

NATIONAL STONE, SAND & GRAVEL ASSOCIATION



*Natural building blocks for quality of life*

November 18, 2005

Ms. Rebecca J. Smith, Acting Director  
Office of Standards, Regulations, and Variances  
Mine Safety and Health Administration  
1100 Wilson Boulevard, Room 2350  
Arlington, VA 22209-3939

**RE: RIN 1219-AB24 – Proposed Rule – Asbestos Exposure Limit**

The National Stone, Sand and Gravel Association (NSSGA) has reviewed the Mine Safety and Health Administration's (MSHA) Proposed Rule, Asbestos Exposure Limit, 30 CFR Parts 56, 57, and 71, RIN 1219-AB24, and is pleased to offer the following comments. It is NSSGA's understanding that oral and written testimony submitted during the Advance Notice of Proposed Rulemaking (ANPRM) phase, and in particular NSSGA's testimony and that of its experts, given at MSHA's public hearing on June 20, 2002 in Charlottesville, Virginia, remains part of this rulemaking record. In addition, NSSGA wishes to incorporate its (National Stone Association) testimony in the Occupational Safety and Health Administration's (OSHA) 1986 -1992 rulemaking on [asbestos definition] in its comments on the current MSHA rulemaking.

NSSGA, based near the nation's capital, is the world's largest mining association by product volume. Its member companies represent more than 90 percent of the crushed stone and 70 percent of the sand and gravel produced annually in the U.S. and approximately 120,000 working men and women in the aggregates industry. During 2004 alone, a total of about 2.85 billion metric tons of crushed stone, sand and gravel, valued at \$16 billion, were produced and sold in the United States. The vast majority of these materials are utilized in public infrastructure projects.

The position of the NSSGA remains consistent with its earlier testimony provided during the ANPRM in June of 2002. The NSSGA supports MSHA's proposal to reduce its permissible exposure limit (PEL) for an average full shift exposure and its excursion limit so that both MSHA and OSHA exposure limits are equivalent. The NSSGA also supports MSHA's approach to controlling take-home asbestos contamination on work clothing. The NSSGA is also supportive of the MSHA decision to continue to utilize phase contrast microscopy (PCM) as the primary

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and initial analytical method for quantifying airborne particles meeting the fiber counting criteria and relying on electron microscopy for identification of which particles are indeed asbestos. However, the NSSGA cautions MSHA that the current analytical methods, as they are presently applied and relied upon to enforce this proposed rule, are incapable of distinguishing asbestos from their more common rock-forming counterparts which do not cause asbestos-like diseases. Allowing “statistically equivalent methods” to be used simply perpetuates an inadequate analytical approach. The NSSGA recommends that polarized light microscopy (PLM) be used on relevant bulk samples prior to air sampling or analysis of air samples since this analytical tool is much more specific to asbestos identification. This area of the proposal remains a very serious concern to the aggregates industry and we urge MSHA to adopt a more cautious approach to this aspect of its proposal. This is discussed more thoroughly below.

The NSSGA comments on sections of the preamble and proposed rule follow:

## **II. Background**

### *A. Scope of Proposed Rule*

MSHA states that it is not proposing to change its existing definition of asbestos (pp 43952). The existing definition: *“Asbestos” is a generic term for a number of hydrated silicates that, when crushed or processed, separate into flexible fibers made up of fibrils. As used in this part – Asbestos means chrysotile, amosite (cummingtonite-grunerite asbestos), crocidolite, anthophyllite asbestos, tremolite asbestos and actinolite asbestos.* The NSSGA does not concur with MSHA’s decision and emphasizes that MSHA’s descriptive definition be expanded upon to incorporate the Environmental Protection Agency’s (EPA) definition of asbestiform so that it is clear the definition could not possibly include cleavage fragments of the asbestos minerals. MSHA’s analytical method for measuring asbestos needs to account for these distinguishing properties.

During the ANPRM, NSSGA recommended that other **asbestiform** amphiboles be similarly regulated as well as asbestiform erionite. This recommendation goes beyond the DOL Inspector General’s report in that it specifically adds a general class of minerals and specific minerals that have been shown or are likely to show asbestos-like health effects. These minerals are not commercially mined and therefore need not be incorporated into existing OSHA standards. They are relevant to the MSHA sphere of responsibility and enforcement. The definition of the term **asbestiform** needs to follow mineralogical definitions and not be substituted with simple dimensions used as analytical counting criteria. NSSGA provided MSHA with the mineralogical definition of the term “asbestiform” in its testimony and it again recommends that MSHA adopt a more descriptive definition of this term. The NSSGA definition is consistent with that of EPA’s provided in the Preamble to MSHA’s proposal (pp. 43953).

