

Memorandum

Date: April 5, 2018

To: Marley Hart, Executive Officer
Occupational Safety and Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833

From: Juliann Sum, Chief
Division of Occupational Safety and Health

Re: Evaluation of Petition 568 from Pamela Murcell, NOA Regulations Task Group, to Add Naturally Occurring Asbestos (NOA) Specific Language to Title 8 Section 1529

1.0 Introduction

On December 11, 2017, the Division of Occupational Safety and Health (Cal/OSHA) received a petition from Pamela Murcell of the Naturally Occurring Asbestos Regulations Task Group (petitioner). The petitioner proposes to amend California Code of Regulations title 8 section 1529, Asbestos, to address the unique hazards and controls needed for work that may involve exposure to naturally-occurring asbestos (NOA). Cal/OSHA also received a 19-page document on January 26, 2018, from the petitioner entitled, "Supplementary Information for Petition File Number 568-Petition for Amendments to Title 8 California Code of Regulations Section 1529."

Labor Code Section 142.2 permits interested persons to propose new or revised standards concerning occupational safety and health, and requires the Occupational Safety and Health Standards Board (Standards Board) to consider such proposals and render a decision no later than six months following receipt. Further, as required by Labor Code Section 147, any proposed occupational safety or health standard received by the Board from a source other than Cal/OSHA must be referred to Cal/OSHA for evaluation, and Cal/OSHA has 60 days after receipt to submit a report on the proposal.

2.0 Regulatory Changes Requested by the Petitioner

The petitioner requests the following changes to section 1529:

1. Add the following NOA-containing materials and activities performed on these materials to subsection 1529(a), "Scope and application," to clarify the NOA work covered by the regulation:
 - a. Materials such as rock, soil, sediment, alluvium and other geologic or non-manufactured earth materials that contain NOA.
 - b. Activities including, but not limited to drilling, blasting, rock shaping and sizing, screening, grading, excavation, loading, hauling, dumping, spreading, compaction, trenching and blading.

In addition, the petitioner proposes to add new subsection 1529(s) for construction work involving NOA with the following components:

2. New subsection 1529(s)(1) would contain definitions applicable to NOA. The definitions would include three new classes of asbestos work: class A, B and C.
 - a. Class A would cover activities with the highest exposure potentials, such as activities that fracture, crush, pulverize, or otherwise disturb soil or rock materials that contain NOA.
 - b. Class B would cover maintenance and repair activities where NOA is likely to be disturbed.
 - c. Class C would cover other activities during which workers contact, but do not disturb NOA and the potential risk of exposure is minimal.
3. New subsection 1529(s)(2) would state that the permissible exposure limit (PEL) for NOA is the same as the PEL for other asbestos work.
4. New subsection 1529(s)(3) would cover NOA work at multi-employer worksites.
5. New subsection 1529(s)(4) would require controlled access areas for outdoor NOA work.
6. New subsection 1529(s)(5) would require exposure monitoring for NOA work.
7. New subsection 1529(s)(6) would require exposure control methods applicable to NOA work.
8. New subsection 1529(s)(7) would require respiratory protection for NOA work.
9. New subsection 1529(s)(8) would require protective clothing for NOA work.
10. New subsection 1529(s)(9) would require hygiene and decontamination facilities and practices for NOA work.
11. New subsection 1529(s)(10) would require training and communication on hazards applicable to NOA work.
12. New subsection 1529(s)(11) would specify housekeeping requirements applicable to NOA work.
13. New subsection 1529(s)(12) would require medical surveillance for NOA work.
14. New subsection 1529(s)(13) would specify recordkeeping requirements for NOA work.
15. New subsection 1529(s)(14) would describe the required responsibilities and training of competent persons assigned to oversee NOA work.

Except for the changes to subsection 1529(a) (item 1 above) and the addition of subsection 1529(s)(1) (item 2 above), the petitioner does not provide any specific language to include in the proposed regulation.

The petitioner requests the Standards Board to authorize an advisory committee composed of stakeholders including public and private sector employers, workers, worker representatives, and the NOA Regulations Task Group to provide the specific language.

