

SB

180

<TARGET><BILL>SB 180</BILL><SUBJECT>SB
180</SUBJECT><COMM>SJUD27</COMM></TARGET>

ALASKA STATE LEGISLATURE

SENATOR DONALD C. OLSON

Session

Alaska State Capitol, Rm. 508
Juneau, AK 99801
(907) 465-3707
Fax: (907) 465-4821

Interim

716 W. 4th Ave. Ste 530
Anchorage, AK 99501
(907) 269-0254
Fax: (907) 269-2031



Chair

Community & Regional Affairs

Member

Senate Finance Committee
Ethics Committee
Legislative Council
Northern Waters Task Force
Education Funding District Cost Factor
Finance Subcommittee Chair
Fish & Game
Health & Social Services
Public Safety
Finance Subcommittee Member
Environmental Conservation

Senator_Donny_Olson@legis.state.ak.us

Sponsor Statement

SB 180 -- Naturally Occurring Asbestos in Gravel

HB 258 authorizes and regulates the use of gravel or aggregate material that contains naturally occurring asbestos (NOA). There are documented cases of NOA being found in several areas of the state, including Juneau, along the Dalton Highway and Ambler. Discovery of NOA in local gravel pits has delayed and, in Ambler's case, halted construction projects. The use of NOA in construction projects may be regulated by states. Virginia and California have been regulating NOA for many years. With the passage of SB 180, the discovery of NOA in local gravel sources and the cost of transporting non-NOA gravel and material will not impact the success and completion of construction projects and important future state infrastructure in Rural Alaska.

Several large projects are on the state's horizon that will require the use of large amounts of gravel. These large projects are in mineral rich areas of the state critical to the future development of Alaska. Most notably, it is estimated that the gas pipeline alone may use 50 to 60 million cubic yards of new gravel. Many miles of the Dalton Highway will be reconstructed in support of the project, requiring additional gravel. In Rural Alaska, almost all airport construction and upgrades require material from local gravel sources; a new small airport can use up to 25,000 cubic yards of gravel. The use of NOA gravel and materials should be resolved before it becomes an issue during the actual construction process of any of these large future projects.

SB 180 directs the Department of Transportation and Public Facilities to develop and implement statewide regulations and standard operating procedures (SOP) to allow for the use of NOA for both State and private construction projects. SB 180 will balance the needs of moving Alaska forward; building critical infrastructure, completing construction projects while protecting the health of Alaskan workers and communities.

LEGAL SERVICES

DIVISION OF LEGAL AND RESEARCH SERVICES
LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101

State Capitol
Juneau, Alaska 99801-1182
Deliveries to: 129 6th St., Rm. 329

MEMORANDUM

December 22, 2011

SUBJECT: Sectional summary of draft bill relating to naturally occurring asbestos (Work Order No. 27-LS0400\B)

TO: Representative Reggie Joule
Attn: Brodie Anderson

FROM: Emily Nauman *EN*
Legislative Counsel

You have requested a sectional summary of the above-described bill.

As a preliminary matter, note that a sectional summary of a bill should not be considered an authoritative interpretation of the bill and the bill itself is the best statement of its contents. If you would like an interpretation of the bill as it may apply to a particular set of circumstances, please advise.

Section 1 of the bill contains legislative findings and purpose statements to explain and support the measure.

Section 2 of the bill creates immunity from civil action or a claim for civil damages based on an alleged asbestos-related death, injury, illness, or disability or asbestos-related property damage claim in specified circumstances.

Section 3 of the bill adds a new section, AS 18.31.250, to describe how a person may qualify for immunity under sec. 2 of the bill related to use of aggregate material containing naturally occurring asbestos in construction projects that are not initiated or contracted for by the Department of Transportation and Public Facilities (DOT).

Section 4 of the bill directs DOT to establish standards and procedures for gravel and aggregate materials that contain naturally occurring asbestos.

Section 5 of the bill, a temporary law provision, permits DOT to review and approve site-specific plans submitted for DOT projects and for projects not initiated by the department during the interim period before initial standards and operating procedures adopted under sec. 4 of this bill take effect.

Section 6 of the bill authorizes DOT to use a specific standard previously adopted by the California Air Resources Board on an interim basis for the purpose of determining the

Representative Reggie Joule
December 22, 2011
Page 2

asbestos content of a bulk sample in a bulk test required under the new permanent law provisions until the department adopts its initial standards that may be more relevant to this state's experience.

Section 7 of the bill gives the measure an immediate effective date.

ELN:ljw
11-470.ljw

AIP Project Schedule 2011-2013

FAA Airports Division, Alaskan Region (Last saved: August 15, 2011)

http://www.faa.gov/airports/alaskan/aip/media/aip_project_list.pdf

STATE OF ALASKA - NORTHERN REGION

AMBLER

AFM

Project: Extend primary and crosswind runways, clear runway visibility zone, expand runway safety areas, construct new apron, construct new SREB, and relocate airport access road. Project delayed until a suitable material source can be found that does not contain asbestos.

Construction Start: 2014

Likely Completion Date: 2015

Sponsor/POC: AKDOT Ryan Anderson 451-5129

Airports POC: Matt Freeman, 271-5455

ATO POC: Ed Vey, 271-3056

FAA Flight Procedures POC: Kyle Christiansen, 271-5187

NAS Impacts: Existing VASI's.

AVN Impacts: Update all IAP's. Need new runway data by end of 2006.

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Finance Subcommittee Chair
Fish & Game
Health & Social Services
Public Safety
Finance Subcommittee Member
Environmental Conservation

Senator_Donny_Olson@legis.state.ak.us

Delayed projects in Ambler due to NOA

- Airport Extension
- Replace Grizzly Bridge
- Solid Waste Site
- Riverbank Erosion in front of town
- Road construction and maintenance
- School Playground
- Future Home sites



Northwest Arctic Leadership Team

The Honorable Donny Olson
State Senate
Alaska State Capitol
Juneau, AK 99801-1182

January 31, 2012

Dear Senator Olson:

The Northwest Arctic Leadership Team (NWALT) writes in support of Senate Bill 180. As you know, NWALT is a partnership of the Northwest Arctic Borough, Maniilaq Association, the Northwest Arctic Borough School District and NANA Regional Corporation. It is our charge to maximize resources and reduce duplication of efforts to address issues affecting the people of Northwest Alaska while honoring and perpetuating our Iñupiat cultural heritage.

Enactment of SB 180 is essential for completion of long-needed construction and public works projects in the Upper Kobuk Valley, most of which have been put on hold for over a decade due to naturally occurring asbestos (NOA) in the local gravel sources. Projects delayed in Ambler add up to over \$10 million and include:

1. Airport runway extension and upgrades to Grizzly Bridge, which are necessary to reach the airport (the last improvement to the airport was in 1991 and to Grizzly Bridge was in 1976)
2. Upgrades to water and sewer services (last improvements in 1973 and 1982 respectively)
3. Building of new homes (last new homes completed in 1991 by the Northwest Inupiat Housing Authority)
4. Upgrades to existing dumpsite (opened in 1976 with no improvements since)
5. To secure the embankment protecting homes from river erosion

In Kobuk, a necessary addition to the school to accommodate students attending high school in the village has been delayed since grades 9-12 were made available in the village five years ago.

The use of NOA-containing material in construction and public works projects in the Upper Kobuk is necessary to the maintenance and improvement of local infrastructure so that residents may have the opportunity to enjoy a quality of life similar to that of residents who have the benefit of NOA-free gravel sources. Additionally, this legislation is a crucial part of the long-term solution to an important issue affecting rural Alaskans across the State, as well as proposed development projects such as the Ambler Mining District Access Project.



NWALT *Northwest Arctic Leadership Team*

We thank you for your advocacy on this important issue.

Sincerely,

Siikauraq Martha Whiting
NWALT Co-Chair
Mayor
Northwest Arctic Borough

Marie N. Greene
NWALT Co-Chair
President/CEO
NANA Regional Corporation

Ian Erlich
President/CEO
Maniilaq Association

Norm Eck, Ph.D.
Superintendent of Schools
Northwest Arctic Borough School District

**STATE OF ALASKA
2012 LEGISLATIVE SESSION**

Bill Version CSSB 180(TRA)
 Fiscal Note Number 1
 (S) Publish Date 2/24/12

Identifier (file name) SB180-DOLWD-LSS-2-17-12 Dept. Affected Labor and Workforce Development
 Title Naturally Occurring Asbestos in Gravel Appropriation Labor Standards and Safety
 Allocation Occupational Safety and Health
 Sponsor Senator Olson
 Requester Senate Transportation OMB Component Number 970

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	FY13 Appropriation Requested	Included in Governor's FY13 Request	Out-Year Cost Estimates				
			FY14	FY15	FY16	FY17	FY18
OPERATING EXPENDITURES	FY13	FY13	FY14	FY15	FY16	FY17	FY18
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants, Benefits							
Miscellaneous							
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0	0.0

FUND SOURCE		(Thousands of Dollars)					
1002	Federal Receipts						
1003	GF Match						
1004	GF						
1005	GF/Prgm (DGF)						
1037	GF/MH (UGF)						
1178	temp code (UGF)						
TOTAL		0.0	0.0	0.0	0.0	0.0	0.0

POSITIONS							
Full-time							
Part-time							
Temporary							

CHANGE IN REVENUES							
--------------------	--	--	--	--	--	--	--

Estimated SUPPLEMENTAL (FY12) operating costs _____ (separate supplemental appropriation required)
 (discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY13) costs _____ (separate capital appropriation required)
 (discuss reasons and fund source(s) in analysis section)

Why this fiscal note differs from previous version (if initial version, please note as such)

Not applicable, initial version.

Prepared by Grey Mitchell, Director
 Division Labor Standards and Safety
 Approved by Click Bishop, Commissioner
Department of Labor and Workforce Development

Phone 465-4855
 Date/Time 2/17/12 2:36 PM
 Date 2/17/2012

Analysis

The proposed legislation intends to require the Alaska Department of Transportation and Public Facilities to establish standards and operating procedures in connection with public construction and maintenance projects to allow for the use of gravel or aggregate containing a limited amount of naturally occurring asbestos in a manner that avoids significant human health risks while mitigating significantly higher costs associated with using only gravel or aggregate that is 100 percent free of asbestos. The proposed legislation also intends to require users of gravel or aggregate containing a limited amount of naturally occurring asbestos to prepare project plans that demonstrate conformance with established standards and to shield providers of gravel or aggregate containing a limited amount of asbestos from liability under certain conditions.

There is no anticipated financial impact to the department as a result of this legislation. Existing resources would be used to provide consultative assistance to the Department of Transportation and Public Facilities in establishing and implementing standards for the use of aggregate or gravel that contains a limited amount of naturally occurring asbestos. Electronic means of communication will be utilized to avoid the need for travel.

FISCAL NOTE

STATE OF ALASKA
2012 LEGISLATIVE SESSION

Bill Version CSSB 180(TRA)
Fiscal Note Number 2 **CORRECTED PUBLISH DATE**
(S) Publish Date 2/24/12

Identifier (file name) SB180-DEC-AQ-02-16-12 Dept. Affected Environmental Conserv
Title Naturally Occurring Asbestos In Gravel Appropriation Environmental Health
Allocation Air Quality
Sponsor Senator Olson
Requester Senate Transportation Committee OMB Component Number 2061

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	FY13 Appropriation Requested	Included in Governor's FY13 Request	Out-Year Cost Estimates					
			FY13	FY14	FY15	FY16	FY17	FY18
OPERATING EXPENDITURES								
Personal Services	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Travel	7.8		8.2	0.7	0.7	0.7	0.7	0.7
Services	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Commodities	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Capital Outlay	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Grants, Benefits	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous	0.0		0.0	0.0	0.0	0.0	0.0	0.0
TOTAL OPERATING	7.8	0.0	8.2	0.7	0.7	0.7	0.7	0.7

FUND SOURCE		(Thousands of Dollars)						
1002	Federal Receipts	0.0		0.0	0.0	0.0	0.0	0.0
1003	GF Match	0.0		0.0	0.0	0.0	0.0	0.0
1004	GF	7.8		8.2	0.7	0.7	0.7	0.7
1005	GF/Prgm (DGF)	0.0		0.0	0.0	0.0	0.0	0.0
1037	GF/MH (UGF)	0.0		0.0	0.0	0.0	0.0	0.0
1178	temp code (UGF)	0.0		0.0	0.0	0.0	0.0	0.0
TOTAL		7.8	0.0	8.2	0.7	0.7	0.7	0.7

POSITIONS							
Full-time		0		0	0	0	0
Part-time		0		0	0	0	0
Temporary		0		0	0	0	0

CHANGE IN REVENUES	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Estimated SUPPLEMENTAL (FY12) operating costs 0.0 (separate supplemental appropriation required,
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY13) costs 0.0 (separate capital appropriation required)
(discuss reasons and fund source(s) in analysis section)

Why this fiscal note differs from previous version (if initial version, please note as such)

Not applicable, initial version.