## C. Asbestos Minerals

### 1. Mineralogical Classifications and Mineral Names

The preamble in the proposal makes the statement: “Currently, there is no single, universally-accepted system for naming minerals” (pp. 43952). MSHA goes on to quote Meeker *et al.* on the lack of uniformity in mineral naming and the inconsistency within “**accepted mineralogical nomenclature and definitions**”. This cited reference refers to the existence of an “accepted” system for naming minerals. It is important that MSHA adopt this accepted system of mineralogical nomenclature and definition.

In NSSGA’s comments during the ANPRM, the International Mineralogical Association’s (IMA) definitions for amphiboles were recommended to MSHA for adoption to address this important issue. Amphibole mineralogy is complex and without the guidance of an accepted standard such as the IMA’s, there is even more probability that misclassification of minerals will occur, such as hornblende being labeled as actinolite when aluminum content is not properly taken into account. It is MSHA’s duty to provide this guidance. The reference for this internationally accepted mineral naming convention is:

Leake, B.E., Woolley, A.R., Arps, C.E.S, Birch, W.D., Gilbert, M.C., Grice, J.D., Hawthorne, F.C., Kato, A., Kisch, H.J., Kirovovichev, V.G., et al., 1997, *Nomenclature of amphiboles: Report of the subcommittee on amphiboles of the International Mineralogical Association, Commission on new minerals and mineral names*, American Mineralogist, V. 82, p. 1019 – 1037.

#### a. Variations in Mineral Morphology

MSHA again quotes from Meeker *et al.* (pp. 43952) stating that the Libby amphiboles contain “a complete range of morphologies from prismatic crystals to asbestiform fibers”. It is common sense that when asbestiform minerals occur in nature, they will always be accompanied by their non-asbestiform counterparts which most likely will be in substantially higher concentration. However, the converse is not true. The non-asbestiform minerals are much more common and where geologic stresses have not occurred, the asbestiform habit of the mineral will not be formed. This is another reason that MSHA must adopt an analytical approach that allows this distinction. These different habits of the mineral can and must be distinguished since they have very different health impacts. An attachment to these comments is a 2003 *Microscope* paper<sup>1</sup> by Brittany M. Brown and Mickey E. Gunter that demonstrates methods of characterizing amphiboles in their various habits.

### 2. Differentiating Asbestiform and Nonasbestiform Habit

NSSGA recommends that MSHA adopt the definition of asbestiform cited from the 1993 EPA Method for the Determination of Asbestos in Bulk Building Materials that is reproduced in this preamble to its proposed rule (pp. 43953).

This is basically the same definition NSSGA provided to MSHA in the ANPRM hearings of 2002.

MSHA correctly states that cleavage fragments are not asbestiform and do not fall within its definition of asbestos (pp. 43953). However, the analytical methods it proposes to use will not distinguish between the two habits. Is it MSHA's intention to not distinguish between these two habits if the fiber counting criteria for the method are met? If so, MSHA will be substituting analytical counting criteria for the definition of asbestos and the economic impact of this proposed standard would be staggering and significantly underestimated by the agency. Is MSHA intending that these minerals are only cleavage fragments when they are less than five microns long or have aspect ratios of 2.99:1 or less? If so, MSHA will be expanding the scope of its asbestos standard to include many non-asbestos amphibole rock fragments found commonly on the east and west coasts of the United States as well as many places between the coasts.

