

NOA

Naturally Occurring Asbestos

Understanding the Myriad of Regulations

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What does NOA stand for?

- Naturally Occurring Asbestos
- Natural *Occurrences* of Asbestos

What is Asbestos?

- a commercial term used for the asbestiform varieties of several types of *naturally-occurring* fibrous minerals
 - Chrysotile
 - Amosite
 - Crocidolite
 - Tremolite
 - Actinolite
 - Anthophyllite

Asbestos Concerns

- When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne
- Exposure to airborne asbestos fibers may result in serious health issues:
 - Asbestosis (scarring of lungs)
 - Mesothelioma (cancer of membranes lining chest, lungs and abdominal cavity)
 - Lung cancer

What is NOA?

- NOA occurs in rocks and soil as a result of natural geological processes.
- Natural weathering and human activities may disturb NOA-bearing rock or soil and release mineral fibers in the air, which poses a potential risk for exposure by inhalation.
- NOA does not refer to commercially processed, asbestos-containing material, such as insulation and fireproofing in buildings or automobile brake linings.

NOA Locations Nationwide

- Occurs in at least 35 States
- 44 out of 58 counties in California have documented occurrences of NOA
- Southern Nevada not known to have NOA until recently

Who cares about NOA?

- Property owners
- Insurance
- Real estate
- Government
 - Regulators
 - Planners
 - Law makers
 - Enforcement
- Contractors
- Consultants
- Laboratories
- Medical
- Researchers
- General Public

Clean Air Act

- law defines the EPA's responsibilities for protecting and improving the nation's air quality
- includes provisions for the EPA to set national emission standards for hazardous air pollutants, including asbestos.

Clean Air Act

TITLE 42—THE PUBLIC
HEALTH AND WELFARE

CHAPTER 85—AIR
POLLUTION PREVENTION
AND CONTROL SUBCHAPTER

I—PROGRAMS AND
ACTIVITIES

PART A—AIR QUALITY AND
EMISSION LIMITATIONS

§ 7412. Hazardous air pollutants

(b) List of pollutants

(1) Initial list The Congress establishes for purposes of this section a list of hazardous air pollutants as follows:

CAS number, Chemical name

107028 Acrolein

79061 Acrylamide

79107 Acrylic acid

107131 Acrylonitrile

107051 Allyl chloride

62533 Aniline

1332214 Asbestos

71432 Benzene (inc

Toxic Substances Control Act (TSCA)

- as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, 11/29/2016
- EPA is required to evaluate risk from existing chemicals to determine whether they “present an unreasonable risk of injury to health or the environment.”
 - Asbestos is one of the first 10 to be evaluated
- 3 years to complete risk evaluations
- If unreasonable risk, 2 years to mitigate
- Unclear how this will affect NOA

CERCLA (Superfund)

- US Code, TITLE 42, CHAPTER 103—
COMPREHENSIVE ENVIRONMENTAL RESPONSE,
COMPENSATION, AND LIABILITY ACT
- Subchapter I—Hazardous Substances Releases,
Liability, Compensation
- §9604. Response authorities
- (3) Limitations on Response.—“The President **shall not provide** for a removal or remedial action under this section in response to a release or threat of release—
- (A) of a **naturally occurring substance** in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found.”

CERCLA (Superfund)

- EPA reviews site-specific conditions to determine if a removal or response action under CERCLA is appropriate.
- In most cases, removal of asbestos-containing building materials in place is regulated through a different EPA program, Section 112 of NESHAP.

Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)

- intended to minimize the release of asbestos fibers during activities involving the handling of asbestos, such as bldg demolition or renovation
- Applies to all public and commercial structures, and to residential properties consisting of five or more dwelling units
- May apply to construction activities at NOA sites

Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)

If NESHAP applies to a NOA construction site:

- Notify local AQMD greater than 10 working days in advance of work
- Pay fees
- Employ proper work practices
- Comply with Cal OSHA worker safety requirements.

Environmental Protection Agency

- responsible for enforcing regulations relating to asbestos renovations and demolitions
- can delegate this authority to state and local agencies
- Cal ARB and local air districts have received delegated authority to enforce the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations for asbestos

California Air Resources Board

- adopted two Airborne Toxic Control Measures (ATCMs) for naturally-occurring asbestos
 - Surfacing Applications
 - Construction, Grading, Quarrying, and Surface Mining Operations.

ATCM for Surfacing Applications

- 17 CCR 93106
- Prohibits use, sale & supply of restricted aggregate material ($\geq 0.25\%$ asbestos), unless an exemption applies.
- Requires notification if a 'restricted material' to be used tests $> 0.25\%$ asbestos

Exemptions

- Sand & gravel ops
- Roads in quarries or mines
- Maintenance ops on existing roads
- Emergency road repairs
- Asphalt & concrete materials
- Landfill ops
- Geologic evaluation
- Limited access (steep) surfaces
- Surfacing in remote areas
- Roads at construction sites
- Riprap

Geologic Evaluation or Testing

- Evaluate for presence of ultramafic rock or serpentine
 - Color index, microscopic exam, petrographic thin sections, chemical analysis (XRF, ICP)
- Test restricted material for asbestos
 - ARB Test Method 435
 - OK to average results from multiple tests of any one volume of material