Prepared by Alice Edwards, Director
Division Air Quality
Approved by Lynn Kent
Deputy Commissioner

Phone (907) 465-5109
Date/Time 2/16/12 3:46 PM
Date 2/18/2012

FISCAL NOTE #2

STATE OF ALASKA
2012 LEGISLATIVE SESSION

BILL NO. CSSB 180(TRA)

Analysis

The Department of Environmental Conservation is tasked with consulting with the Department of Transportation & Public Facilities on the development of standards and operating procedures to allow the use of gravel or aggregate material that contains naturally occurring asbestos in transportation and public facilities construction projects.

Travel:

This fiscal note assumes Air Quality will assign staff to membership on an inter-agency task force(s) to establish interim standards and develop standard operating procedures. Membership will require travel to multiple planning and public meetings during FY2013 and FY2014, with annual meetings occurring thereafter.



**Naturally Occurring
Asbestos in Alaska
and
Experiences and
Policy of Other
States Regarding
its Use**

A joint project

By

Dr. Robert A. Perkins, PE

Institute of Northern Engineering

University of Alaska Fairbanks

And

John Hargesheimer, PE, CIH

Aaron Winterfeld, CHMM

Nortech

September 2009



Institute of Northern Engineering

University of Alaska Fairbanks

Fairbanks, Alaska 99775

www.uaf.edu/ine/

Citation:

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Front cover photo: Asbestos at material site MS 105 on the Dalton Highway

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APPENDIXES

1. California Regulation
 - a. ATCM I
 - b. ATCM II
2. Virginia Regulation
 - a. Directive I
 - b. Directive II
3. Excel file with USGS 2009 Alaska Resource Data File is available electronically from the authors.

EXECUTIVE SUMMARY

Naturally Occurring Asbestos (NOA) occurs in mineral deposits in Alaska. Some localities in Alaska do not have gravel sources that are NOA-free, which impacts the cost of heavy construction projects such as roads and airports. Because airborne asbestos fibers are a significant human health risk, mining and industrial use of asbestos is rare in the United States. Disposition of existing asbestos materials in industry and buildings is tightly regulated by federal and state authorities. The use of NOA is not regulated by federal agencies or most states. Determining if NOA can be safely used in heavy construction materials and what can or should be done with NOA materials that are already in place are complex questions. The ultimate answer depends on propensity for the NOA in each scenario to actually release asbestos fibers that may be inhaled by humans, which in turn depends on the amount and type of asbestos mineral, how it is handled in processing, and how it is maintained. Practical analysis of this depends on laboratory analysis, as well as regulation or control of operations. Implementation of these requires stakeholder education and cooperation and agency oversight. This report summarizes these from the perspective of the Alaska Department of Transportation (ADOT).

Some key points:

- NOA is present in many states, but only a few have regulations governing its use.
- There are many regions in Alaska that have minerals in surface rocks that may contain asbestos and asbestos has been discovered in many locations in Alaska.
- Gravel is constantly in demand for heavy construction projects, if a major project, such as the gas pipeline is built, it will require very large quantities of gravel
- All future material site exploration should consider the possibility of encountering NOA, and those areas indicated by mapping as possible NOA minerals should be carefully investigated.
- California, which does have NOA regulations, uses a threshold asbestos concentration, below which the material is not considered NOA. If the material is NOA, regulations cover its use. Virginia is similar.
- Starting with a site-specific plan and then covering the material and reducing dust are key features of those regulations, if NOA is over the threshold asbestos content.
- We present a review of dust suppression and capping techniques, many of which might be useful, depending on the situation.
- Education of the public and worker training are important components of any NOA plan.

The key conclusion is that NOA can be used in many projects, but precautions are needed, especially a plan for its use. Considering the importance of NOA to ADOT's mission we recommend that the ADOT take the lead in a statewide effort to develop an appropriate NOA policy and program by coordinating a stakeholders working group effort. NOA programs in other states were developed with input from industry, public health, environmental and state organizations and agencies. The outputs of the NOA programs included source characterization, geologic mapping, standardized operating procedures (SOP), program exemption procedures, and local authority. Successful implementation of a NOA program will require significant commitment and change in industry, operational, management, design and construction practices for use of NOA materials. To insure comprehensive input and facilitate stakeholder "buy in," the statewide working group should include federal and state, and local government, as well as industry, community and public health interested parties.

Here we assume that in order for projects that must use NOA to proceed, the ADOT must have a standard or SOP that contains the goals and guidelines that the ADOT must follow in order to use NOA safely. The SOP in turn would require a specific action plan for each project. Of course other project owners could use the ADOT's SOP. Thus, the ADOT's goal with the NOA working group is to develop an SOP that is directed towards ADOT projects, but also satisfies the goals the various stakeholders. We note here that protecting the public health and safety is the overarching goal the ADOT's operations, but the ADOT's approach via building safe roads and airports is different than, for example, the EPA's approach of limiting public exposure to carcinogens. The goals and charges of all the agencies can be reconciled into a workable SOP, but the coordination effort should not be underestimated.

Here is a putative outline of the SOP required for safe use of NOA and the steps likely required to garner wide stakeholder approval of the SOP.

1. The SOP includes
 - a. site investigation and characterizations
 - i. Laboratory practices
 - b. review of design alternates to use non-NOA materials
 - i. Cost analysis
 - c. evaluation of human health concerns and agency involvement
 - d. designs that use NOA
 - i. typical drawings and specifications
 - e. acceptable construction practices
 - i. typical contract provisions
 - ii. QA/QC
 - f. acceptable and required O&M practices
 - i. State forces
 - ii. Local forces
 - g. O&M and other issues related to in-place NOA

- h. the administrative procedures for the entire process, including lines of authority and approval authority
 - i. interagency communications
 - ii. documentation
 2. For each project or situation
 - a. a site specific NOA plan
 - b. including outline construction specifications or O&M procedures
 - c. public involvement and education
 - d. QA/QC

However to be successful, the SOP must be acceptable to

- The agencies who may have some jurisdiction or be involved
- The DOT design, construction and O&M staff and experts
- The contractors and material site owners and suppliers
- The general public
- Involved and concerned public.

Thus, we recommend the ADOT take the lead and develop a NOA Action Plan that involves a consultant to the DOT. Here are the main steps of that Action Plan that will lead to a workable SOP:

- Outline the SOP
- Contact all interested parties and notify them of the Action Plan and request a statement of their interest
- Meet with all the major players and discuss the issues – either at a roundtable or individually
- Prepare a draft of the SOP and an example Site Specific Plan for ADOT review
- Distribute the draft to interested stakeholders
- Hold a meeting to review the draft and discuss comments and changes
- Determine if new laws or regulations are needed
- If not, the ADOT promulgates the SOP
- If new laws or regulations are needed, ADOT starts the process.

INTRODUCTION

Asbestos is a term for naturally occurring silicate minerals with long, thin fibrous crystals that were historically mined and utilized in a wide-variety of manufactured products because of favorable chemical and physical properties. By the 1980s inhalation of asbestos fibers was found to be a human carcinogen responsible for diseases such as asbestosis, mesothelioma and lung cancer and the mining and use of asbestos in manufactured products was banned. While mining and manufacturing has since ended in the United States, Naturally Occurring Asbestos (NOA) is a constituent of some rocks and soils existing in varying types and quantities in several locations throughout the nation including Alaska. The United States Occupational Safety and Health Administration (OSHA) regulates asbestos exposure in the workplace; however, federal regulations do not address non-occupational exposure from NOA. Due to the lack of regulatory guidance associated with NOA, some states with substantial NOA concerns, such as California, have implemented state-wide regulations controlling the use of soils with NOA.

Due to geography, land mass, limited road systems and relatively sparse and scattered population centers within Alaska, NOA has not been a historical concern for the state. However, over the past several years NOA has been encountered in Alaska and has impacted state projects (e.g. Dalton Highway, Ambler, etc). Meanwhile the Alaska Department of Transportation & Public Facilities (ADOT) has an ever-increasing demand for gravel and rock to construct and repair the state's roads and airports. Large construction projects such as the proposed gas line or railroad extension will require gravel and rock source development.

The ADOT contracted with the Institute of Northern Engineering (INE) of the University of Alaska Fairbanks through the Alaska University Transportation Center to report on the available background information in Alaska and a literature search of information from other states that have similar NOA issues. INE contracted with Nortech Environmental, an Alaska consulting firm, to provide expertise in asbestos issues in Alaska, and to perform the literature search and consultations with other states.

This paper reviews NOA background, analytical issues, policies and regulations that have been considered and/or implemented by other authorities involved with NOA and who have developed NOA policy options. Identified NOA control strategies and technologies are evaluated and analyzed according to their effectiveness, enforcement, affordability and consistency with emerging US standards and ADOT programs. The literature is clear that NOA gravels can be used safely with proper workforce training, understanding and implementation of appropriate control strategies and technology. Implementation of effective Alaskan NOA policies, including development of any SOP to deal with NOA,

will require program consensus, including an educational component, and must involve all stakeholders in the NOA issue (resource owner, owner, designer, contractor, local, regional and state government, and communities) in a holistic approach.

BACKGROUND

Asbestos History

The word 'asbestos' is of Greek origin and has the meaning "inextinguishable" or "indestructible." Today asbestos is the commercial term for a group of silicate minerals consisting of magnesium, calcium and iron all with fibrous tendencies. The favorable properties of asbestos were known and utilized by the ancient Greeks and Romans, Europeans throughout the Middle Ages, and most of the industrial world by the modern era. Asbestos was added in manufactured material for thermal and electrical insulation as well as for strength and chemical stability. These favorable traits lead to the continued use of asbestos in manufactured products through the industrial expansion of the 20th Century. By mid-1960 a high frequency of respiratory disease within the asbestos mining, manufacturing, shipbuilding and construction industries began to gain the attention of medical researchers.

Asbestos is naturally occurring in many parts of the world and was historically mined as raw ore. After the ore was segregated, the asbestos was broken down into fibers and fiber bundles during a milling process, and then further refined depending on the use. Asbestos was included in the manufacture of thermal piping insulation and spray-applied fireproofing as well as resilient floor coverings, acoustical materials, gaskets, plaster, vermiculite, joint compound, wall board, roofing products, industrial mastics, textile and friction productions such as automotive brakes.

In mineralogy, the word 'asbestos' describes a series of magnesium silicate minerals that naturally occur in fibrous form or 'asbestiform.' The six varieties of recognized asbestos minerals comprise two mineralogical groups: serpentines and amphiboles. The only variety of serpentine asbestos is chrysotile or 'white asbestos,' while the amphibole group has five mineral varieties: amosite or 'brown asbestos' (cummingtonite-grunerite asbestos), crocidolite or 'blue asbestos' (riebeckite asbestos), anthophyllite asbestos, tremolite asbestos and actinolite asbestos. Amosite and crocidolite are the trade names used for the asbestos varieties of the cummingtonite-grunerite and riebeckite series respectively. The name 'Amosite' originated as an acronym for "Asbestos Mines of South Africa."

Chrysotile is the predominant asbestos variety used commercially in the United States. Chrysotile has a crystal structure of a sheet of silicate rolled into a straw-like, hollow tube. The property creates a hydrophilic or 'water loving' tendency, and therefore water is often used to reduce airborne chrysotile fiber concentrations during processing and removal activities. Crocidolite and Amosite are the two additional asbestos varieties exclusively mined and intentionally added to commercial products. The other three forms of amphibole asbestos are generally found in trace amounts and are often described as a contaminant in mining operations. The crystal structure of amphiboles is a chain structure of

magnesium and silicon ions that form into long straight fibers. The molecular arrangement makes the amphiboles hydrophobic or 'water fearing' and difficult to wet and therefore, water is somewhat less effective as dust control with this group.

Asbestos has become a serious health and safety concern due to widespread use in manufactured products; many of which are still used today. The primary pathway of exposure for asbestos is inhalation of airborne fibers; ingestion is generally a minor pathway. Particles smaller than 10 µm in aerodynamic diameter, such as asbestos fibers, are known to readily enter the lungs. Asbestos dust may also be ingested directly into the mouth during respiration, hand-mouth contact while eating or smoking, or indirectly by swallowing of mucus. Dermal exposure to asbestos has been known to cause irritation; however, no serious health effects from skin exposure have been identified.

Asbestos is known to cause or contribute to fibrosis and malignancies of the lung and other organs. The U. S. Environmental Protection Agency (EPA) has classified asbestos as a Group A human carcinogen meaning sufficient evidence exists to connect exposure and human carcinogenicity. Exposure to airborne asbestos has been linked to Asbestosis- a debilitating, non-malignant lung disease; mesothelioma – a rare cancer of the chest and abdominal lining, and cancers of the lung, esophagus, stomach, colon and other organs. Other conditions associated with asbestos exposure are build-up of fluid in the lungs known as pleural effusion and deposits in the pleural cavity called pleural plaques.

Data from asbestos work exposure suggests the risks of asbestosis and lung cancer are "dose-dependent" meaning they decrease proportionately with a decrease in total asbestos exposure. Mesothelioma however is not recognized as a dose-response related illness and has been linked to primarily amphibole asbestos exposure.