This concern was recently demonstrated with MSHA's designation of cleavage fragments as asbestos in taconite air samples in spite of the contract laboratory specifically stating: "No attempt was made to differentiate fibers from cleavage fragments". MSHA based its reason for this designation on the NIOSH 7402 transmission electron microscopy (TEM) method. However, the method cautions the analyst about interferences: "Other amphibole particles that have aspect ratios greater than 3:1 and elemental compositions similar to the asbestos minerals may interfere in the TEM analysis." In this same MSHA study, **no asbestos was found in the bulk samples** collected at the site (even inside the baghouse where 90-98% of the fibers meeting the fiber counting criteria in air samples were improperly designated as asbestos). It is apparent that the bulk analysis method is much more specific to asbestos than is the air filter method when significant interferences are present. This clearly demonstrates the need for MSHA to perform bulk analysis on suspect areas where miners are working prior to collecting and/or analyzing air samples. Asbestos presence needs to be confirmed before air sampling is conducted or filters are analyzed. This procedure is followed in OSHA asbestos air sampling since it is typically performed in asbestos abatement projects where the presence of asbestos has previously been confirmed using PLM on a bulk sample. This is also the case in EPA application of its AHERA method for asbestos clearance sampling of schools after asbestos removal. Following this simple stepwise approach would dramatically reduce (but not eliminate) misclassification of cleavage fragments as asbestos.

#### **IV. Health Effects of Asbestos Exposure**

##### *B. Factors Affecting the Occurrence and Severity of Disease*

###### *3. Fiber Characteristics*

MSHA states that several recent publications support the federal fiber definition of greater than 5 microns long and a minimum aspect ratio of 3:1. In an EPA

document: *Final Draft: Technical Support Document for a Protocol to Assess Asbestos-Related Risk*<sup>2</sup> prepared for the Office of Solid Waste and Emergency Response following a 2003 peer review meeting in San Francisco, states (pp. 1.4): “the optimal exposure index that best reconciles the published literature assigns equal potency to fibers longer than 10 µm and thinner than 0.4 µm and assigns no potency to fibers of other dimensions.” This EPA document is being submitted as an attachment to NSSGA comments for inclusion into the docket. It should be noted that these dimensions of fibers are nearly identical to the discriminate counting criteria provided to MSHA during the ANPRM hearings.

In an ATSDR 2003 document regarding fiber length<sup>3</sup>, the following conclusion was reached by the reviewers of the scientific literature: “Given findings from epidemiological studies, laboratory animal studies, and *in vitro* genotoxicity studies, combined with the lung’s ability to clear short fibers, the panelists agreed that there is strong evidence that asbestos and SVFs shorter than 5 µm are unlikely to cause cancer in humans.” (page vi).

Recently, the NSSGA has had the epidemiological, animal and *in vitro* studies regarding cleavage fragment exposure contrasted with asbestos exposure reviewed by world recognized health scientists (epidemiology<sup>4</sup> – Graham Gibbs and John Gamble, laboratory animal studies<sup>5</sup> – Eugene McConnell and John Addison, *in vitro* cell toxicity studies<sup>6</sup> – Brooke Mossman). These three papers have been peer reviewed and accepted for publication. The NSSGA is attaching these papers to its comments for inclusion into the MSHA docket.

### C. Specific Human Health Effects

#### 6. Other Nonmalignant Pleural Disease and Pleural Plaques

MSHA makes the statement that “Only rarely do they [pleural plaques] occur in persons who have no history or evidence of asbestos exposure.” A recent review<sup>7</sup> of the scientific literature regarding the occurrence of pleural plaques without asbestos exposure indicates that there are many causes besides asbestos for either false positive diagnoses of pleural plaques or actual pleural plaques being formed. This review, which is being submitted for publication in a peer-reviewed scientific journal, is attached to these comments for inclusion into the docket.

## VI. The Application of OSHA’s Risk Assessment to Mining

### D. Applicability of OSHA’s Risk Assessment to the Mining Industry

In MSHA’s discussion of its review of relevant epidemiological literature regarding asbestos exposure to miners and millers, Table VI – 5 is provided. It should be noted that three studies of the Homestake Gold Mine involving cleavage fragments of cummingtonite-grunerite are in the literature with each demonstrating that exposure to these cleavage fragments did not result in asbestos-related disease. In addition, there are three studies of taconite workers

also exposed to cleavage fragments of cummingtonite-grunerite that again show no asbestos-like disease and finally six epidemiological studies of New York talc workers exposed to cleavage fragments of tremolite and anthophyllite which, when compared to Vermont talc workers without amphibole exposure, show no difference in lung cancer rates and no mesothelioma cases attributed to the mine exposure. This mine has 55% non-asbestiform tremolite in the deposit. These miners at Homestake, the taconite mines and the talc mine were all exposed to cleavage fragments fitting the fiber counting criteria yet the health outcome of these exposures do not show an asbestos-like response. These studies are summarized and referred to in the peer-reviewed scientific papers submitted with these comments for inclusion in the docket.

