NIOSH Comments to DOL

COMMENTS OF THE
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
ON THE
MINE SAFETY AND HEALTH ADMINISTRATION
ADVANCE NOTICE OF PROPOSED RULEMAKING ON
HAZARD COMMUNICATION

30 CFR Ch.1

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

July 30, 1988

GENERAL APPROACH

The scope of activities covered by the proposed hazard communication standard of the Mine Safety and Health Administration (MSHA) is more limited than the scope of activities covered by the Occupational Safety and Health Administration (OSHA) standard on hazard communication. There are three distinct categories of operations within the MSHA jurisdiction (underground mines, surface mines, and other facilities) that might appropriately call for special regulatory treatment.

The hazards of underground mining are significantly different than those of surface mining. In some Districts, MSHA already has policies implemented for some coal mines and other related facilities concerning the use of hazardous materials and substances underground, which are effective and appropriate for these operations. Any proposed standard should incorporate these existing policies into the regulation.

An MSHA hazard communication rule should also incorporate and extend to all underground mining operations, all current enforceable MSHA regulations that are more stringent than the requirements in the OSHA rules proposed for adoption. Specifically, a partial list of those rules are:

Suitable Protective Footwear [30 CFR 56.15-3, 57.15-3, 75.1720(e), 77.1710(e)]

Eye Protection [30 CFR 56.15-4, 57.15-4, 75.1720(a), 77.1710(a)]

Personal Protective Clothing [30 CFR 56.15-6, 57.15-6, 75.1720 (b)(c), 77.1710(b)(c)]

Material Storage to Minimize Accidental Liberation [30 CFR 56.16-3, 57.16-3, 77.208(b)]

Material Storage in Approved Containers Appropriately Labeled [30 CFR 56.16-3, 57.16-4, 77.208(c)]

Storage of Substances that React Violently or Liberate Dangerous Fumes When Mixed [30 CFR 56.16-12, 57.16-12]

Barricades with Warning Signs Noting Hazard and Required Protective Action at All Accesses to Non-IDLH Areas [30 CFR 56.20011, 57.20011]

Labeling of Toxic Materials Used in Conjunction With or Discarded From Mining or Milling Operations [30 CFR 56.20012, 57.20012]

Prohibition of Food or Beverages in Toxic Material Areas [30 CFR 56.20014, 57.20014]

Annual Refresher Training in Health Measurements, Health Control Plans and Warning Labels [30 CFR 48.8(b)(11), 48.28(b)(8)]

For industries which include mines as well as OSHA regulated properties, how should the MSHA standard avoid duplication?

MSHA should implement a standard for mining operations that is substantially similar to the OSHA hazard communication regulation. With this approach, materials obtained or prepared under the OSHA program would be accepted as equivalent to MSHA regulations, with allowance for modification by MSHA in specific instances. Mining products would be similarly and appropriately identified for use in general industry.

Should mine operators assess hazards associated with mine products, develop labels, material safety data sheets (MSDS), and forward such information to users of mining property?

This would seem a prudent approach. Mine products should be identified for their hazardous materials content and elemental composition or mineralogical content as well as substances added by the mine operator. The evaluations should be subject to a joint review by MSHA and NIOSH. MSHA and NIOSH should have the authority to require modification of an evaluation's findings, when the findings do not adequately communicate the associated hazards.

How should independent contractors be regulated under an MSHA standard?

The logic for regulating independent contractors in the OSHA regulation is equally applicable to mining. The employees of contractors must be informed of potential hazards from the mining operation or from other contractors, and the mining employees must be informed of any potential hazards introduced into the workplace by contractors.

How should the MSHA standard provide for special needs of small mine operators?

MSHA could assist small mine operators by providing a model Hazard Communication Program (HCP) as an appendix to the standard. Such an appendix could provide detailed information, allowing small mine operators the option of using the model program instead of incurring sizeable costs to develop their own HCP. This model program should be an option available to all mining operations, regardless of their size.

HAZARD DETERMINATION

How should MSHA assist mine operators in evaluating materials produced in a mine or imported by the operator to determine if they are hazardous?