The time between exposure and resulting disease is known as the latency period, and typically spans between ten and forty years. The age at which asbestos exposure occurs is relatively unimportant for determining the lifetime risk of lung cancer. On the other hand, the age at which asbestos exposure occurs is very important in determining the lifetime risk of developing mesothelioma. The earlier exposure occurs, the more time mesothelioma has to develop; thus the concern for asbestos exposure to school children.¹

Asbestos exposure and cigarette smoking increases the lung cancer rate significantly above the rate due to either smoking (ten times) or asbestos exposure (five times) alone. A smoker routinely exposed to asbestos experiences a synergistic effect from the two thereby increasing their risk of developing a lung disease by fifty to ninety times more than a person who does not smoke and is not exposed to asbestos. OSHA standards require employers of workers who

are exposed to asbestos to be provided information packets on smoking cessation programs and to ban smoking in all workplaces where any asbestos exposure is possible.

Asbestos Regulations

Although NOA is not regulated per se, here we review the most important asbestos regulations. The EPA regulates asbestos products primarily under three laws:

- Clean Air Act (CAA), at 40 CFR 61 Subpart M – National Emission Standard for a Hazardous Air Pollutant – Asbestos (NESHAP);
- Toxic Substances Control Act (TSCA), at 40 CFR 763 Asbestos; and
- Asbestos Hazard Emergency Response Act (AHERA) which amended TSCA in 1986.

Asbestos is further regulated by several federal agencies and some Alaska agencies.

NESHAP

The asbestos NESHAP regulates the emission of asbestos from the workplace into ambient air primarily during removal activities, building renovation/demolition and associated waste disposal operations. The NESHAP allows no visible emission of asbestos from the workplace during any regulated activity.

Three key NESHAP concepts are 'asbestos-containing material' (ACM), 'friable' material, and 'Regulated ACM' (RACM). A material is defined as ACM if it contains more than 1% asbestos as determined by polarized light microscopy (PLM) analysis. Untested materials identified as suspect by an accredited inspector must be Presumed ACM (PACM). Friable is defined as a material that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable materials are subdivided into Category I nonfriable (packings, gaskets, asphalt roofing products and resilient floor covering) and Category II nonfriable (such as wallboard, cement asbestos products, asbestos-containing plasters, and any nonfriable ACM not listed in Category I). Category II nonfriable ACM are materials that may become friable during handling or disposal.

RACM includes all friable ACM, nonfriable ACM that has become friable, Category II materials that will be made friable by the proposed activity and all Category I materials that will be subjected to operations causing fibers to become airborne. Prior to the demolition or renovation of any non-exempt structure in the United States, the owner or operator of the facility must inspect for the presence of asbestos, including Category I and II non friable ACM. NESHAP requires building owners and operators to notify the EPA (or a designated state agency) before demolishing any non-exempt structure. In addition, it requires a ten day advance notification if scheduled activities will disturb equal or greater than (\geq) 260 linear feet on pipes, \geq 160 square feet on surfaces and \geq 35 cubic feet of debris of RACM. The NESHAP standard also prohibits emissions of asbestos to the outside air and requires emission control procedures and appropriate work

practices during collection, packaging, transportation and disposal of regulated ACM waste.

AHERA

EPA issued regulations pursuant to the 1986 Asbestos Hazard Emergency Response Act (AHERA) in October of 1987. AHERA applies to public, nonprofit private and Defense Department kindergarten to twelfth grade school buildings. It requires them to conduct ACM inspections, develop comprehensive ACM management plans, and select asbestos response actions to deal with asbestos hazards. AHERA established a series of accredited personnel and set the training requirements for each. The AHERA occupational survey does not require inspection of all portions of the school (ie exterior, roof etc) nor the removal of asbestos identified, but does require that schools select and implement an appropriate response action for each identified asbestos hazard. The response action may be encapsulation, enclosure, removal or an approved Operations Maintenance and Repair Program (O&M Program). Encapsulation deals with applying a chemical coating or impregnation of the ACM building material in order to prevent any fiber release, while enclosure consists of sealing the ACM in an airtight structure. O&M Programs and Management in Place (MIP) are generally the most utilized and preferred response method until the ACM has become deteriorated or will be impacted by renovation activities thus requiring removal.

The Asbestos School Hazard Abatement Reauthorization Act (ASHARA) was enacted on November 28, 1990. ASHARA amended AHERA to require accreditation for any person who inspects for ACM in a public or commercial building, or who designs or conducts a response action with respect to friable ACM in such a building. ASHARA does not require building owners to conduct inspections for asbestos-containing materials in public and commercial buildings; however, should the owner decide to conduct an inspection an accredited inspector must be used.

TSCA

EPA's Asbestos Ban and Phase Out Rule (ABPO) (40 CFR 763 Subpart I) was published in the Federal Register on July 12, 1989, under TSCA. The rule was to prohibit the importation, manufacture and processing of 94 percent of all remaining asbestos products in the United States over a period of seven years, beginning in 1990. However, the U.S. Fifth Circuit Court of Appeals vacated most of the ABPO and remanded it to EPA in October 1991. EPA subsequently banned several paper products and has used general TSCA authority to control re-introduction of asbestos products into the market place.

OSHA

OSHA currently has three standards for asbestos exposure. The general industry standard, 29 CFR 1910.1001, applies to all occupational exposures to asbestos in all industries except the shipyard and construction industries. This

standard would apply to workers handling NOA if exposures were above the PELs. The shipyard standard, 29 CFR 1915.100, applies to asbestos exposure in all shipyard work and the construction standard, 29 CFR 1926.1101, applies to asbestos exposure in all construction work, including demolition and building maintenance.

All three standards are similar, with each standard setting two permissible exposure limits (PEL), the time-weighted average (TWA) and the excursion limit (EL). The TWA is 0.1 fiber per cubic centimeter of air (f/cc) averaged over an eight-hour period, while the EL is 1.0 f/cc averaged over a 30-minute period where exposure is likely to be the greatest. Each standard specifies training, medical monitoring and recordkeeping requirements for employers of workers who are exposed to asbestos. Differences exist primarily in the areas of effective dates for worker training, medical monitoring, and in work practices specific to the industry. The construction standard is the most detailed and divides asbestos work into classes, I-IV, based on the type of the material, the work being performed, how the material will be impacted, and the amount of ACM involved in the work. For all construction work scheduled to impact PACM or ACM, a competent person must conduct an initial exposure assessment to determine employee worst-case exposure and to establish the engineering controls, work practices, and personal protective equipment that may be required. The standard also supplements the OSHA Hazard Communication Standard (29CFR 1910.1200 and 29 CFR 1926.59) by requiring building and facility owners to notify prospective contractors and subcontractors, tenants, and the owner's own employees about the presence, location and amount of PACM and ACM in the building. This standard requires owners to conduct asbestos inspection or surveys so that the necessary information is available for compliance with notification requirements. The General Industry Standards would apply to workers handling NOA if there exposure were over the PEL.

DOT

The U.S. Department of Transportation (DOT) regulates the transportation of hazardous materials including friable asbestos under the Hazardous Materials Transportation Act (HTMA). DOT's hazardous materials regulations (HMR) are found at 49 CFR 171-180. These regulations require the proper packaging, labeling, shipping manifests, marking, placarding and trained employees associated with shipping of ACM and waste. Proper shipping papers must accompany asbestos-containing shipments with packages properly marked and labeled with the Class 9 diamond. The markings must include the North American identification number, NA2212, and the proper DOT descriptive name (RQ, Asbestos 9, NA2212, PG III). Laboratory samples in shipment are exempt from the regulations, except for the packaging requirements of 49 CFR 173.4.

MSHA

As of April 29, 2008, the U.S. Department's of Labor Mine Safety and Health Administration (MSHA) revised exposure limits on asbestos for miners. The

ruling changes health standards for asbestos exposure at metal and nonmetal mines, surface coal mines and surface areas of underground coal mines. The new ruling lowered MSHA's permissible exposure limits to match those of OSHA. The previous MSHA PEL of 2.0 f/cc was once the same as OSHA's; however, MSHA has not made continuing amendments to the standard in past years which reduced the PEL to 1.0, 0.5, 0.2 and eventually 0.1 f/cc. In addition, the ruling allowed for Phase Contrast Microscopy (PCM) to analyze airborne asbestos samples and Transmission Electron Microscopy (TEM) to reanalyze samples found to be above the PEL via PCM.

Alaska

The Alaska Department of Labor (ADOL) has adopted, with a few modifications, the federal regulations OSHA for asbestos and asbestos removal activities. Federal government has delegated authority to the Alaska Department of Environmental Conservation (ADEC) to implement federal programs which extend the NESHAP, ASHARA and AHERA requirements and the Alaska Department of Occupation Safety and Health (AKOSH) to oversee worker protection.

Other States

Some states have adapted more stringent AHERA and OSHA type regulations, and in some large metropolitan areas the city regulates asbestos and asbestos abatement directly. Other states such as California have developed statewide policies concerning issues not addressed in Federal regulations such as Naturally Occurring Asbestos (NOA) found in soils and rock.

Relevancy of Regulations

None of these regulations, except California and Virginia, discussed elsewhere, apply directly to NOA as likely to be encountered by the AK DOT. The MSHA and ADOL/OSHA regulations apply regarding worker exposure, if workers were exposed over the PEL. The detailed ADOL/OSHA regulations regarding asbestos demolition and disposal do not apply to NOA.

Naturally Occurring Asbestos

Naturally Occurring Asbestos (NOA) has been generally accepted as the generic term to identify any of the six (Chrysotile, Amosite, Crocidolite, Actinolite, Tremolite, Anthophyllite) varieties of asbestos when encountered in natural geological deposits. Asbestos is not chemically altered through a refining process to obtain the hazardous end product we encounter in manufactured goods; but rather raw asbestos ore is mined and crushed down into a usable form. Consequently, NOA describes the location of asbestos (in situ rock and soil) rather than a variety of asbestos.

The mineralogical community uses the term "asbestiform" to describe the morphology of a mineral which has longitudinal parting and can be split into individual fibers. Not all asbestiform minerals are regulated varieties of asbestos; however, all regulated asbestos are asbestiform. Asbestiform minerals consist of fibers that grow almost exclusively in one dimension, are easily bent and occur as bundles of smaller fibers which are called fibrils. This bundling effect of asbestiform minerals is used as a unique distinguishing feature. Asbestiform minerals are long and thin, with aspect ratios of typically 20:1 to 100:1 or greater. Most asbestiform fibers are less than 0.1 microns in width, and nearly all are less than 0.5 micron. Individual asbestiform fibers are visible only with the aid of a microscope. It is important to note these forms became regulated due mainly to their presence in commercial products and several other asbestiform minerals exist, in addition to the six regulated forms, and may be encountered in natural deposits and pose health hazards similar to that of the regulated varieties.

Geologic Occurrence of Asbestos Minerals

Metamorphic rocks are the result of the transformation of a protolith (existing rock) in a process called metamorphism during which the protolith is subjected to heat and pressure causing profound physical and/or chemical change. Prior to the transformation, the protolith may begin as sedimentary rock, igneous rock or another older metamorphic rock. A large portion of the Earth's crust is composed of metamorphic rocks which are classified by texture and by chemical and mineral assemblage. They may be formed simply by being deep beneath the Earth's surface, subjected to high temperatures and the great pressure of the rock layers above it. They can be formed by tectonic processes such as continental collisions which cause horizontal pressure, friction and distortion or when rock is heated up by hot molten rock, magma, from the Earth's interior, later referred to as igneous intrusion.