## **VII. Section-by-Section Discussion of Proposed Rule**

### *A. Sections 56/57.5001 (b) (1) and 71.702 (a): Definitions*

The NSSGA believes that since asbestiform minerals that contaminate mine deposits always will be accompanied by the non-asbestiform counterpart of the mineral, the existing definition in the coal standard is more descriptive than what MSHA is proposing. The NSSGA believes the statement “and does not include nonfibrous or nonasbestiform minerals” is very clear regarding MSHA’s intentions and should be appended to the asbestos minerals listed under 56.5001 (b) *Asbestos*. MSHA states that the removal of this phrase will “*assist the mine operator in understanding the scope of the standard.*” The NSSGA believes this phrase is very informative for the mine operator as well as analytical laboratories and needs to be included not discarded.

NSSGA objects to the characterization of a fiber as a “particulate form” of asbestos. Asbestos fibers are asbestiform minerals that are very long and thin. MSHA states that “*This change would clarify that the dimensional criteria in our existing standards refer to the asbestiform habit of the listed mineral.*” The counting criteria used to count a “fiber” (5 microns or longer with a minimum 3:1 aspect ratio) in no way describes the asbestiform habit. Many, many cleavage fragments fit these simplistic counting dimensions and that does not turn them into asbestiform minerals. NSSGA recommends that the *fiber* definition from the proposal be deleted and a *fiber counting criteria* definition be added as follows:

*Fiber counting criteria* are 5 micrometers (µm) or longer with a length-to-diameter ratio of at least 3:1.

This change will not alter the analytical outcome but it will clarify that MSHA is using a counting criteria versus a set of dimensions that characterize what is and is not asbestiform.

### *C. Sections 56/57.5001 (b) (3) and 71.702(c): Measurement of Airborne Fiber Concentrations*

MSHA states that “*The proposed rule would require fiber concentration to be determined by PCM using a method statistically equivalent to the OSHA Reference Method in OSHA’s asbestos standard (29 CFR 1910.1001, Appendix*

A).” NSSGA has commented, and the methods themselves state, that they cannot distinguish between cleavage fragments and asbestos fibers. To require that any future method that accomplishes this distinction must end up with the same answer as a method that cannot provide this distinction is disingenuous to say the least. A proper method must be able to quantify the substance being regulated. None of the methods MSHA proposes to use accomplishes that simple basic requirement. To require that any replacement for this inadequate method also be just as inadequate, is inappropriate and puts a straightjacket on scientific advancement and progress. The NSSGA has been working with consultants and the ASTM to develop a method that will provide exposure information in mines and quarries that maintains the historical exposure characterization (federal fiber count) but will assist in identifying when an asbestiform fiber exposure is likely present so that electron microscopy can be used for identification purposes. This method is near final balloting and is expected to be adopted in January 2006. The NSSGA has attached the current draft<sup>8</sup> of this standard as an attachment to its comments for inclusion into the docket. The analytical approach in this ASTM method follows closely with what the NSSGA testified to during the ANPRM and is consistent with the risk fiber described in the Berman and Crump EPA Risk Protocol document. MSHA must allow methods that prove to be more appropriate for what is regulated to be used in the future.

The NSSGA requests that MSHA require that a bulk sample of the environment in which the miner is working be analyzed using the guidance provided in OSHA’s Appendix C referring to polarized light microscopy of bulk samples prior to collecting and/or analyzing an air sample. By making this mandatory, MSHA and the mine operator will be somewhat more assured when asbestos is detected in the bulk sample, that what it may find on an air filter for compliance purposes, has a higher probability of being the asbestiform habit of the minerals being regulated. Again, this is no different than what OSHA does when sampling for asbestos. A bulk sample is analyzed to make sure it is asbestos before an abatement plan and air sampling plan is initiated. Mine operators deserve no less assurance.

## *2. Fiber Identification Using Transmission Electron Microscopy (TEM)*

NSSGA does not agree that a competent electron microscopist cannot distinguish winchite from tremolite. The issue here is the lack of guidance or a standard such as that found in the International Mineralogical Association’s naming convention which NSSGA recommends MSHA adopt for the purpose of identifying amphiboles using electron microscopy.