3.0 Hazards Associated with NOA

Asbestos is a naturally occurring component of mineral deposits widely distributed throughout California. The United States Geological Survey (USGS) reports that most of the 58 counties in California have deposits of naturally-occurring asbestos.¹ NOA is commonly encountered during many different construction activities that involve work with or around earth.

¹ USGS and California Geological Survey, Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California, 2011 ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ms/59/MS59_Pamphlet.pdf

Overexposure to asbestos may result in several serious diseases, including, but not limited to, lung cancer, ovarian cancer, laryngeal cancer, mesothelioma, asbestosis and several other lung diseases.^{2,3} Exposure to asbestos fibers from naturally occurring deposits pose the same hazards as exposure to asbestos from manufactured materials.

4.0 Existing Title 8 Requirements

Title 8 contains three primary asbestos regulations: general industry (section 5208), ship building, ship repairing and ship breaking (section 8358), and construction (section 1529). Sections 5208 and 8358 are generally not applicable to NOA work. Section 1529 covers NOA work and all construction activities where asbestos is present or handled. Section 1529 requires employers to identify potential sources of asbestos exposure, institute control measures to protect employees from exposure, and determine if their control measures are effective.

NOA is explicitly identified only in subsection 1529(a), "Scope and application." Other than in subsection (a), section 1529 does not use the phrase "naturally occurring asbestos" or any similar phrase.

§1529. Asbestos.

(a) Scope and Application.

(1) This section regulates asbestos exposure in **all** [emphasis added] construction work as defined in Section 1502 including but not limited to the following:

- (A) Demolition or salvage of structures where asbestos is present;
- (B) Removal or encapsulation of materials containing asbestos;
- (C) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;
- (D) Installation of products containing asbestos;
- (E) Asbestos spill/emergency cleanup;
- (F) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed;
- (G) Excavation which may involve exposure to asbestos as a natural constituent which is not related to asbestos mining and milling activities; [emphasis added]
- (H) Routine facility maintenance; and
- (I) Erection of new electric transmission and distribution lines and equipment, and alteration, conversion and improvement of the existing transmission and distribution lines and equipment.

(2) Whenever employee exposures to asbestos, as defined in subsection (b) of this section consist only of exposure to tremolite, anthophyllite, and actinolite in the nonasbestiform mineral habit, the provisions of Section 5208.1 shall apply.

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² T8 CCR 1529. Asbestos, Appendix I. Medical Surveillance Guidelines for Asbestos. II. Toxicology.
<https://www.dir.ca.gov/title8/1529i.html>

³ NIOSH, Asbestos Fibers and Other Elongate Mineral Particles: State of the Science and Roadmap for Research, Current Intelligence Bulletin 62, 2011 <https://www.cdc.gov/niosh/docs/2011-159/default.html>

Section 1529 divides asbestos work into one of four classes ("class I" through "class IV" asbestos work), each with its own set of specific engineering controls, work practices, personal protective equipment, and other actions. Section 1529 also contains limited engineering, work practice and personal protective equipment requirements for asbestos work that is not specifically included class I through class IV work; this is commonly referred to as "unclassified work."⁴

Although NOA work is not expressly listed in the definitions of "class I" through "class IV" asbestos work, the definition of class II asbestos work is broad and includes NOA work. The definition of class II asbestos work and related terms are the following:

§1529. Asbestos.

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(b) Definitions.

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"Asbestos-containing material (ACM)", means any material containing more than one percent asbestos.

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"Class II asbestos work" means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

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"Removal" means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

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A separate regulation, title 8 section 1538, requires that when drilling holes in rock or other dust-producing material, the dust be controlled within the maximum acceptable concentrations for asbestos set forth in the general industry asbestos regulation, section 5208 (which is the same as the maximum acceptable concentrations for asbestos in section 1529 of the Construction Safety Orders).

§1538. Rock Drilling Operations.

(a) When drilling holes in rock, or other dust-producing material, the dust shall be controlled within the maximum acceptable concentrations set forth in Section 5208 (asbestos) and Section 5155 (silica and silicates) of the General Industry Safety Orders. Respiratory protection may be acceptable; refer to Article 4, Sections 1530 and 1531.