Serpentines (Chrysotile) are a magnesium silicate, while amphiboles are generally iron-magnesium silicates with varying amounts of sodium and calcium. If the protolith contains these chemical components asbestos formation is more likely than those that do not. All rocks which have this chemical composition have the potential to contain amphibole asbestos or serpentine asbestos; however, the non-asbestiform varieties of these minerals considerably more dominant than asbestiform.²

Asbestos minerals are generally associated with ultramafic rocks and their metamorphic protolith, including serpentinite (serpentine rock). Ultramafic rocks are those igneous rocks composed mainly of iron-magnesium silicate minerals, such as olivine and pyroxene. They include the rock types dunite, peridotite, pyroxenite, and hornblendite. Ultramafic rocks form in high-temperature and high-pressure environments deep beneath the earth's surface. By the time they are exposed at the earth's surface, ultramafic rocks have typically undergone a type of metamorphism known as serpentinization, a process that alters the

original iron-magnesium minerals to one or more waterbearing magnesium silicate minerals (lizardite, antigorite, chrysotile) that belong to the serpentine mineral group. The mineral chrysotile is often present as asbestos in the resulting rock. Metamorphism of ultramafic rocks and serpentinite may also lead to the formation of amphibole asbestos minerals. Conditions favorable for asbestos formation may occur repeatedly during the metamorphic process and, consequently, it is very common for at least a small quantity of asbestos to be present in metamorphosed ultramafic rock bodies.³

While generally associated with serpentinite and ultramafic rocks, chrysotile asbestos may less commonly occur in other rocks that originally contained the minerals olivine and pyroxene. These include metamorphosed mafic plutonic rocks like gabbro or mafic volcanic rocks such as basalt that are commonly associated with ultramafic rocks or serpentinite. Chrysotile and the amphibole forms of asbestos may also form in magnesium-rich limestones and dolomites which are metamorphosed carbonate rocks. The amphibole asbestos minerals are most commonly found in metamorphosed ultramafic rocks, including serpentinite, and in metamorphosed mafic plutonic rocks, metamorphosed mafic volcanic rocks, metamorphosed iron-rich chert, and metamorphosed ironstones. In many of these geologic environments, Asbestos is thought to be more likely found where changes in the geology occur such as near geologic contacts, along dike boundaries, or near inclusions of different rocks or in fault and shear zones where natural fluid flow has been enhanced.³

Asbestos minerals may also be found in sedimentary rocks, stream sediments, or soils derived from parent materials that contain asbestos. Alluvial deposits that contain asbestiform materials are likely to be found in any watershed that drains ultramafic rocks.⁴

Soils derived from parent materials that contain chrysotile asbestos and amphibole asbestos may also contain asbestos fibers and are an important potential source of airborne asbestos. Weathering and leaching reduce the amounts of asbestos in soils over time, yet little is known about the rates of weathering and leaching of asbestos in soil environments. Available information suggests that substantial reductions in the amount of chrysotile may take hundreds or thousands of years, depending on the soil environment, and somewhat longer for amphibole asbestos.²

NOA in USA

In the United States, the presence of asbestos or asbestiform minerals in rocks has been identified in 20 states, and mined in 17 states in the last 100 years.⁵ In addition to known previous mining locations, reports of asbestos or other fibrous minerals has been identified through geological surveys and other miscellaneous encounters. The United States Geological Survey (USGS) has an ongoing effort of compiling these sites and locating them on maps that are available on its web-

site at <http://tin.er.usgs.gov/mrds>⁶. The sites on these maps give an indication of the major areas of concern, which are most particularly located along the Appalachian and Rocky Mountains as well as in the Western Cordillera. In some of these areas, such as California and Virginia, the NOA issue has been known for some time and local agencies have responded in a variety of ways such as implementing state and local policies and regulations for testing and handling suspect and known NOA. The health risks associated with NOA are based on the potential for exposure. The exposure pathway of greatest concern is through inhalation, which requires the asbestos to become airborne. Experts believe that natural factors such as wind erosion pose little threat to human exposure, but rather disturbance of NOA-containing rock and soil under dry conditions. Because of this health risks are generally quantified through activity-based sampling on a site-specific basis. Below is a list of some areas in the US where NOA has been identified, and local responses to the occurrence:

Virginia

In 1987 the presence of NOA in Fairfax County, Virginia, was brought to the attention of the Fairfax County Air Pollution Control Division (Fairfax APCD) during the construction of an underground parking garage. As a result from the NOA-containing rock being drilled and crushed with no mitigation controls in place, the entire construction project was reportedly covered with NOA-containing dust. Several drill operators experienced itching and skin irritation which through subsequent medical and geological investigations was determined to be caused by tremolite asbestos fibers. The Fairfax County Soil Science Office later performed sampling and found a vein of asbestiform actinolite and tremolite comprising 10.9 square miles. Since the NOA discovery, Fairfax County has implemented NOA-specific policies regarding construction project that will impact soil.⁷

California

Serpentinite is California's official state rock and the source of much of the NOA found there. El Dorado Hills, a community in the Sierra foothills near Sacramento is a community that has had ongoing NOA issues associated with fibrous amphiboles in bedrock and soils since 1999. Reports have indicated that airborne concentrations of asbestos regularly reach levels of concern through non-construction activities such as recreation and gardening. In February 2002, during a construction project at a local school, veins of asbestos-containing minerals were discovered. The school soil was remediated that summer, but in September 2003, the EPA carried out activity-based sampling which involved measuring NOA in the breathing zone during recreational activities around the school which yielded varying results of airborne asbestos concentrations. Results underwent criticism for analysis methods and definition of asbestiform vs non-asbestiform minerals; however, a generally consensus was reached that a potential health risk existed for asbestos exposure existed in the area.⁸

Minnesota

Silver Bay, located on the shore of Lake Superior, served as a processing mill for Northeastern Minnesota's iron-ore mining operations. Historically the lake not only served as a steady water supply, but also as a dump site for the mine tailings. Amphiboles are known to be present in this area iron-oxide ore, and mineral fibers were later detected in the air and water supply of several towns, including Duluth. In 1975 after ongoing legal battles, the 8th Circuit Court of Appeals instituted the "control-city" standard where air monitoring at Silver Bay was required to yield results equal to or less than the control city; in this case St. Paul.⁸

New Jersey

A milling facility associated with a marble and limestone quarry near Sparta, NJ has been accused of emitting fibrous tremolite in dust generated from milling and quarry activities. The geology of the area suggests that amphibole minerals are present; however, emissions testing illustrated that the tremolite mineral present was non-asbestiform. Samples were later collected from homes in close proximity to the quarry which did not yield conclusive evidence that asbestos had migrated from the quarry or milling operation. Analysis methods and the definition of asbestos were again scrutinized; however, the quarry and milling facility are still operational.⁸

Washington

On Sumas Mountain in western Washington State a major low-moving landslide is occurring in altered serpentinite rock near the headwaters of Swift Creek. The landslide material contains both asbestiform and non-asbestiform lizardite, resulting in chrysotile being the asbestiform mineral of concern. Erosion resulting from the slide releases large quantities of sediment into the drainage and eventually the area river. To prevent flooding, the river is routinely dredged and staged in piles along the river. This staged material has historically been utilized as a local source of fill and has formed an area used for recreational activities. In 2006, the US EPA engaged in activity-based sampling in which three activities involving different levels of disturbance of the dredged material were simulated for this study: loading and unloading of dredged material with heavy equipment, shoveling and raking dredged material over a surface, and recreational activity, such as biking, jogging and walking on the dredged materials. Sampling indicated that a potential health risk regarding airborne asbestos fibers existed for several of the activities. In 2007, the US EPA released a fact sheet warning residents to limit their exposures through avoiding contact with the dredged materials.⁸

Montana

Libby is a small town located in the northwest corner of Montana approximately 35 miles East of Idaho and 65 miles south of Canada. In the 1880's, gold miners discovered vermiculite near Libby, and by 1920 the Zonolite Company had formed and began mining the vermiculite. Vermiculite is used in many common commercial products, including attic insulation, fireproofing materials, masonry fill, and as an additive to potting soils and fertilizers. In 1963, W.R. Grace purchased the Zonolite mining operation which remained in production until 1990.⁹ In the fall of 1999, a series of newspaper articles state the ore deposit contained small amounts of asbestiform amphiboles. In response to these articles, the EPA sent an Emergency Response Team to Libby in November 1999 to address the asbestos concerns. The vermiculite ore mined from Libby was contaminated with fibrous amphiboles consisting of tremolite and the asbestiform amphiboles winchite and richterite.⁸ Tremolite is a regulated form of asbestos; however, papers by Meeker¹⁰ and Gunter¹¹ concluded that tremolite made up less than 10% of the amphibole population suggesting the winchite and richterite likely contributed to the increase in asbestos related illness affecting the former Libby miners. Multiple studies yielded results illustrating that rates of lung cancer, asbestosis and mesothelioma were about 2.5 times higher in the Libby miners than expected.⁸

EPA implemented a program to inspect all Libby properties for elevated asbestos levels. Between 2002 and 2003, approximately 3500 properties were inspected, with 12,000 soil samples being collected. As of 2009, the EPA has completed cleanups at over 1100 properties including the vermiculite processing plants and other "highly contaminated" public areas with an estimated 100 large property cleanups scheduled for the 2009 constructed season.⁹

Analytical Methods for Quantifying Asbestos in Soils

Various types of microscopic analysis are used to determine the amount of asbestos present in soils. The most common forms are discussed below. Additionally, variations exist for each method depending on sample preparation and counting methods utilized.

Polarized Light Microscopy (PLM)

PLM analysis is the standard method used to test for the presence or absence of asbestos in building materials. PLM results report a visual estimation of the weight percentage of asbestos in a sample. PLM analysis typically begins by viewing a sample under a stereoscope at 10X – 50X magnification; fibrous sub-samples are then selected to be viewed under a light microscope at 100X – 500X magnification. By correctly interpreting light interactions, analysts can accurately distinguish asbestos from non-asbestos materials (glass, cellulose) as well as

identify the variety of asbestos present. Accuracy of this method depends on the uniformity of the material, the type of analysis and the analyst's experience. "Point Counting" considered more accurate than standard PLM is one variation of the method where the analyst views a set number of grid points and documents the material present. The number of points that have asbestos versus no asbestos determines the percentage of asbestos reported.¹²

Common forms of PLM analysis are not applicable for materials which contain highly varied, non-uniform and non-manufactured materials such as soils, gravels, dusts or large quantities of fibers smaller than 0.25 μm .

Transmission Electron Microscopy (TEM)

TEM is capable of identifying the largest range of asbestos fibers/structures of all Electron Microscopy analysis and can differentiate between asbestos and non-asbestos fibers/structures. TEM is used for air, bulk, dust and soil sampling. TEM analysis utilizes an electron microscope for which the level of magnification can resolve down to 10 nanometer (nm) particles and can identify asbestos particles by appearance, chemical composition and crystalline structure. Depending on the variation of TEM analysis results are either a visual estimation of a weight percent, or are "semi-quantitative" based on actually weighing the sample then estimating the weight of asbestos found by the fibers size and density.

In addition to bulk sample analysis, TEM is also used to analyze microvac (ASTM D-5755) and wipe (ASTM D-6480) samples. These sampling techniques are common to quantify asbestos levels in settled dust. Both methods require settled dust to be collected from a known surface area. The laboratory analysis consists of digesting the media (filter or wipe) in solution and analyzing via TEM. Samples can be qualitatively analyzed which yields an "absent" or "present" result for asbestos and notes the types of asbestos observed. Samples can also be analyzed qualitatively for which the solution with the digested media is diluted known magnitudes until asbestos fibers can be accurately counted with the microscope. By using known sampling surface areas, dilution factors and analysis areas, the microscopist can calculate the amount of asbestos structures present per square centimeter (st/cm^2) of dust. While this method is a very useful tool in determining the concentration of asbestos in settled dust, concentrations of asbestos in settled dust are not regulated by any agency since the asbestos is neither airborne nor present in a building material.

TEM allows for more accurate identification of much smaller fibers than PLM analysis. EPA method 600/R-93/116, Section 2.5¹³ summarizes the TEM bulk analysis. Many laboratories have developed their own methods to provide a full quantitative analysis of bulk samples via TEM.

Scanning Electron Microscopy (SEM)

SEM is primarily used for asbestos analysis for air and dust samples with the asbestos fibers being identified using their chemical composition and appearance. Asbestos fibers too small to be detected using light microscopy can be seen.¹⁴ SEM can be used to observe particle down to approximately 0.1 μm . SEM has not historically been heavily used for regulatory purposes; however, recently it has become more popular for studying amphiboles in their natural setting.¹⁵

CARB Method 435

The California Air Resources Board (CARB) adopted a NOA-specific testing method in 1990 known as CARB Method 435. (M435 or CARB 435) California currently requires this method for the analysis of gravels or mineralized soils to detect the presence of asbestos. In this method, the soil/aggregate sample is weighed, dried, milled (crushed to fine powder) and then analyzed by PLM or TEM. The CARB method is designed to detect "loose" asbestos fibers, unlike sieving methods which are used to analyze ACM mixed in soil.¹⁶

PLM analysis utilizes either a 400 or 1000 point count to obtain a level of detection of 0.25% and 0.1% respectively. The PLM resolution is only accurate down to 0.25 μm ; asbestos fibers/bundles smaller than that (specifically amphiboles) will not be detected using PLM. For the CARB 435 TEM Method the sample is weighed, dried, milled, put into suspension and analyzed. Results are given in percent asbestos by mass with sensitivities down to 0.001%.¹⁷

CARB 435 results are considered representative of the worst case conditions when the NOA aggregate becomes pulverized due to handling, use application or natural conditions.

EPA Region 1 Proprietary Soil Characterization

This is a proprietary method that separates and analyzes the different portions of the sample. PLM or TEM analysis may be used for the final analysis but the method includes observations of the fractions of materials present, classification by particle size and source categories, including organic, man-made, geological and asbestos materials. Since this method does not alter the materials present for analysis, results represents the materials as they exist in their natural setting. EPA Region 1 Soil Characterization provides a visual estimation of the weight percentage.¹⁸

Analytical Methods for Quantifying Asbestos in Air

Typically asbestos air samples are collected by "pulling" a known rate of air through a 25mm cassette by either an electric or battery operated vacuum pump. The air is forced through either a 0.45 micron (μm) (TEM) or 0.8 μm (PCM) mixed cellulose ester (MCE) filter which is then analyzed for asbestos fibers/structures

by TEM or PLM respectively. The concentration of airborne asbestos is calculated by the density of asbestos present on the filter and the volume of air sampled.