### 3. Phase Contrast Microscopy (PCM) for the Analysis of Personal Exposure Samples

MSHA cites Dr. Wylie in the following statement: “PCM maintains the integrity, meaning, and usefulness of the analytical method for evaluating samples relative to the historic health data.” This is taken out of context since Dr. Wylie was referring to workers handling commercial asbestos not miners primarily exposed to rock fragments rather than asbestos. The PCM methods that are specified by MSHA’s proposed rule will count much more non-asbestos than asbestos and that will not maintain integrity, meaning or usefulness.

#### b. Health Risk Data Based on PCM

The referral to the NSSGA comments during the ANPRM regarding chrysotile miners and the dilution of asbestos exposures by cleavage fragments of antigorite and lizardite resulting in a warped dose-response relationship is based on scientific research and not speculation as stated in the proposal. NSSGA is attaching to these comments the 1992 peer-reviewed paper, *The Mineralogy and Size of Airborne Chrysotile and Rock Fragments: Ramifications of Using the NIOSH 7400 Method*<sup>9</sup>, by Dr. Ann G. Wylie and Kelly F. Bailey which addresses this issue in detail. Improper characterization of exposure leads to improper assessment of risk. This is of paramount importance in mining environments versus those regulated workplaces that OSHA oversees involving commercial asbestos abatement.

### 4. MSHA’s Incorporation of OSHA’s Appendix A

Incorporation of OSHA’s Appendix A will not result in substantially improved analyses of mine samples. The OSHA Appendix A is written for samples that collected commercial asbestos in the workplace air. Adoption of Appendix A is a start but it leaves a wide gap in accomplishing the mission of accurate asbestos analyses in mining environment samples. The Proficiency Analytical Testing (PAT) samples used by labs performing asbestos analyses for OSHA compliance have nothing in common with typical samples collected in quarry environments.

The equivalency criteria spelled out in this section of the standard cannot be met with the current MSHA asbestos analytical method when analyzing mine samples. There is typically too much dust interference in field samples to get reproducible results meeting the specified method validation criteria.

NSSGA believes that a method should be considered equivalent if it is proven in a laboratory that asbestos concentrations measured by both methods are statistically equivalent. MSHA states it “*would consider analytical methods that afford a better measurement alternative as they become available.*” It is unclear how this consideration would be converted into an acceptable method if the results are shown to be not equivalent but better than the current methodology. MSHA needs to recognize that the current analytical methods for air filters leave much to be improved upon when it pertains to characterizing asbestos concentrations in a mine environment.



## 5. MSHA Asbestos Control Program

MSHA makes the following statement in this section of the proposed rule; however, there is no citation or reference: *“We are not considering the use of a cyclone to capture respirable dust because research indicates that larger durable fibers also could cause adverse health effects.”* NSSGA also does not recommend cyclones due to static charges and fibers adhering to the cyclone walls, however, we are interested in what MSHA’s meaning is when it refers to *larger durable fibers*.

## 6. Bulk Sample Analysis Using Polarized Light Microscopy (PLM)

As mentioned previously, the NSSGA believes it is imperative that MSHA perform bulk asbestos PLM analyses and identify asbestos before it begins collecting and/or analyzing air samples. The OSHA Appendix C gives appropriate guidance on performing this analysis and assists in distinguishing between asbestos and non-asbestos. Asbestos analyses of bulk samples are much more definitive than air samples **for asbestos identification not exposure assessment**. The bulk samples must be relevant to where miners are working for them to be useful as a trigger for initiating air sampling and/or analysis of filters for compliance with the PEL. When asbestos is present in a bulk sample, it will demonstrate most of the distinguishing characteristics of an asbestiform mineral (e.g. parallel sides, polyfilamentous growth, curvature, high aspect ratio, very thin fibrils, etc.). It is extremely unlikely that if asbestos were present an amount creating exposures at or above the PEL or excursion limit, that it would go undetected by PLM.

The PLM method not only relies on refractive index of the mineral, it also examines the extinction angle of the mineral under cross-polars. Asbestos will have a zero extinction angle while non-asbestos cleavage fragments will demonstrate an angle of extinction. PLM is a powerful tool if used by a competent analyst. MSHA states that a commenter in the Charlottesville ANPRM hearing stated that PLM bulk analysis methods are not **designed** for complex mine environments and that is most likely true, however, they can be used in these environments with a great degree of accuracy. All asbestos analytical methods, whether they are for air samples or bulk samples, were **designed** for commercial asbestos environments not mine environments.