There are three aspects to this problem.

1) MSHA should assist mine operators in arriving at appropriate determinations in evaluating the toxicity of materials produced in mines. MSHA should maintain a review authority over determinations of toxicity and the information placed upon MSDS. NIOSH experience indicates that some manufacturers, subject to the OSHA hazard communication standard, have published MSDSs that are less than fully informative.

2) Products brought into the U.S. from foreign countries may be covered by international agreements on hazardous materials. Some quantification of the magnitude of the use of imported products of unknown toxicity should be made in order to justify any special treatment.

3) The degree of hazard for products brought onto the mine property must be assessed under the conditions of actual use in the mining environment.

Mining presents many unique hazards. For example, the ventilation systems in underground mines expose not only personnel at the initial point of use or application, but also all personnel working or present downwind in a particular airway. The length of an airway, the air quantity, and air quality in an airway generate a need for separate hazard/risk evaluations at each exposure site. The hazard evaluations made with respect to general industry are not generally appropriate for mining.

NIOSH is particularly concerned about the potential hazards of many common industrial materials when they are used in an underground mining environment. Cadmium fumes can be fatal at a concentration of 50 mg/m^3 (Barrett and Card, 1947); a teaspoon of cadmium, approximately 2 grams, could generate fatal concentrations in 40 cubic meters or 1400 cubic feet of air. Arsine, benzyl chloride, acrylamide, hexachloronapthalene and mercury could result in atmospheric concentrations immediately dangerous to life and health at even lower levels than cadmium (Barrett and Card, 1947). Bromine, which is a constituent in some fire extinguishing fluids, is dangerous at concentrations of 10 ppm (Attachment 1). Materials that are relatively innocuous in well ventilated surface operations can become potentially lethal when used in a low-ventilation area of an underground mine.

NIOSH further suggests that the Department of Labor's reliance on any specific nongovernmental entity, such as the mine operator, for hazard

HAZARD DETERMINATION

How should MSHA assist mine operators in evaluating materials produced in a mine or imported by the operator to determine if they are hazardous?

There are three aspects to this problem.

1) MSHA should assist mine operators in arriving at appropriate determinations in evaluating the toxicity of materials produced in mines. MSHA should maintain a review authority over determinations of toxicity and the information placed upon MSDS. NIOSH experience indicates that some manufacturers, subject to the OSHA hazard communication standard, have published MSDSs that are less than fully informative.

2) Products brought into the U.S. from foreign countries may be covered by international agreements on hazardous materials. Some quantification of the magnitude of the use of imported products of unknown toxicity should be made in order to justify any special treatment.

3) The degree of hazard for products brought onto the mine property must be assessed under the conditions of actual use in the mining environment.

Mining presents many unique hazards. For example, the ventilation systems in underground mines expose not only personnel at the initial point of use or application, by also all personnel working or present downwind in that particular airway. The length, air quantity, and air quality in these airways generate a need for separate hazard/risk evaluations at each exposure site. The hazard evaluations made with respect to general industry are not generally appropriate for mining.

NIOSH is particularly concerned about the potential hazards of many common industrial materials when they are used in an underground mining environment. Cadmium fumes can be fatal at a concentration of 50 mg/m^3 (Barrett and Card, 1947); a teaspoon of cadmium, approximately 2 grams, could generate fatal concentrations in 40 cubic meters or 1400 cubic feet of air. Arsine, benzyl chloride, acrylamide, hexachloronapthalene and mercury could result in atmospheric concentrations immediately dangerous to life and health at even lower levels than cadmium [Barrett and Card, 1947]. Bromine, which is a constituent in some fire extinguishing fluids, is dangerous at concentrations of 10 ppm (Attachment 1). Materials that are relatively innocuous in well ventilated surface operations can become potentially lethal when used in a low-ventilation area of an underground mine.

NIOSH further suggests that the Department of Labor's reliance on any specific nongovernmental entity, such as the mine operator, for hazard

determination and hazard evaluation is not appropriate unless such determinations and evaluations are subject to review and modification by MSHA and NIOSH.