Phase Contrast Microscopy (PCM)

PCM (NIOSH 7400 Method) sampling method is a very common form of determining airborne fiber concentrations using a light microscope. The PCM method counts all fibers meeting the criteria of greater than 5 (μm) in length and 0.3 μm in diameter and meet the 3:1 aspect ratio (whether asbestos fibers or not) and reports results in fibers per cubic centimeter (f/cc) of air. PCM only counts fibers that are present in the fields observed, and does not identify the type of fiber (asbestos, cellulose, fiberglass, ect).¹⁹

This method is widely used for monitoring airborne fiber concentrations during asbestos removal/impacting projects, including determining OSHA approved worker exposures through a time-weighted average (TWA). TWAs calculate the average concentration of fibers a given worker was exposed to during his/her work shift.

Transmission Electron Microscopy (TEM)

For TEM air sampling analysis, the same collection procedure is used as with PCM sampling, except the cassette filter has a smaller pore size and results are reported in asbestos structures per square millimeter (Str/ mm^2).²⁰ The results are reported in Str/ mm^2 since the analysis includes all asbestos particles 0.5 microns and larger in length and may not necessarily be fibers. TEM allows for the analysis of very fine fibers while simultaneously determining their chemical composition and crystalline structure.

TEM Method 7402²¹ is typically used when a PCM sample is found to have elevated fiber levels. Method 7402 analyzes a separate piece of the same cassette filter under an Electron Microscope, opposed to a light microscope, which allows the analyst to determine if there is actually an elevated level of asbestos fibers, or if the fiber level was elevated due to a high number of miscellaneous fibers meeting the PCM counting criteria. This method is a useful complimentary tool to the PCM 7400 Method.

Elutriator Method

The Elutriator Method (Superfund EPA 540-R-97-028) begins by sieving the soil sample into fine and coarse fragments. The fine soil fractions are then placed in a closed tumbler chamber where any respirable dust created during tumbling is collected on air cassettes. The cassettes are then analyzed via TEM by ISO 10312²² counting rules which are designed for samples collected from ambient

conditions, specifically indoors. This method is used to identify the amount of respirable fibers present within a soil sample.¹⁸

NOA AND EFFECTS ON ALASKAN CONSTRUCTION PROJECT

Historical Alaska NOA Incidents

Alaska has large known deposits of ultramafic and serpentine mineral ore located throughout the state. The documented cases of NOA encounters in the state have been limited and comparatively small. The potential for larger and more serious incidents can be expected to increase as public and professional awareness examine proposed activities with more scrutiny and existing material sites are exhausted and new sites are developed. The following is a brief synopsis of several known NOA incidents in Alaska.

Juneau

In 2005, NOA was found to be present in Juneau's city-run Stabler's Point Rock Quarry causing several contractors to stop using the material until additional information and guidance was made available. Stabler's Point consists of the hardest local rock, metamorphosed mafic volcanic rock, which has been known to historically contain NOA. According to a Memorandum issued by the City/Borough of Juneau in 2005, scattered veins of asbestos-containing rock have also been reported in the following Juneau quarries: Lemon Creek, Treadwell, Upper and Lower Fish Creek and Bonnie Brae. The city believes that asbestos is likely to be present in most Juneau areas with high quality rock.³²

Of the initial samples collected from the Stabler's Quarry two were found to contain tremolite asbestos at 3% and 5%.³³ Later some samples were also found to contain actinolite asbestos.³⁴ Blasting and rock crushing operations, which are known to release asbestos fibers from rock, had been occurring on a regular basis for several years prior to the discovery of NOA at the quarry. A private consulting firm hired by one of the contractors utilizing the quarry later stated given the presence of asbestos at the quarry, and the limited air sampling performed, it would appear as though workers were occasionally exposed to airborne asbestos levels in excess of workplace exposure standards.³⁴

The rock aggregate obtained from the Stabler's Quarry was used for several years on a variety of private and commercial construction projects throughout the Juneau area and was a topic of concern for many local residents. In addition, aggregate collection (blasting) and refining (crushing) methods used were performed under general conditions meaning no methods were implemented to reduce airborne fiber concentrations during work activities. Since the discovery of NOA at the Stabler's Quarry, sampling efforts have been performed as well as requiring the use of wet methods and respirators for quarry workers.

As in most situations, once NOA was discovered activity was stopped until an assessment could be performed. In the Juneau case, the majority of the asbestos-containing gravel aggregate was used in construction projects where it would not be left exposed. The quarry itself implemented engineering controls

such as PPE for workers and the use of wet methods. In addition, attempts were made to focus mining efforts on portions of the quarry which yielded the lowest concentrations of NOA. Material from this mine is currently only used on projects where it will not remain exposed after completion; such as paved road construction. The City of Juneau originally was researching the possibility of implementing local NOA regulations; however, as of yet no regulations have been made.

Dalton Highway

As described by Perkins et al⁵ the Dalton Highway (formerly known as the Haul Road) was constructed in the early 1970's and runs adjacent to the Trans-Alaska Pipeline connecting the Prudhoe Bay oil fields of Alaska's North Slope to the state highway system near Fairbanks. Most of the Dalton Highway is unpaved and is primarily utilized by pipeline employees and truckers supplying the oil fields.

In 2000, the Alaska Department of Transportation & Public Facilities (ADOT) awarded a contract to replace culverts and bridge abutments and to add surfacing material to approximately 20 miles of gravel road from Milepost (MP) 90 to 111 on the Dalton Highway. The project utilized surfacing gravel from a material site (MS) located at MP 105. The project contractor constructed a 1 to 2 foot thick gravel pad at MP 107 for a project staging area and temporary housing site since the closest permanent habitation was located approximately 70 miles away. An estimated 30 truckloads of gravel had been removed from MS 105 before workers noticed several large pieces of fibrous material suspected to be asbestos, after which aggregate extraction from this site was terminated.

After ultramafic rock containing actinolite and tremolite asbestos was confirmed at MS 105, concerns about worker exposure on the project site, as well as potential exposure in the temporary living quarters due to cross-contamination arose. Furthermore, questions were raised on how to safely complete the project, as well as address public health concerns for driving on the Dalton Highway. The project contractor retained a consultant to assess the problem, recommend work plan modifications, provide necessary worker training, perform exposure monitoring and reporting.

Results from the assessment included close to 700 breathing zone air samples collected from workers; 3% of which had asbestos fiber concentrations at or near 0.1f/cc per the NIOSH 7400 PCM¹⁹ method. 36 of those samples were additionally analyzed via NIOSH 7402²¹ (modified TEM analysis) which illustrated approximately 40% of the fibers observed were asbestos. Results concluded that workers who impacted the material the greatest, such as bulldozer and grader operators, were at the highest risk of exposure. Asbestos fiber release from rock crushing operations would have presumably been higher. Samples for potential motorist exposure were collected under conditions simulating "worse case scenario" - driving with windows open while following heavy equipment

which produced a visible dust cloud – indicated fiber concentrations well below the OSHA PEL.

The discovery of NOA at MS 105 on the Dalton Highway incurred significant delays and added millions of dollars to the project costs. After the assessment was completed, the MS 105 was abandoned for a MS which yielded non-NOA gravel to complete the project. The new MS was tested for the presence of NOA prior to starting work. Existing portions of road bed constructed with NOA along the project length were identified and capped with NOA-free material. Work practices and method of construction was modified to minimize worker exposure and NOA accessibility.

Similar to Juneau, the NOA concern at Material Site 105 on the Dalton Highway was discovered after workers had begun to remove and use the material. During this project; however, the NOA-containing aggregate was used to construct the gravel pad for temporary living quarters, as well as to resurface approximately 20 miles of the unpaved Dalton Highway. The NOA assessment for this project illustrated that some workers were at risk of being exposed to asbestos above regulatory limits, but motorist traveling down the gravel highway, in a “worse case scenario” were not. Regardless of the remoteness of the area and the low health risk it posed to the public, it was agreed that known NOA-containing gravel on the highway would be capped and work practices would be modified to address NOA exposure concerns during project construction. Equipment and camp facilities were decontaminated and workers were provided training. MS 105 was no longer utilized as an aggregate source for the remainder of the project and has been closed indefinitely as an aggregate source.

Ambler

Ambler is Kowagniuut Inupiat Eskimo village located in northwestern Alaska along the North bank of the Kobuk River. Ambler is approximately forty-five miles north of the Arctic Circle, one hundred and forty miles east of Kotzebue and three hundred and twenty miles northwest of Fairbanks.

In 2003, the ADOT was conducting routine soil testing in preparation for a scheduled Ambler project requiring the use of gravel aggregate. Tests results reported the presence of chrysotile asbestos in the aggregate samples taken from the local gravel pit. This was the only available gravel aggregate source for Ambler and consequently had previously been used to construct the community airport, roads and utility systems. The pit is commercially owned by the local development corporation (NANA), who closed and placarded the pit soon after the NOA discovery.

All roads in Ambler, including the airport runways, are finished with unpaved gravel surfaces. All-terrain vehicles (ATV's) are the most prevalent means of transportation and create substantial visible dust, generated from the unpaved

community road surfaces, during summer months. In 2007, the Agency for Toxic Substances and Disease Registry (ATSDR) performed an exposure investigation³⁵ primarily focused on ATV generated dust and potential asbestos exposure for both ATV riders and the general public. The assessment concluded that exposure to visible dust generated from the Ambler roadways created a higher than average health risk concerning asbestos.

In addition to the asbestos related health concerns, several community projects which require the use of the gravel aggregate have subsequently been put on hold or cancelled. In 2004, a multi-year effort was undertaken by R&M Consultants to locate an aggregate source free of NOA. However, no location within a reasonable distance (15-25 miles) was identified that would definitively yield non-NOA aggregate.³⁶ Since the NOA discovery in 2003, the gravel pit has been restricted from use. Due to the inability to use gravel for regular maintenance, the Ambler runway began to dilapidate until the crown had lost its vertical rise and ruts and potholes became increasingly prevalent and obnoxious due to lack of drainage and replenishing aggregate. The runway was also a major source of dust emissions from the airplanes prop wash during take off and landing. The runway was operated by ADOT that concluded runway repairs were required to continue safe operations. ADOT also decided due to the NOA concern in the community they would apply a dust-suppressing poly synthetic palliative called Durasoil to the surface of the runway after the repairs were complete. ADOT had experienced positive results using this form, and variety, of dust suppressant in other remote areas of Alaska to control fugitive dust. Since no non-NOA containing aggregate sites were available, the known NOA-containing quarry was utilized as the aggregate source for the runway repairs. A consultant was retained to assist with a Ambler public meeting, the development of NOA project work plan, training of project workers, community relations during construction while oversight, monitoring and project reporting. Monitoring documented a Negative Exposure Assessment (NEA) with no air sampling results exceeding the OSHA PEL at any point during the project.³⁷

Since the discovery of chrysotile in the Ambler gravel pit, the following NOA-related investigative efforts have been performed to date:

- **Asbestos at Ambler Material Pit Preliminary Assessment.**³⁸ Alaska Department of Health & Social Services, Division of Public Health, Section of Epidemiology, October 23, 2003.
 - Chrysotile asbestos discovered in Ambler quarry during routine soil testing.
 - Quarry was closed indefinitely.
- **Limited Health Survey.**³⁹ Alaska Department of Labor and Workforce Development, Occupational Safety & Health Labor Standards and Safety Division, November 2003.
 - School area soil, interior dust and air samples confirmed Chrysotile NOA

- Recommended material site cap, school cleaning, HEPA filtration and administrative controls to control summer risk
- **Ambler Airport Rehabilitation: Airport Materials Site Investigation.**³⁶ R&M Consultants. 2004 Geotechnical Report.
 - Soil boring was performed around Ambler area to find an alternative, non-NOA gravel source. Results indicated that no non-NOA gravel source was available within reasonable distance to Ambler.
- **Naturally Occurring Asbestos Summary of Requirements and Recommendations.**⁴⁰ Alaska Native Tribal Health Consortium (ANTHC). August 2005
- **Public Health Evaluation and Assessment – Interim Report.**⁴¹ May 20, 2005. Middaugh, John P.
 - Medical records review for residents of Ambler, Kobuk, Shungnak and Kiana, to see if asbestos-related diseases had occurred
 - No asbestos-related diagnoses on death certificate; no mesothelioma cases dating back to 1970
 - On review of chest X-ray, nine people with pleural plaques suspicious for asbestos exposure were identified.
- **Investigation of Possible Environmental Asbestos Exposure in Northwest Alaska – Interim Report.**⁴² Chimonas, Marc; Middaugh, John and Arnold, Scott. June 15, 2005: Alaska Division of Public Health
 - Expert review of 130 chest X-rays from villagers 50 and older; interviews conducted
 - Twenty-one individuals with either pleural plaques or pulmonary fibrosis suspicious for asbestos exposure. Some were exposed to asbestos occupationally.
 - Not possible to definitively establish or exclude environmental asbestos exposure as a cause of disease
- **Exposure Investigation Final Report.**³⁵ Agency for Toxic Substances and Disease Registry. June 2007
 - Chrysotile NOA confirmed in gravel used to construct roads
 - Ambient sampling confirmed airborne NOA, but not likely to be a public health concern
 - Visible airborne dust levels behind four-wheelers exposed trailing riders to a high-level of respiratory exposure and confirmed public health concerns.
- **Federal Aviation Administration, Ambler Airfield, Alaska Winter Exposure Assessment.**⁴³ NORTECH Environmental Engineering, Health & Safety. June 2008 Report.
 - FAA technician tasks were performed while personal and area air samples were running. Results indicated area fiber concentrations were below 0.01 f/cc while the personal TWA was below 0.10 f/cc.
 - Frequent cleaning of facilities was recommended.