## D. Discussion of Asbestos Take-Home Contamination

The NSSGA concurs with MSHA’s approach to this issue.

## VIII. Regulatory Analyses

### 2. Discussion of Costs

NSSGA is extremely concerned that if MSHA fails to distinguish cleavage fragments from asbestos in either the air samples they collect or the bulk samples they are urged to collect prior to air sampling and/or analysis, that the aggregates industry's survival would be in real jeopardy. This is not because of a possible overexposure to cleavage fragments to its miners being incorrectly characterized as asbestos. Rather, it is incorrectly labeling an aggregate product as asbestos contaminated. This would unjustifiably throw much of the aggregate industry into the legal meat grinder of asbestos litigation of which not many companies survive. It is irresponsible to adopt a simplistic regulatory approach without considering the ramifications and consequences to the industry that is being regulated beyond the immediate consideration of compliance. The current legal environment demands that this be carefully promulgated to accomplish the goal of the standard (reduced asbestos exposure to miners) without mortally wounding the industry by calling something asbestos that is not. These costs would be astronomical to the industry and the miners they employ.

### Specific Regulatory Language Recommendations

In consideration of the above comments and discussion, the NSSGA recommends the following specific language changes in MSHA's proposed rule (bolded and underlined) be adopted in its final rule:

#### 56.5001 (amended) – 57.5001 (amended) and 71.702

(b) *Asbestos standard.*

(1) *Definitions.* Asbestos is a generic term for a number of hydrated silicates that, when crushed or processed, separate into flexible fibers made up of fibrils. As used in this part –

*Asbestos* means chrysotile, amosite (cummingtonite-grunerite asbestos) crocidolite, anthophyllite asbestos, tremolite asbestos and actinolite asbestos **and does not include non-fibrous or nonasbestiform minerals.**

**Asbestiform** means a mineral that crystallized with the habit (morphology) of asbestos. **The asbestiform crystal growth habit is generally recognized by the following characteristics which are best observed on a population basis and therefore best observed in bulk samples:**

**Mean fiber aspect (length to width) ratios ranging from 20:1 to 100:1 or higher for fibers longer than 5 micrometers. Very thin fibrils, usually less than 0.5 micrometers in width, and two or more of the following:**

- **Parallel fibers occurring in bundles**

- Fiber bundles displaying splayed ends
- Matted masses of individual fibers and/or
- Fibers showing curvature

Fiber means a particulate form of asbestos 5 micrometers (µm) or longer with a length-to-diameter ratio of at least 3:1

Fiber Counting Criteria are 5 micrometers (µm) or longer with a length-to-diameter ratio of at least 3:1.

(2) *Permissible Exposure Limits (PELs).* – (i), (ii) - (no change recommended)

(3) *Measurement of Asbestos.* Airborne asbestos fiber concentration shall be determined by phase contrast microscopy using a method statistically equivalent to the OSHA Reference Method in OSHA’s asbestos standard found in 29 CFR 1910.1001, appendix A when the exposure is known ‘a priori’ to be only commercial asbestos (not mixed dust).

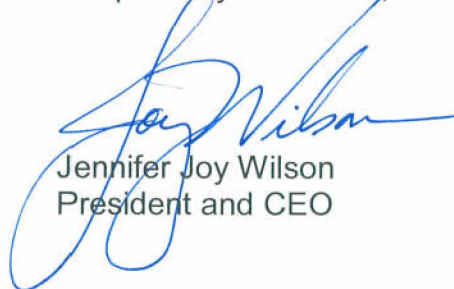
When a fiber exposure is not known to be asbestos (or is otherwise equivocal) or is a mixed dust exposure, additional investigation is necessary because no currently available analytical method is specific to airborne asbestos . This additional investigation shall include the following:

- Review of available geological information for the identification of regulated asbestiform mineral occurrences in the mining deposit.
- The analysis of bulk samples (ore, insulation, settled dust, etc.) that is representative of the miner’s work area exposure. OSHA Appendix C 29 CFR 1910.1001 (Polarized Light Microscopy Method) or an equivalent method, shall be used for bulk analysis. The absence of asbestos in bulk samples shall eliminate the need for air sampling and/or analysis of particulate on air filters. The presence of asbestos in the bulk sample at any level will require personal air sampling or analysis of collected air samples.
- On air samples analyzed by PCM or TEM, the characteristics of asbestos fibers defined in section (b) 1 above, described in OSHA Appendix C and supported in OSHA Appendix B, shall be observed.
- Bulk and air samples that have been analyzed with results indicating the presence of asbestos at any level, shall be retained for a period of no less than one year for possible reanalysis. This sample retention requirement will be applied to mine operator and MSHA collected samples.