Are there some situations where exposure to a hazardous chemical may be remote, and therefore not trigger the requirements of the complete standard? Would both a hazard evaluation and MSDS be needed in such situations?

MSHA should require complete adherence to the promulgated standard for all hazardous chemicals and physical agents found on the property, regardless of the likelihood of exposure.

There are some categories of materials and physical agents that are regulated in separate OSHA standards but are not covered by the OSHA hazard communication standard. MSHA does not have separate standards covering some classes of hazards--for example, hazardous waste--and should consider extending the coverage of its standard to include these. As an example of such a problem area, surveyors of the National Occupational Health Survey - Mining (NOHSM) have observed waste oil and solvents being used routinely as fuel for kilns. The surveyors have observed workers openly inquiring as to the composition and likely health effects of the substances.

Experience from NOHSM indicates that operators may very well be inclined to dispose of seldom-used substances rather than include them in the program. If a hazardous substance cannot be removed (as in the case of an ore constituent) or is voluntarily allowed to remain on the property, it should be covered by the hazard communication program. MSHA should provide information and direction to mine operators regarding the proper methods for disposing of substances found in the mine.

WRITTEN HAZARD COMMUNICATION PROGRAM

The purpose of a hazard communication program is to educate workers to potential hazardous conditions in their workplace. It is important to note that MSHA already requires an extensive training program for all miners. The most effective vehicle for communicating hazards to miners is the existing training program. There is considerable benefit to be derived from tailoring a communication program to the specific needs of miners and utilizing the present MSHA training regulations as the vehicle to present this information. The written hazard communication program also should include training of the miners on the physical agents and safety hazards of the mining operation, particularly those associated with noise, radiation, hot environments, roof falls, and haulage equipment.

Should an MSHA standard require any different elements in a written hazard communication program?

OSHA 1910.1200(e) is appropriate to mining operations, but should be expanded to include not only hazardous chemicals, but physical agents, and safety hazards. Mine operators should include provisions to address hazards associated with the material being mined or processed, as well as the substances used or created during mining and processing. This would include the overburden, country rock, ore, gangue, and materials borne by groundwater entering the mine property. The operators should also describe a plan for informing workers of the results of all individual industrial hygiene monitoring on the mine property (regardless of whether the monitoring was conducted by government or private parties), with provision for explaining the health significance of the sampling results. The information should be sufficiently specific as to allow workers to determine the dates, occupations, locations within the mine, the contaminants which were sampled, and how the sampling results compare to existing standards. When the sampling results indicate an overexposure, the operator should describe the consequences of acute and chronic overexposures and immediately begin to develop and communicate a plan to reduce those exposures.

What impact would a written hazard communication program have upon small mining operators?

The MSHA hazard communication standard should be promulgated and enforced so that it is no less protective for small mining operators than it is for other mining operations.

Are there ways in which compliance burdens could be reduced for operators, especially small ones?

An appendix specifying a model hazard communication program that could be employed by small operators would relieve small operators of the expense of developing individualized programs. Inclusion of the written hazard communication plan in the present training requirements should also reduce the paperwork burden required to verify that miners have been trained in hazard communication.

LABELING AND OTHER FORMS OF WARNING

MSHA requirements for the labeling of hazardous substances brought into the mines should essentially conform to the OSHA requirements in 1910.1200. The specialized requirements for substances intended for use in underground mines, presently in effect as MSHA policy, should be promulgated in the regulation.

NIOSH also has included two attachments for MSHA that provide information on labeling (Attachments 2 and 3).

How should the MSHA standard address hazards associated with the raw material being mined?

There is a legal question involved here on the extent to which raw materials put into the flow of commerce are already governed by the OSHA 1900.1200 and the Department of Transportation regulations. NIOSH addresses its comments only to the aspect of labeling during the mining operation. The training requirements of Part 48 should require specific instruction on the hazards of the products and by-products and naturally occurring hazards in the particular mining operation. Labeling of the mining products while in process or in transit in the mining operation--for example, in haulage cars or on conveyor belts or in augers--would seem to be superfluous when the miners have been trained properly.