- **Federal Aviation Administration, Ambler Airfield, Alaska Summer Exposure Assessment⁴⁴** NORTECH Environmental Engineering, Health & Safety. August 2008 Report.
 - FAA technician tasks were performed while personal and area air samples were running. Results indicated area fiber concentrations were below 0.01 f/cc while the personal TWA was below 0.10 f/cc. Area samples were also collected while planes landed/took off with all results below 0.01 f/cc.
 - Frequent cleaning of facilities was recommended.
- **Ambler Airport Dust Suppression.³⁷** NORTECH Environmental Engineering, Health & Safety in association with R&M Consultants. November, 2008 Report.
 - Utilized NOA-containing gravel to resurface runway using “wet methods” as needed. Palliative applied to runway surface for dust suppression.
 - Personal and area air monitoring illustrated the PEL and clearance concentrations were not exceeded.

In addition to the studies listed above, a *Naturally Occurring Asbestos Dust Control Working Group* has been established as a result of the Ambler NOA. This working group is a consortium of federal, state and local groups who help to manage and oversee NOA-related projects and concerns in Ambler in the interest of public safety. The group consists of the City of Amber, ANTHC, ATSDR, USRD, HIS, Maniilaq, DOH and ADOT.

Ambler is located between the Jade Mountains and the Cosmos Hills; small mountain ranges along the southern slopes of the Brooks Range. The rocks in these mountains are mineral-rich and contain large ore deposits. Bornite, reportedly one of the world's richest copper deposits, exists within these ranges and major jade deposits are found in the Jade Mountains. Serpentine rocks, commonly containing asbestos, have been mapped in both these ranges.^{45, 46} An asbestos mine was temporarily operated at Asbestos Mountain in the Cosmos Hills near Kobuk. The asbestos has apparently been eroded from these rocks and transported throughout the area by glaciers, water and wind. Sedimentary deposits have been found with varying concentrations of asbestos throughout the area.³⁶

The NOA found in Ambler poses many issues not previously encountered in Alaska. Ambler requires the use of gravel to maintain the limited road system, runway, public utilities and local projects. With no apparent asbestos-free gravel sources within a reasonable distance and only year round air travel access identifying methods to use NOA safety are significant to the regional corporation source owner and local community. ADOT held public meetings in Ambler to obtain feedback, report progress and provide information regarding NOA, asbestos health hazards, risk and effective methods to reduce exposure (avoidance of visible dust clouds, road watering, regular household cleaning to

remove visible dust accumulations, removing footwear prior to entering homes and driving slower on the roads, etc).

Alaskan Construction Projects

The presence of NOA and its effects on construction projects in general, as well as its effects on certain Alaskan Construction projects, are noted in other sections. Here we examine the occurrence of NOA in Alaska and its likely effect on future construction projects. Most heavy construction projects such as dams, roads, airports, pipelines, and railways require large quantities of natural materials, sand, rock, and fill soil. These materials are excavated, processed, and transported to the sites where they are needed. Ideally the transport distance from excavation to installation and the processing steps are minimized. In any case, the excavation, processing, and transport are key cost drivers in most heavy construction projects. If material sources proximate to the project have NOA or are likely to contain NOA, the project owners and designers must make a decision to obtain NOA-free materials further from the project at a greater cost, or to use the NOA materials and make allowances for handling the NOA material in such a manner to keep airborne asbestos fibers and their human health hazards to a minimum. Other sections of this report deal with methods of ameliorating fiber release from NOA-containing materials after they have been installed and regulations in other states that have established standards for NOA materials that establish benchmark concentrations, which, together with prudent work methods, are protective of human health.

This chapter will: examine the need for gravel and similar materials in Alaska, discuss the mineralogy of Alaska with respect to asbestos, present a map of mineral occurrences that may contain NOA and their location with respect to transportation corridors, and examine the implications for projects. Finally we will present some conclusions.

Alaska Gravel Needs

Many heavy construction projects move large quantities of soil within their right of way. These are often called “unclassified materials.” Over these are then placed “classified” or “select” materials. The exact definition and qualities of these material are dependent on the particular type of project and its specifications. These materials generally must be imported from off the right of way, usually from special “material sites.” Here we will just refer to those imported materials collectively as “gravel.” We will discuss them in relation to historical and known current demands for gravel, as well as estimates for future projects.

Highways

Here we discuss some likely gravel needs in the DOT’s Northern Region. Currently, for projects on the highway system, there is gravel available, although

it may involve a longer haul distance. Generally, these sources have not been checked for NOA. New sources are needed for the routine maintenance (M&O) activities and routine construction projects. DOT Northern Region used 2 million CY from 64 different material sites in 2007 and 1.6 million CY from 40 different materials sites in 2008.²³ The DOT generally has enough material for maintenance and operations (M&O) and new projects, although most new projects are improvements to existing roads. The large rocks used to armor stream banks and other hydraulic structures is known as “rip rap” and rocks large enough for rip rap are usually scarce.

The Trans Alaska Pipeline System (TAPS) and future 48” Gas Pipeline

The TAPS project used 73 million CY of gravel, total. The workpad required 32 million CY.²⁴ Of that, the Dalton Highway (Haul Road) required about 13 million CY for its prism. Many access roads to material sites were required for Haul Road construction, and may have been counted in either the Haul Road number or not. Certainly the 225 access roads were counted in the 73 million CY. Thus, if the Haul Road and its material sites were counted in, the TAPS project would have required 50 to 60 million CY of gravel without the Haul Road. The most likely route of the proposed gas line will follow the Dalton Highway and the Alaska Highway, there will not be a major new highway. However we do not believe that Alyeska will allow the gas pipeline to use Alyeska’s workpad or construct close to TAPS, therefore new workpads and many new access roads will be required. There will be new camp pads, airports, and compressor stations. Not counting the DOT upgrade work, we estimate that the gas line will need to mine 50 to 60 million CY of new gravel. (Referring the annual DOT usage, the new pipeline will require 25-fold the annual DOT requirement, and most of that in the first year or two of construction).

Special highway construction

If the gas line is built, AK DOT will need to reconstruct many miles of substandard road. Large sections of the Dalton Highway need reconstruction.

Airports

Virtually all airport construction and upgrades require material from local sources. In some locations material is barged in from long distances, but this is expensive. There are about 256 bush airports owned by the ADOT.²⁵ A new small airport may require 25,000 CY of gravel. In addition, gravel is needed for access roads and maintenance of both the runway and the access roads.

Railroad Extension

There is currently a study regarding extending the Alaska Railroad from Fairbanks to Delta (90 miles) and from Delta through Canada (200 miles).²⁶ A rough estimate for that yields 14 million CY of fill, gravel, and ballast for the main line. Much of the line would be close to the Alaska Highway. However access roads, camps, and ancillary structures – there will be many bridges – may require another 5 million CY.

Mining and other industry

Mining needs gravel for access roads. Smaller mines generally have some material available on-site, but major new mines will require gravel from outside the mine. Extrapolation from Alyeska's numbers (73 million CY in 800 miles) one could say 91,000 CY per mile of new infrastructure. That would include main road and roads to gravel sources and pads for ancillary structures. Minimizing haul distances is economical, which tends to increase the number of material sites. Two new material sites per mile might be a good estimate.

Balance between Existing and new MS

Most of the smaller scale road maintenance is done with existing gravel sources. The volume is generally not large and the costs of opening a new pit are often greater than the haul costs from a more distant pit. A major project will require a lot of gravel and thus justify the extra costs of opening closer pits. Besides direct costs, safety is an important consideration when hauling of gravel on an active highway, and minimizing the number of construction rigs on a traveled highway is good practice.

Since the existing open material sources are just adequate for current needs, it is clear that many new gravel sources will be needed if any of the major projects come to fruition.

Mineralogy of Alaska with respect to asbestos

"Asbestos" is a commercial term, not the name of a particular chemical or geological rock type. While there are six asbestos types that are regulated due to known human health effects, there are other, similar minerals that are not regulated. Some of these may likewise have adverse health effects. Within minerals of a certain chemistry, some of the mineral may have crystallized into large crystals or masses, while other portions may have crystallized in fibers or bundles of fibers. In general, "Asbestos is defined as certain minerals that have crystallized in a finely fibrous habit, in bundles of easily separable fibers and/or fibers which are composed of smaller diameter fibrils, and with a hair-like elongated shape resembling organic fibers, with exceptionally smooth faces and displaying unusual adamantine or silky luster" ⁸

As noted by Gosen³¹ asbestos is most commonly defined as the asbestiform variety of several specific, naturally occurring, hydrated silicate minerals. Asbestos typically includes chrysotile, the asbestiform member of the serpentine group, and several members of the amphibole mineral group, including, but not limited to, the asbestiform varieties of (1) riebeckite (commercially called crocidolite), (2) cummingtonite-grunerite (commercially called amosite), (3) anthophyllite (anthophyllite asbestos), (4) actinolite (actinolite asbestos), and (5) tremolite (tremolite asbestos). Other amphiboles are known to occur in the

fibrous or asbestiform habit,²⁷ such as winchite, richterite³⁰ and fluoro-edenite,^{29,28} but usually they have not been specifically listed in the asbestos regulations. The many different ways that asbestos and asbestiform and other related terms have been described are summarized in Lowers and Meeker.³⁰

The geological conditions necessary for the formation of NOA have been reviewed and the rock types known to host NOA include serpentinites, altered **ultramafic** and some **mafic** rocks, dolomitic marbles and metamorphosed dolostones, metamorphosed iron formations, and alkalic intrusions and carbonatites.³¹ In summary, there are many types of minerals that might contain asbestos, and these include rock types very common in Alaska.

Map of mineral occurrences that may contain NOA and their location with respect to transportation corridors

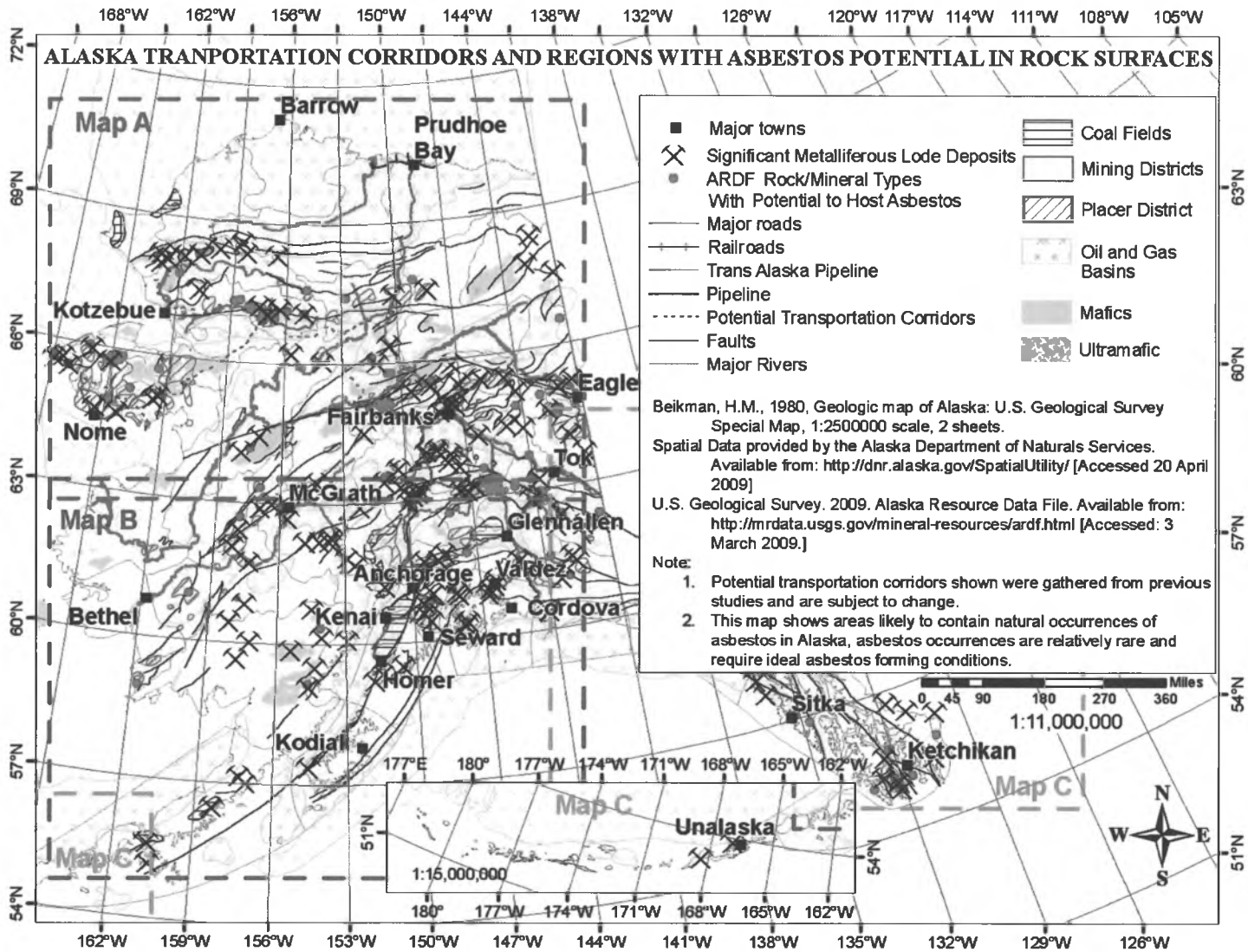
Next follows some maps that show the regions of Alaska that may contain asbestos, based on the mineral type. The mineral types are taken from the above reference sources, and the mineral locations are based on the USGS map, *Geologic map of Alaska, U.S. Geological Survey Special Map, by H. M. Beikman, 1980*. In addition, in Appendix 3, is the USGS database of all geological exploration and mining that identified asbestos. These have been mapped along with the transportation corridors identified by ADOT planning. Note the northern region had more detailed planning maps.

