveness of hearing conservation programs through the examination of audiometric data. Is this method practical and does it produce useful results? Is there a simple self-evaluation tool that can be used by small employers?

3. ANSI Standards

NIOSH also recommended that any new hearing conservation requirements should incorporate the current ANSI standards intended to improve performance and calibration criteria for audiometric testing, audiometric booths and vans, dosimeters, and sound level instruments. Table 2 below briefly summarizes the relevant ANSI standards. Should OSHA adopt the most recent ANSI standards? Please provide data and documentation supporting your position. Are any of these ANSI standards not applicable to the construction industry?

TABLE 2.—ANSI STANDARDS RELEVANT TO AUDIOMETRIC TESTING

Equipment type or activity	Current ANSI standards	Select requirement changes
Audiometers	ANSI S3.6–1996	Tighter tolerances and criteria, multiple changes.
Audiometric test booths and vans	ANSI S3.1–1999	Less background noise permitted.
Noise Calibration, Calibrators	ANSI S1.40–1984	Tighter tolerances possible.
Integrating/Average Sound Level Meters	ANSI S1.43–1997	Broader performance range, 80–140 dB, TWA measures steady intermittent and impulsive sounds.
Noise Dosimeters	ANSI S1.25–1991	Same as above, 80–140 Db.

C. Noise and Safety on the Construction Site

Suter's work discusses the possible link between noise, hearing loss, and the occurrence of accidents in the construction industry, as well as studies of this problem in other industries (ship building, general industry) (Exs. 2–2; 2–6). OSHA seeks information and data on construction worker accidents associated with or caused by excessive construction project noise or noise-induced hearing loss, including individual accident investigation reports, and research results. The Agency also seeks information on the availability of warning signals, such as reverse alarms on heavy vehicles that are specially designed to be audible in the noise environments typical of construction sites or by workers with noise-induced hearing loss. Are there alternatives to reverse alarms (visual as well as acoustical) that have proven to be effective?

D. Noise Exposure Control

While OSHA is not considering changes to its requirements for controlling workplace noise levels at this time, the Agency is interested in obtaining information concerning the methods employers have used to successfully control or reduce noise levels on construction projects. This data may be used for several purposes, including:

- Identifying and establishing best practices
- Updating OSHA and NIOSH training materials
- Identifying effective engineering and administrative controls

1. Engineering and Administrative Controls

In construction, as in general industry, the preferred methods of abating the noise hazard are the use of engineering and administrative controls. OSHA solicits noise exposure data and noise abatement information from the manufacturers of equipment and tools used in the construction industry that emit high levels of noise and thus expose the operators and those working nearby to potentially hazardous noise levels. The Agency is particularly interested in noise exposure and noise abatement information on two major sources of construction noise: (1) Heavy equipment, such as loaders, dozers, asphalt spreaders, power shovels, crawler and other kinds of cranes, and (2) graders, and pneumatic tools, such as jackhammers and chipping guns.

What are the noise exposures of operators of heavy equipment and those who work nearby? What progress has been made over the last two decades to control the noise of heavy construction equipment? Are quieter tools powered by means other than pneumatic power available for the kinds of construction jobs traditionally done by pneumatic tools? Are these tools as efficient and cost-effective as the pneumatic versions? Please provide data on the availability of quieter equipment and tools, price quotes, productivity information, and any other data that would be helpful in determining the relative cost-effectiveness of purchasing quieter equipment. What types of engineering and administrative controls have proved most effective? How have these controls affected operations on construction sites?

2. Machine Design, Retrofit, and Substitutions

OSHA seeks information on quieter tools, equipment, or processes for the construction industry that have been developed either in the U.S. or abroad that could be substituted for existing noisy tools, equipment, and processes. The Agency also requests information from equipment manufacturers, noise control engineers, and others involved in the purchase, use, or modification of equipment or parts of equipment used in construction on those features of machine design and retrofit (including installation of mufflers, power rating of the engine, presence of enclosed, sound-insulated cabs) affecting the noise exposure of workers operating the equipment or working in the vicinity of such equipment. Please provide specific information on the types and noise emission levels (both sound power and sound pressure levels, if available), as well as information on the cost-effectiveness of various types of ''quiet'' construction equipment now being marketed and used in the construction industry. In commercial, road and bridge and residential construction, control of which types of equipment would have the greatest impact in reducing the number of people exposed and the intensity of exposure? Has any study or modeling been done in this area?

3. Administrative Controls

Administrative controls include changes in the work schedule or the provision of quiet areas to allow workers to recover from TTS. To what degree are administrative controls feasible or desirable in the construction industry? What administrative controls are used for noise control in the construction industry? How are such controls implemented? What are the costs? Are there any data on the effectiveness of administrative controls in the construction industry? Do certain construction operations preclude the use of administrative controls? If so, which are they, and why do they make the use of such controls difficult or impossible?

III. Authority

This document was prepared under the direction of John L. Henshaw, Assistant Secretary for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210. It is issued pursuant to sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); section 107 of the Construction Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Secretary of Labor's Order No. 3–2000 6–96 (65 FR 50017); and 29 CFR Part 1911.

Signed at Washington, DC, July 31, 2002.

John L. Henshaw,

Assistant Secretary of Labor.

[FR Doc. 02–19691 Filed 8–2–02; 8:45 am]

BILLING CODE 4510–26–P