Miners and visitors to the mining property should be informed of any hazardous characteristics of the ore. This information should include completely documented determinations which are readily available to anyone, and more brief warnings regarding any hazardous constituents where the ore is stored. Any party which receives the ore should receive a copy of the documented determinations concerning the toxicity of the ore and the hazardous ore constituents. These determinations should be developed for the ore which is mined as well as the gangue, country rock, and overburden. This information should be communicated to the miners as a part of the training program. The same standard should apply to both coal and non-coal mines.

MATERIAL SAFETY DATA SHEETS (MSDS)

NIOSH recommended exposure limits (RELs) should be included on MSDSs when available, along with other toxicity information from government organizations such as the National Toxicology Program, the Agency for Toxic Substances and Disease Registry (ATSDR), and the International Agency for Research on Cancer.

What, if any, changes from the OSHA standard should apply to mining?

MSHA should require that operators provide MSDSs to their employees for all hazardous substances found on the property (naturally occurring or imported) and to others receiving hazardous substances from the property. MSHA should expand the MSDSs to include information concerning physical agents and safety hazards, including noise, radiation, vibration, and hot environments associated with both the substances and the mining operations. NIOSH has reported one fatality of a mine worker due to heat stress (Attachment 4).

To what extent are mine operators currently obtaining and keeping copies of MSDSs for hazardous chemicals entering mine property?

NOHSM surveyors have observed that large mines and those with unions are the most likely to have MSDSs on hand. This observation is anecdotal since it is not part of the NOHSM protocol.

To what extent are mine operators developing MSDSs for hazardous chemicals that are produced or exist on mine property?

NOHSM surveyors, in surveying 375 mining properties, observed only one mine furnishing health hazard data for its products. Since MSDSs on mine products are not a normal part of NOHSM surveys, some labelling operations may have gone unnoticed.

TRADE SECRETS

The proprietary rights of substance manufacturers in trade secret information must be balanced against the public interest in protecting the health of miners, particularly underground miners, in determining the trade secret exemptions to be allowed for hazardous substances used in mining operations.

MSHA should require that all trade name chemicals that may be used in low-ventilation areas or used underground, specifically delineate the extent of the hazards resulting from exposure. In addition to the OSHA requirements for disclosure of trade secrets for health purposes [29 CFR 1910.1200(i)], MSHA should further require that the exact nature of the "trade secret" ingredients be made available to MSHA for the limited purpose of confidentially evaluating the information on the MSDS. MSHA should also consider requiring that trade secret information be made available to company and labor medical hygiene personnel for the limited purpose of confidentially evaluating the potential health risks of exposure.

EMPLOYEE INFORMATION AND TRAINING

Should hazard communication training requirements be incorporated into 30 CFR Part 48, or treated as a separate standard?

The training requirements should be incorporated into 30 CFR Part 48.

To what extent do operators currently include chemical hazard communication in Part 48 training?

NIOSH has no comment on this question.

ECONOMIC IMPACT

What costs do mine operators currently incur for hazard communication programs or elements of such programs? What are the costs associated with MSHA-required labels and training? What additional costs would be incurred if an OSHA-based hazard communication standard were extended to mining? Where possible, provide such costs on a per firm or per employee basis.

NIOSH has no comment on this question.

What benefits are likely to occur (for example, reduction in illnesses, non-lost workday injuries, lost workday injuries, chronic disabilities) from implementation of a hazard communication program?

If the program is carried out so as to effectively communicate a genuine concern by the operator for the workers' health, the workers may be more likely to adopt safe work practices.

NOHSM surveys of the bituminous coal commodity and twenty-four other non-coal commodities (these twenty-five commodities employed approximately 60% of the nation's miners in 1986) indicate that approximately 296,000 items (many duplications included) are found on properties within those commodities, and are therefore potentially subject to hazard communication action. Data are not yet available for the mines which employ the remaining 40% of the mining workforce.