It is important to realize that the map is of the bedrock, or parent material. If the rock erodes, it will move down-gradient via colluvial or alluvial transport. Thus asbestos might be found in sites distant from the origins.

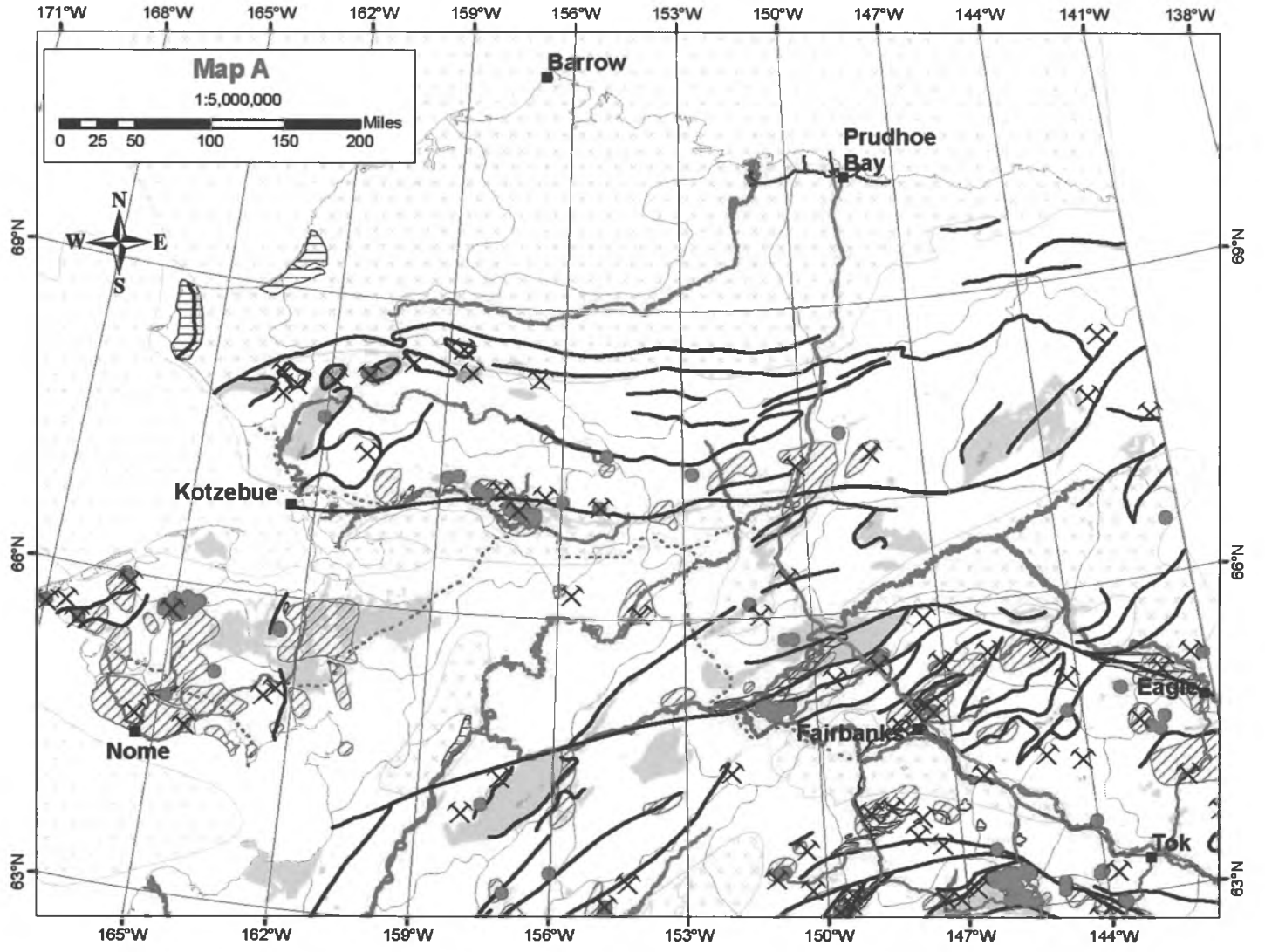
The first map is an index, and the following three maps show greater detail.

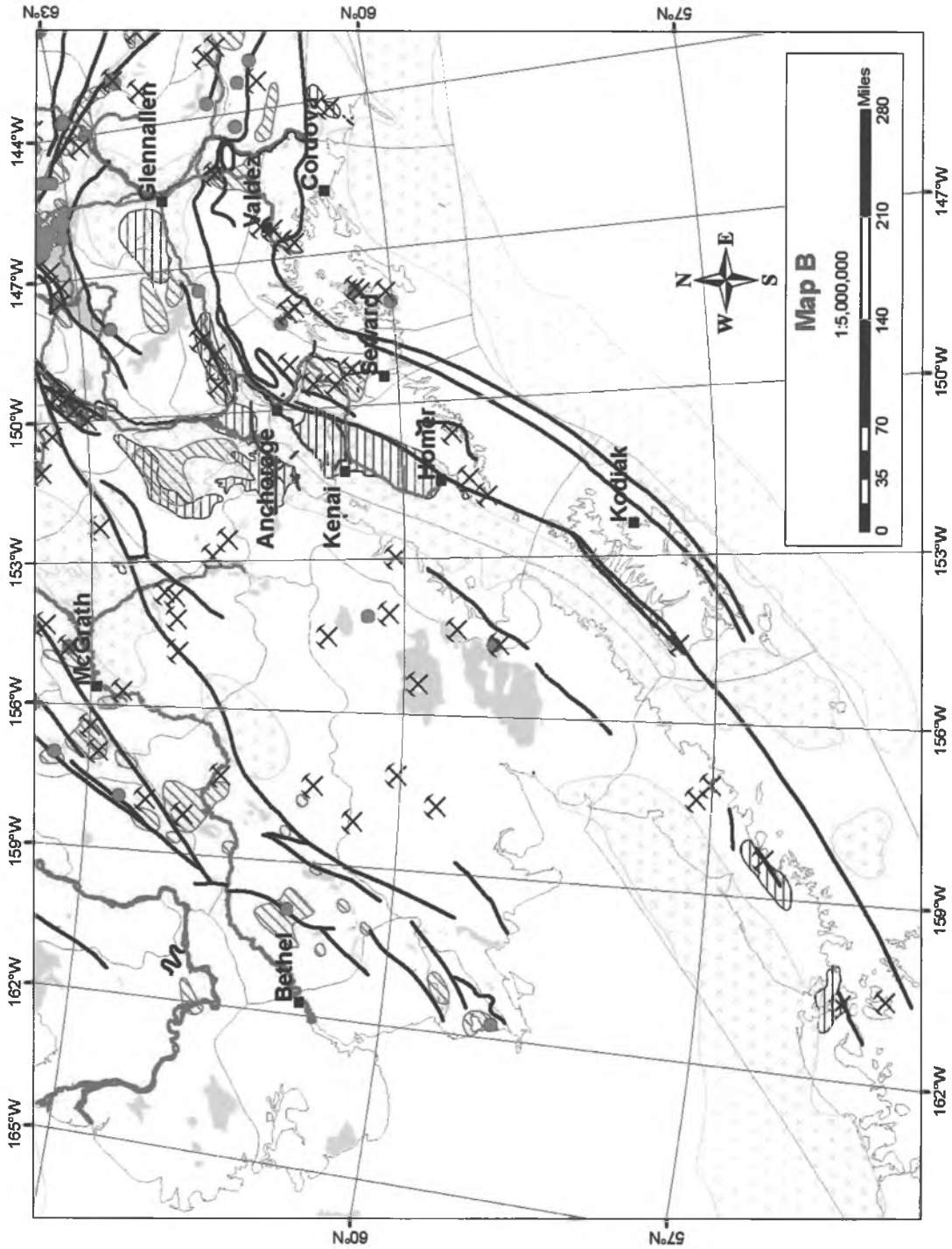
Acknowledgement

The work of Kyle Obermiller, an undergraduate student in UAF's Geological Engineering program on the geological mapping was appreciated and is hereby acknowledged.

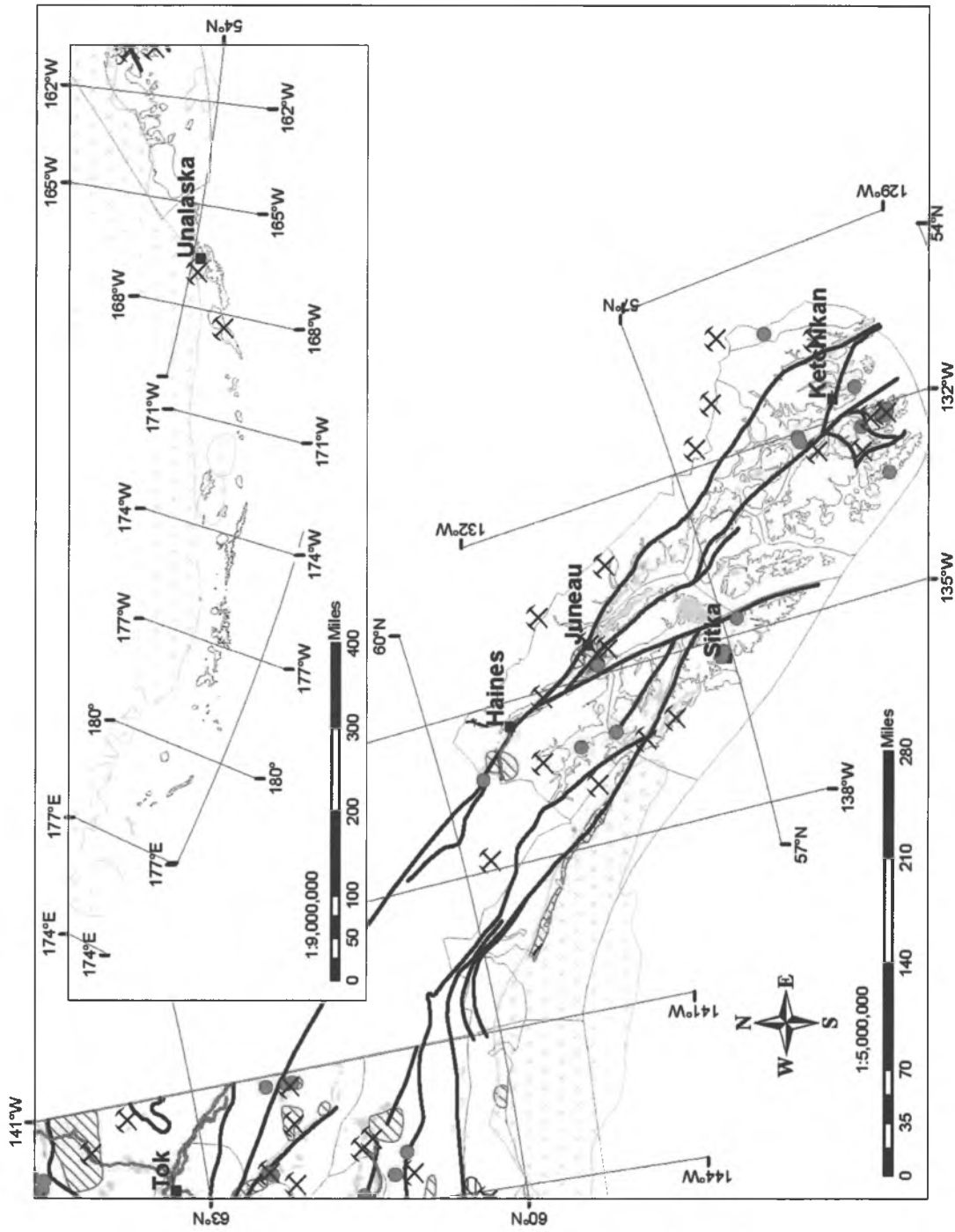


Map A, Northern Alaska





Map B South Central



Map C, Southeast and panhandle

Conclusions and recommendations regarding future projects.