(b) All power controlled air drilling shall be performed by use of water or chemical solutions for controlling dust, or other equivalent means.

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⁴ For example, activities involving materials with less than one percent asbestos are not included in class I through IV asbestos work, but are covered by the regulation.

5.0 Federal OSHA Regulations

Federal OSHA requirements for asbestos in construction are in the Code of Federal Regulations (CFR), title 29 code, section 1926.1101.⁵ This federal construction standard does not contain any language that explicitly addresses NOA. For example, it does not contain language similar to title 8 subsection 1529(a)(1)(G) that includes excavation of NOA within the scope of the regulation. The 1994 preamble to section 1926.1101, however, indicates that the federal standard is intended to cover construction work involving disturbances of NOA deposits (such as earthmoving, drilling, and blasting), where there is readily available information showing asbestos contamination of soil in the immediate vicinity of the construction site.⁶

Federal OSHA does not have a regulation similar to title 8 section 1538 (rock drilling operations), nor does it have any other regulation expressly addressing NOA construction work. Other than California, no state OSHA program has a regulation that expressly covers NOA.

6.0 DTSC and CARB Regulations

Currently, NOA is regulated by the California Department of Toxic Substance Control (DTSC) and the California Air Resources Board (CARB), both of which are within the California Environmental Protection Agency.

6.1 DTSC Requirements for NOA

The DTSC enforces requirements designed to protect school children from exposures to NOA. Prior to acquisition and/or construction of prospective school sites, the California Education Code (sections 17210 through 17224) mandates that school districts complete environmental assessments and cleanups in order to qualify for state funding. DTSC evaluates these assessments and cleanups to ensure they are performed in accordance with recognized standards. If prospective school sites are determined to have environmental contamination from NOA, where there may be unacceptable-health-risks, the site must be properly mitigated or remediated prior to occupancy.

6.2 CARB Regulations

The CARB enforces a regulation that applies to most outdoor construction activities where NOA could be disturbed: "Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading Quarrying and Surface Mining Operations" (title 17 section 93105).⁷ It requires owners or operators of construction, grading, and surface mining projects to conduct a geologic evaluation on certain sites prior to commencement of operations. The owners or operators must notify either CARB or their local Air Quality Management District/Air Pollution Control District of any work that is subject to these regulations and receive approval of their dust mitigation plan prior to commencing work. The owners or operators must then implement the approved dust mitigation measures to eliminate any visible emissions of NOA

⁵ Asbestos, 29 CFR 1926.1101

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10862

⁶ Occupational Exposure to Asbestos, Final Rule, 08/10/1994, Federal Register Number 59:40964-41162

<https://www.osha.gov/laws-regs/federalregister/1994-08-10>

⁷ <https://www.arb.ca.gov/toxics/atcm/asb2atcm.htm>

crossing the project boundaries. Specific actions to minimize emissions of dust that must be taken include, but are not limited to, limiting vehicle speed, applying water prior to and during any ground disturbance, keeping storage piles wet or covered, and preventing and removing track-out.

The CARB also enforces a regulation that applies to NOA when NOA is used in surfacing applications: "Asbestos ATCM for Surfacing Applications" (title 17 section 93106).⁸ The surfacing ATCM restricts the asbestos content to 0.25% in material used in surfacing applications such as unpaved roads, parking lots, driveways and walkways.

7.0 Petitioner's Basis for a Revised Regulation

The petitioner provides the following arguments in support of its suggested amendments.