The NIOSH mining health hazard evaluation (MHHE) staff of the Division of Respiratory Disease Studies has suggested three cases in which miners could have benefited from better knowledge of hazards associated with substances used in the workplace.

1. MHHETA 84-132: An isocyanate containing resin used for roof control was introduced in a mine in 1982, with training conducted by the manufacturer regarding proper application and personal protection techniques. As the workers changed jobs within the mine during the succeeding years, the benefit of the one-time training was lost. A MSDS was not provided until 1984, when an HHE was conducted in response to the workers' concerns regarding the isocyanate. During the HHE, it was learned that an asthmatic individual was working with the isocyanate. Asthmatics would be especially susceptible to reactions to isocyanates. The individual in question was apparently unaware of the risk involved.

2. MHHE 87-039: A number of miners were concerned about the possible effects of exposures to a hydraulic fluid being used at their worksite. The only specific information that the miners had reportedly been provided was the label for the fluid, which indicated that certain ingredients were "potentially carcinogenic".

3. MHHE 82-001: Miners felt they had inadequate information regarding a resin used in roof bolting and another substance used for dust suppression. As a result, the HHE was initiated and NIOSH obtained additional information.

Copies of these MHHE reports will be forwarded to MSHA under separate cover.

What experiences have mine operators had under State right-to-know standards? What have been the costs associated with such standards?

NIOSH has no comment on this question.

What costs have been incurred by employers voluntarily implementing hazard communication programs?

NIOSH has no comment on this question.

4 Attachments

REFERENCES

Barrett HM and Card BY (1947). The acute lethal dose of cadmium oxide for man. J Ind Hyg Tox 29:286-293.

LIST OF ATTACHMENTS

1. NIOSH [1985]. Pocket guide to hazardous chemicals. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHEW (NIOSH) Publication No. 78-210.

2. NIOSH [1974]. Criteria for a recommended standard....an identification system for occupationally hazardous materials. Cincinnati, OH: U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, DHEW (NIOSH) Publication No. 75-126.

3. U.S. Department of Commerce [1986]. Safety color appearance under selected light sources. Gaithersburg, MD: U.S. Department of Commerce, National Bureau of Standards, Center for Building Technology, Building Physics Division, Publication No. PB87-152294.

4. MMWR [1984]. Fatalities from occupational heat exposure. Morbidity and Mortality Weekly Report 33:28:410-412.

Enclosures and/or attahcments that are not included are available free of charge from the NIOSH Docket Office [513/533-8450].

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. PB91-152512
4. Title and Subtitle NIOSH Testimony on Hazard Communication by R. A. Lemen, July 30, 1988			5. Report Date 1988/07/30
			6.
7. Author(s) NIOSH			8. Performing Organization Rept. No.
9. Performing Organization Name and Address NIOSH			10. Project/Task/Work Unit No.
			11. Contract (C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address			13. Type of Report & Period Covered
			14.

15. Supplementary Notes

16. Abstract (Limit: 200 words) This testimony concerns the proposed hazard communication standard of the Mine Safety and Health Administration (MSHA) and the views of NIOSH toward such a standard. NIOSH suggests that the ruling extend to all underground mining operations and incorporate all current enforceable MSHA regulations that are more stringent than the requirements in the OSHA proposed rules, including regulations concerning protective footwear, eye protection, personal protective clothing, material storage, warning signs, labeling of toxic materials, consumption of food or beverages in toxic materials areas, annual refresher training, and warning labels. Further areas of interest addressed in this testimony include duplication in standards, labeling and material safety data sheets, independent contractor regulation, the special needs of small mine operators, MSHA assistance in hazard determinations, evaluation of materials produced in a mine or imported, the likelihood of exposure, the written hazard communication program, labeling and other forms of warning, trade secrets, and economic impacts.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms NIOSH-Publication, NIOSH-Author, NIOSH-Testimony, Lemen-R-A, Occupational-safety-programs, Risk-factors, Mining-industry, Underground-miners, Mine-workers, Legislation, Toxic-materials

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages 10
	22. Security Class (This Page)	22. Price