## Summary

In summary, NSSGA supports MSHA's proposal to reduce its permissible exposure limit (PEL) for an average full shift exposure and its excursion limit so that both MSHA and OSHA exposure limits are equivalent. The NSSGA also supports MSHA's approach to controlling take-home asbestos contamination of work clothing. The NSSGA is also supportive of MSHA's decision to continue to utilize phase contrast microscopy (PCM) as the primary and initial method for quantifying airborne particles meeting the fiber counting criteria and relying on electron microscopy for determination of which particles are indeed asbestos. However, NSSGA cautions MSHA that the current analytical methods, as they are presently applied and relied upon to enforce this proposed rule, are incapable of distinguishing asbestos from their more common rock-forming counterparts which do not cause asbestos-like disease. Allowing "statistically equivalent methods" to be used simply perpetuates an inadequate analytical approach. NSSGA believes that MSHA must require that a bulk sample of the environment in which the miner is working be analyzed and found to contain asbestos using the guidance provided in OSHA's Appendix C referring to polarized light microscopy of bulk samples, prior to collecting and/or analyzing an air sample. By making this mandatory, MSHA and the mine operator will be somewhat more assured when asbestos is detected in the bulk sample, that what it may find on an air filter for compliance purposes, has a higher probability of containing the asbestiform habit of the minerals being regulated. This remains a very serious concern to the aggregates industry and we urge MSHA to adopt a more cautious approach to this aspect of its proposal. It should be noted that workers in the aggregates industry have not been, and are not developing asbestos-related diseases.

Respectfully submitted,



Jennifer Joy Wilson  
President and CEO

## RIN 1219-AB24-Proposed Rule-Asbestos Exposure Limit Comments of the

### National Stone, Sand and Gravel Association

#### Attachments

(Click on link to view attachment)

1. ***Morphological and Optical Characterization of Amphiboles from Libby, Montana U.S.A. by Spindle Stage Assisted-Polarized Light Microscopy***, Brittany M. Brown and Mickey E. Gunter, Microscope Vol. 51:3 121- 140 (2003)
2. ***Final Draft: Technical Support Document for a Protocol to Assess Asbestos Related Risk***, prepared for Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, DC 20460
3. ***Report on the Expert Panel on Health Effects of Asbestos and Synthetic Fibers: The Influence of Fiber Length***, prepared for Agency for Toxic Substances and Disease Registry, prepared by Eastern Research Group, Inc. March 17, 2003
4. ***An Evaluation of the Risks of Lung Cancer and Mesothelioma from Exposure to Amphibole Cleavage Fragments***, John F. Gamble and Graham W. Gibbs 2005
5. ***A review of Carcinogenicity Studies of Asbestos and Non Asbestos Tremolite and Other Amphiboles***, John Addison and Ernest McConnell, 2005
6. ***Assessment of the Pathogenic Potential of Asbestiform vs. Nonasbestiform Particulates (Cleavage Fragments) in In Vitro (Cell or Organ Culture) Models and Bioassays***, Brooke T. Mossman, 2005
7. ***Pleural Plaques: Are There Other Possible Etiologies Besides Asbestos? (Draft Report)***, Exponent, Inc., 2005
8. ***Standard Practice for Sampling and Counting Airborne Fibers, Including Asbestos Fibers, IN Mines and Quarries, by Phase Contrast Microscopy and Transmission electron Microscopy, WK 3160 Revised 10/18/05***, copyright ASTM
9. ***The Mineralogy and Size of Airborne Chrysotile and Rock Fragments: Ramifications of Using The NIOSH 7400 Method***, Ann G. Wylie and Kelly F. Bailey, American Industrial Hygiene Association, 1992