1. NOA is present in high concentrations in California rocks and soils. For example, the Calaveras Dam Renovation Project found rock formations that could release more than 100 billion chrysotile or amphibole fibers per gram of rock. Personal air sampling measured exposures above the PEL of 0.1 fibers per cubic centimeter. The exposures occurred in a variety of earth-working processes even though dust control measures were implemented.
2. Section 1529 focuses almost exclusively on asbestos in manufactured building materials.
3. Section 1529 contains requirements that are not practical or relevant to NOA work. For example, the standard focuses on ventilated containments, which typically are not practical on NOA projects, and does not address airborne-dust controls that are sometimes used on NOA projects, such as atomized sprays. For example, section 1529 requires that waste and debris be placed in leak-tight, labeled containers, whereas NOA soil stockpiles, which can be very large, are controlled by wetting, covering, hydro-mulching, dust suppressants or capping.
4. Section 1529 does not adequately address how employers can control worker exposures during NOA work, which is substantively different from many of the processes regulated by section 1529. Examples of processes or issues not addressed by section 1529 are vehicle and heavy equipment decontamination and site speed limits.
5. Unlike many conventional asbestos removal jobs, NOA work typically occurs outdoors. This introduces challenges that the current standard does not address, such as outdoor heat stress and multiple ingress and egress points with no inherent demarcation. Also, the location and quantity of NOA in soil is less predictable and less uniform than asbestos-containing materials in buildings.
6. Other California regulatory agencies, such as the Department of Toxic Substances Control and the California Air Resources Board, enforce statutes and regulations that expressly protect limit or minimize releases or emissions of NOA. In contrast, section 1529 contains almost no NOA-specific language.

Regarding worker training, the petitioner writes that Cal/OSHA, federal OSHA, and EPA have not created approved training for NOA, and the current training requirements in section 1529 are "open for interpretation as to their applicability to NOA projects, and as a result, there is no consistency in training of workers on NOA projects, and often no training at all." With respect to competent-person training and qualifications, the petitioner writes "the curriculum in the EPA's Model Accreditation Plan does not address asbestos as a natural constituent and does not adequately prepare someone for this role." The

⁸ <https://www.arb.ca.gov/toxics/atcm/asbeatcm.htm>

petitioner provided several examples of particular training subjects that should be provided to NOA workers and competent persons.

The petitioner also asserts that many contractors do not have the resources or expertise to properly analyze how section 1529 applies to NOA.

8.0 Analysis of the Proposal

Cal/OSHA's Asbestos and Carcinogen Unit and senior technical staff have interacted with employers who conduct NOA work, and Cal/OSHA has required compliance with section 1529 at NOA construction work sites. From those experiences, Cal/OSHA is aware of following problems with the current regulation:

- Section 1529 is confusing to employers that conduct NOA work (see part 8.1);
- Some employers that work with NOA are not complying with section 1529 due to the confusion (see part 8.2);
- Section 1529 does not provide sufficient information on control measures applicable to NOA work (see part 8.3);
- Section 1529 contains requirements that are impractical for NOA work (see part 8.4).

In addition, the worker and competent-person training requirements in section 1529 are not fully compatible with NOA work (see part 8.5).

8.1 Section 1529 is confusing to employers that conduct NOA work

Employers are frequently confused about the application of section 1529 to NOA work, including:

1. Whether section 1529 applies to NOA in any way (despite the description of the scope of the regulation in subsections 1529(a)(1) and 1529(a)(1)(G));
2. Whether NOA work falls into one of the four classes of asbestos work in section 1529;
3. Whether certain 1529 subsections apply to NOA work given these subsections primarily address building materials and manufactured products.

Although the definition of class II asbestos work in subsection 1529(b) is broad and includes NOA work, some employers believe that it is not clear and dispute the applicability of the class II rules to NOA work. Employers point out that the examples provided in the definition of "class II asbestos work" reference asbestos-containing manufactured products and do not include any examples of NOA. Although the definition makes clear that the examples are not a complete list of all materials that fall into class II work, the examples may mislead employers to conclude that class II controls are not applicable to NOA work.

Cal/OSHA has also received inquiries about whether particular types of NOA work fall under the class II requirements. Confusion exists, for example, as to whether tasks downstream of excavation, such as transporting, dumping, and processing of NOA-containing materials, are included. Those tasks can create exposures that are equal to or greater than those experienced during excavation.

8.2 Some employers that work with NOA are not complying with section 1529 due to the confusion

Cal/OSHA has received anecdotal reports that some employers approach all NOA jobs as unclassified asbestos work. In cases where earth containing more than one percent NOA is removed, this leads to less protective control measures being used than what is required for class II asbestos work in section 1529.

8.3 Section 1529 does not provide sufficient information on control measures applicable to NOA work

Unique processes such as grading, blasting, and rock crushing sometimes occur on NOA jobsites, but section 1529 does not contain information on controls specific to those processes.