Grab Sampling

■ Frequency

- 1 composite / 1000 tons material
- APCO may approve alternate frequency
 - Test history
 - Geologic evaluation

ATCM for Construction, Grading, Quarrying & Surface Mining

- 17 CCR 93105
- Must use dust control measures for a specified set of emission sources
- Prevent visible emissions from crossing project boundaries
- Notify APCD/AQMD before starting work

Projects <1 acre

- Limit vehicle speed limits
- Apply water prior to and during ground disturbance
- Keep storage piles wet or covered
- Track out prevention and cleaning

Projects >1 acre

- Asbestos Dust Mitigation Plan
 - Track-out control
 - Control of active and inactive areas and storage piles
 - Traffic control
 - Control of earthmoving activities
 - Control for off-site transport
 - Post-construction stabilization of disturbed areas
 - Air monitoring
 - Frequency of reporting

- No visible emissions

Quarrying and Surface Mining Operations

- Pre-existing operations
- Mineral exploration activities
- No visible dust emissions crossing property line

APCD / AQMD

- Air Pollution Control District
- Air Quality Management District

- County or regional governing authorities
- Responsible for controlling air pollution from stationary sources
- 35 in California

APCD / AQMD

- Individual websites provide
 - district-specific forms
 - general and regulatory information
 - links to other related agencies

Test Methods

- Ultramafic rock
 - Color index assessment
 - Microscopic evaluation
 - Petrographic analysis / rock thin sections
 - Chemical analysis (XRF, ICP, etc)

Test Methods

- Bulk sample analysis
 - ARB Test Method 435 (or approved alternative)
 - Crush / pulverize sample
 - Multiple slide preparations
 - Quantify asbestos via point counting
 - 400 point count
 - Sensitivity of 0.25% (1/400)

Test Methods

- Air sample analysis
 - “CARB-AHERA” TEM method
 - Must achieve analytical sensitivity of 0.001 structures/cc or less
 - Count all asbestos structures having aspect ratios $>3:1$, regardless of length

Test Methods

- Which fibers count?
 - Asbestos: 6 varieties
 - Ferro-actinolite?
 - Libby amphiboles (winchite, richterite)?
 - Erionite?
 - Fluoro-edenite?
 - Magnesio-hornblende?

ISM Sampling

- Incremental Sampling Methodology
 - structured composite sampling and processing protocol
 - designed to reduce data variability and increase sample representativeness
 - Variability in measured contaminant concentrations between discrete soil samples is due primarily to the particulate nature of soil and heterogeneity in the distribution of contaminants

ISM Sampling

- elements of ISM that control data variability are incorporated into
 - field collection of soil samples
 - laboratory processing and subsampling procedures.
- designed to obtain a single aliquot for analysis that has all constituents in the same proportion as an explicitly defined area / volume of soil

ISM Sampling

- establish a working conceptual site model (CSM)
- define the data quality objectives (DQOs)
- determine the appropriate decision unit (DU) size and locations
- DU size is site-specific and represents the smallest volume of soil about which a decision is to be made

ISM Sampling

- An incremental sample is created by collecting many (usually 30–100) equal-volume increments in an unbiased manner from throughout the entire DU
- The combined increments (often >1 kg) are usually processed at the lab
- final analytical aliquot is the target sample
- http://www.itrcweb.org/ism-1/Executive_Summary.html

NOA Regs in Nevada

- EPA: Regulates asbestos under three laws but none pertain to NOA
- OSHA: Regulates asbestos for worker safety
- State of Nevada: No statutes or regulations specifically for NOA
- Southern Nevada Health District : Regulates transport of asbestos >1 % by weight
- Clark County Department of Air Quality: regulates only dust

NOA Mitigation Measures

- Agencies referenced – Caltrans (California DOT) – California Air Resource Board (CARB)
- Modeled mitigation measures after California regulations (CARB) and best practices

NOA Mitigation Measures

- Thoroughly wet work areas and unpaved road surfaces using water trucks, hoses, spray systems or sprinklers
- Reduce vehicle driving speeds in the work area to limit dust generation
- Reduce drilling and excavating speeds
- Excavate and blast during periods of calm or low wind speeds

NOA Mitigation Measures

- Avoid overloading trucks: prevent “spill out”
- Clean equipment and vehicles to prevent tracking soil out of the project work area
- Limit NOA concentration to less than 0.25 percent for surfacing material (topsoil, landscaping, etc.)

Mitigation Measure Compliance

- Clark County Air Quality Permit
- NDOT/RTC and Contractor mitigation compliance teams
 - Implementation of NOA Management Plan describes the managerial approach, strategy, characterization, and quality procedures to achieve all of the requirements for NOA mitigation
- Project ambient and perimeter air sampling

NEPA Re-evaluation Process

- FHWA regulations allow for a re-evaluation process for completed EIS documents and outline when a Supplemental Environmental Impact Statement (SEIS) is required
 - 23 CFR 771.129(c) and 130(c)
- Develop appropriate studies to assess the impacts of the changes

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