As another example, because NOA work often coats personnel and equipment with asbestos-containing soil and mud, decontamination of employees and equipment is necessary to protect against harmful exposures. Such surface contamination may occur regardless of the airborne exposure levels. However, decontamination areas, procedures, and equipment are only required for class II asbestos work where airborne exposures exceed a PEL or where there is no affirmative demonstration that employee exposure is expected to be below the PELs. (See subsections 1529(j)(2), "Hygiene facilities and practices for employees," and 1529(b), "Definitions.")

As a final example, personal-cleaning technologies other than handheld vacuums⁹ could be explored for NOA work. These technologies might allow employees to safely clean themselves and exit the regulated area more readily and frequently. If such alternate technologies were successful and permissible, then employees could, for example, hydrate and use toilets more frequently, which are crucial for safety at California NOA jobsites, which are often in hot outdoor environments.

8.4 Some control measures required by section 1529 are not practical for NOA work

Many NOA jobsites are uniquely different from conventional asbestos-removal jobsites. Most NOA work is conducted outdoors.¹⁰ NOA work can involve extremely large plots of land and large earth-moving machinery and equipment, making certain 1529 requirements difficult or impossible to implement, such as the following:

- Establishing demarcated regulated areas around NOA work (subsection 1529(e)(2));
- Placing debris that contains asbestos in leak-tight containers (subsection 1529(g)(1)(C));
- Placing impermeable drop cloths on surfaces beneath NOA removal activity (subsection 1529(g)(7)(C));
- Decontaminating large earth-moving equipment contaminated with NOA in an area covered by an impermeable drop cloth adjacent to the regulated area (subsection 1529(j)(2)(A)).

The scale of many outdoor NOA removal projects also normally precludes other traditional asbestos controls such as glove bags and ventilated containments.

⁹ Subsection 1529(j)(2)(C) requires work clothing to be cleaned by a HEPA vacuum before it is removed for Class II asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment.

¹⁰ The Division has received reports of indoor NOA jobs. Therefore, any rulemaking on the NOA subject should not assume that all NOA work occurs outdoors.

Also unique to NOA work is the fact that the asbestos-containing earth, once excavated, often does not become waste. The NOA is often relocated, sometimes off-site, for useful construction purposes elsewhere, such as filling depressions or constructing dams. This usage of NOA conflicts with subsection 1529(g)(1)(C), which requires asbestos-containing debris be transferred to leak-tight containers promptly.

Additionally, the requirement to use amended water to wet asbestos-containing material prior to and during removal (subsection 1529(g)(7)(E)(1)) may cause groundwater contamination and conflict with environmental protection regulations.

8.5 Worker and competent-person training requirements are not fully compatible with NOA work

Competent persons on class II asbestos jobs must take approved Asbestos Hazard Emergency Response Act (AHERA) courses (subsection 1529(o)(4)(A)). The AHERA trainings are designed to address hazards associated with removing asbestos-containing building materials. Some of the techniques required to be taught in AHERA courses are not practicable in NOA projects (e.g. conducting all asbestos work within a negative pressure enclosure), while other techniques that could help protect worker health and safety on NOA projects are not covered.

Employees who conduct class II work must be trained in accordance with subsection 1529(k)(9)(D)(3), which does not contain NOA-specific subjects necessary for safe work with NOA. For example, subsection 1529(k)(9)(D)(3) requires that training include "the specific work practices and engineering controls set forth in subsection (g)... which specifically relate to the category of material being removed". However, as explained earlier in this evaluation, subsection 1529(g) does not contain NOA-specific controls.

9.0 Conclusions

An amendment to section 1529 to clarify and supplement requirements for NOA work would make compliance easier for employers. This would also improve compliance and help improve employee health.

Therefore, Cal/OSHA recommends that Petition 568 be granted to the extent that the Standards Board requests Cal/OSHA to convene an advisory committee representing all stakeholders to consider and discuss the suggestions and requests provided in Petition No. 568.

cc: Jeff Ferrell, Chris Kirkham, Eric Berg