It is clear that many of Alaska's current transportation corridors traverse regions containing minerals that may contain NOA. Although Alaska is a huge state, as a practical matter, gravel must be obtained reasonably close to the project. It is also clear that large quantities of gravel will be needed for future projects. While not all the areas that mineralogy mapping has identified as possible asbestos sources will contain asbestos, the mining and geological exploration done in those areas has identified that asbestos is found in these regions. Since asbestos was often found during the exploration for other minerals, it seems likely that asbestos is fairly common in those regions. We know of projects such as Ambler and the Dalton Highway that have been impeded by NOA, thus it is reasonable to expect future projects to be impeded, if they traverse areas with mafic and ultramafic rock and other minerals as identified on the map.

While finding NOA in pre-construction geological exploration is usually a negative for the project, its untoward effects are paltry compared to finding asbestos once construction using the material has started. Therefore all projects that use gravel or other mineral resources in areas identified with mafic or ultramafic rock, or down-gradient or downstream from those minerals must include analysis for asbestos as part of the material site exploration process. If asbestos is identified, its type and extent should be quantified, if possible.

If asbestos is found the project managers must make a decision. Non-asbestos containing earth materials should be used if possible. However if material without asbestos is not readily available, the project managers must make a decision about using the material with NOA or, presumably, importing non-NOA material, or perhaps rerouting or abandoning the project. Using the guidelines and information presented in other sections of this paper will help. Reiterating the key conclusion – if a project's material source is in a region identified on the maps in these chapters as likely to contain asbestos, the material site exploration phase must include an assessment of the material site for asbestos.

Footnote to Chapter Summary of Asbestos Minerals

Table 1 Summary of minerals where fibrous crystal form or cleavage has generated concern (not an exhaustive list)

Mineral	Asbestiform or fibrous probability	Remarks
Serpentine minerals Chrysotile	Always	Most common type of asbestos; almost the only form mined today
Antigorite	Rare	
Amphibole minerals Riebeckite	Probable (crocidolite)	Previously mined as asbestos in South Africa, Australia and Russia, but not common elsewhere
Cummingtonite-grunerite	Probable (amosite)	Previously mined as asbestos in South Africa. Non-asbestiform habit is common
Tremolite-actinolite	Probable	Widespread occurrence both as asbestiform and non-asbestiform habits, but only rarely mined as asbestos
Winchite-richterite	Probable	Rarely encountered
Anthophyllite	Probable	Previously mined as asbestos in Finland and in the eastern USA. Often associated with talc.
Arfvedsonite, fluor-edenite, etc.	Possible	Rarely encountered
Zeolites Erionite, mordenite	Almost always fibrous	Not considered as asbestos, rarely encountered
Clay minerals Palygorskite, sepiolite	Fibrous habit possible or common	Not considered as asbestos, rarely encountered
Others Brucite, wollastonite, talc, balangeroite	Fibrous habit possible or common	Not considered as asbestos, and, except for talc, rarely encountered

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OTHER STATES NOA REGULATIONS

Several large areas of asbestiform mineral deposits exist in the United States. These deposits host both serpentine and/or amphibole minerals in mafic and ultramafic rock formations and have varying concentrations of asbestos. Some states have implemented policies in order to safely address NOA concerns while attempting to limit adverse affects on projects in which NOA-containing rock will be impacted.

Virginia

Fairfax County has adopted a two stage approach for dealing with local NOA. The Fairfax County Health Department, Air Pollution Control Division (Fairfax APCD) oversees the potential public health concern associated with exposure to asbestos generated from construction activities. They enforce the Fairfax APCD Control Requirement Directives 1 and 2 for Construction Activities in Actinolite/Tremolite Soil Sources (CRD 1 and 2). The Virginia Department of Labor and Industry, Occupational Health Division (VDLI) regulates the interior of the construction site as it pertains to employee exposure under the Asbestos Standard, 29 CFR 1926.1101. These two agencies work in concert to control the emissions of asbestos fibers during work activities. The program is founded in the approach of proper disposal and capping of both the NOA source and constructed project. The following is a brief summary of CRD 1 and 2:

Directive 1 – Standards of performance for Actinolite/tremolite soil sources

1. Compliance Plan - A written compliance plan must be submitted to the Fairfax APCD for review and approval before work begins on the construction project.
2. Dust Control - Effective dust control must be practiced at all times.
3. Air Monitoring – Air monitoring must be performed during all phases of earthwork involving actinolite or tremolite containing material and comply with ambient air concentration standards for asbestos.
4. Disposal and Cap - An appropriate, safe, disposal site must be used to dispose of actinolite or tremolite contaminated soils whether they are to remain on site or be removed. All final disposal areas and the finished grade of the developed land shall be covered with six inches of clean compacted material.
5. Notification – Sufficient notice of asbestos shall be given to all employees and contractors on the site in compliance with the OSHA Asbestos Standard (29 CFR 1926.1101).

Directive 2 – Monitoring and Reporting Requirements

1. Monitoring requirements
 - a. The monitoring and sample analysis will be conducted by competent personnel and closely supervised by an experienced individual certified with NIOSH 582 course training or equivalent [we should expound on that]
 - b. Air monitoring samples will be collected.
 - c. Project Reports of the perimeter, area, and personal monitoring results will be submitted to the Fairfax County Health Department.

2. Project Reporting Requirements
 - a. A written description of the work activities.
 - b. Diagram of the Construction Project.
 - c. Air Monitoring Results.
 - d. Violations to Directive 1 detected by air monitoring

3. A 24-hour average standard for asbestos ambient air concentrations is calculated

John Yetman was interviewed on the effectiveness of Fairfax County's NOA program, as well as public and commercial response. Mr. Yetman is a Senior Environmental Health Specialist with the Fairfax County Health Department, and has managed the county's NOA program for over 20 years. The NOA program described above has been in effect in Fairfax County since 1993. The NOA found in Fairfax County is typically beneath several feet of clay, so the program is designed exclusively for excavation and soil impacting activities. The soils of Fairfax County have been mapped, with known NOA encompassing 11 square miles of the 400+ square mile county. The geological maps are reportedly accurate to +/- 500 feet. If excavation/soil impacting activities are to occurring within this 11 square mile area, the contractor is required to submit a compliance plan as mentioned above.

The compliance plan describes location and activities associated with the project, dust control methods and worker and public safety controls. If the project is located within the NOA area per the soil map, the contractor is required to have a compliance plan approved through the county health department. If the project site is located within 500 feet of the mapped boundary, the contractor may submit a limited compliance plan which outlines the same requirements as the full plan; however, implementation of the plan is only required if suspect NOA is discovered.

Dust control consists primarily of applying water and/or slowing operations so that no visible dust is present. Air monitoring is required at all times soil impacting activity is occurring which consist of both area and personal sampling using PCM cassettes and analysis. The area monitoring is performed at several points on the perimeter of the "work zone", a term used to describe the area of

the jobsite that has controlled access from the public. Area monitoring is a 24-hour average with the Fairfax County Air Pollution standard being 0.02 f/cc. Personal samples are also collected from workers inside the work zone to determine an 8-hour TWA with a maximum allowable fiber concentration of 0.10 f/cc. All air monitoring is required to be performed by a third party. All air monitoring results are required to be submitted in a final close out report; however, exceedences in airborne fiber concentrations are reported to the county health department immediately. Samples with elevated fiber levels may be further analyzed using Method 7402 which utilizes TEM to determine if the fibers meeting the PCM counting rules are asbestos.

Mr. Yetman explained that NOA-containing soils are encouraged to remain onsite; however, soils can be utilized as fill for other jobsites located within the known NOA area. If soils are removed from Fairfax County, it is strongly recommended the contractor inform the recipient of the possible contamination in the soil, and obtain a signature of acknowledgement.

Directive 1 also requires that 6 inches of clean cap be applied to all disturbed soils within the NOA area. Allowances are made when the soil is to be covered with vegetative-sod, in which case only 3 inches of cap is required.

Mr. Yetman felt that the program has been very successful for the county. He explained that the public and local contractors have become accustomed to the NOA requirements, and they very rarely experience issues. He also noted that fiber level exceedences have become less common as contractors have developed effective means for dealing with dust suppression.

The “backbone”, as described by Yetman, of Fairfax County’s NOA management plan is the county soil map. This is an efficient way to identify if NOA will be a concern for the project, and if a compliance plan is required. Additionally, Mr. Yetman explained that the Health Department makes certain to explain the liability associated with removing NOA-containing material offsite, or outside of Fairfax County, which has seemed to reduce this occurrence.

California

The State of California Air Resources Board (CARB) has implemented regulations designed to significantly decrease the chances that asbestos in soil and rock can become airborne, and thus minimizing public exposure to asbestos. These state regulations are referred to as the Airborne Toxic Control Measures (ATCM’s). The first ATCM applies to surfacing applications and was originally adopted in 1990, but was amended in 2001. The second ATCM applies to construction, grading, quarrying and surface mining operations.

According to the CARB’s Implementation Guidance Document for the Asbestos Airborne Toxic Control Measure for Surfacing Applications⁴⁷, the first Asbestos

ATCM prohibits the sale or use of restricted material for unpaved surfacing unless it has been tested and found to have an asbestos content that is less than 0.25 percent. The ATCM defines restricted materials as aggregate material extracted from an ultramafic (or ultrabasic) rock unit as shown on referenced geologic maps; ultramafic rock including serpentine; or aggregate material shown to have an asbestos content of 0.25 percent or more; or any mixture containing 10% ultramafic/serpentine materials.

The test method required to determine the asbestos content is either CARB Method 435 or a method approved by the CARB's Executive Officer. If restricted material is being sold or supplied for surfacing purposes, the producer of the material (quarry operator) is required to provide the recipient the following information: the amount of material sold or supplied; the dates the material was sold or supplied, sampled and tested; and a statement verifying that the asbestos content of the material is less than 0.25 percent. Anyone who sells or supplies restricted material, but did not extract the material from the ground, must provide all of the above information with the exception of the date that the material was sampled and tested. If restricted material is being sold or supplied for non-surfacing purposes the supplier must notify the recipient with a warning statement that the material may contain asbestos.

The amended ATCM contains the following surfacing exemptions:

- sand and gravel operations;
- roads located at quarries and mines;
- maintenance operations on existing roads;
- emergency road repairs;
- asphalt and concrete materials;
- landfill operations;
- results of a geologic evaluation;
- steep surfaces with limited access;
- surfacing applications in remote locations;
- roads located at construction sites; and
- riprap (material placed along water course or shoreline to prevent erosion)

The amended ATCM also allows the district authority to require geologic evaluation for the presence of rocks that may contain asbestos and the authority to require testing of any aggregate material for its asbestos content. This authority would typically be exercised if there is credible evidence indicating the potential presence of asbestos outside of an ultramafic rock unit.

There are two possibilities for the regions with mapped mafic or ultramafic rock, either the asbestos content is $\geq 0.25\%$ or the asbestos content is $< 0.25\%$. If the asbestos content is $< 0.25\%$, the material can be used for surfacing or any other use, if the material has $\geq 0.25\%$ asbestos, its use is restricted. Minerals taken from mapped areas are restricted and must be tested and certified prior to use. In addition to mapped restricted areas the program includes a number of

exemptions and has district authority to implement regional priorities. The 0.25 threshold was derived from the detection limit per the test method. Since only PLM 400 point count is required, if one fiber is observed in the counting area the sample has 0.25% asbestos. If fibers are observed outside of the counting area, the sample is reported as having "trace" amounts of asbestos present, and be considered <0.25% asbestos.

Any person who sells, supplies, or offers for sale or supply restricted material for non-surfacing applications must provide with each sale or supply a written receipt containing the following statement:

"WARNING!

This material may contain asbestos.

It is unlawful to use this material for surfacing or any application in which it would remain exposed and subject to possible disturbances.

Extreme care should be taken when handling this material to minimize the generation of dust."

Thus, NOA-containing material may be used for construction projects as long as the affected material is not to remain exposed. If NOA-containing aggregate is used for road construction, the dust suppressing method used, such as capping, must be designed to last for an extended period of time (ie greater than 5 years). Asphalt or concrete would suffice as an appropriate method, while water application or other short-term palliatives would not.

If an approved asbestos bulk test method has been used to perform two or more tests on any one volume of aggregate material, whether by the same or a different person, the arithmetic average of these test results shall be used to determine the asbestos content of the aggregate material.

The sampling frequency required for determining the asbestos content of any aggregate material is required to be the following unless the APCO approved an alternate testing frequency.

- Storage Piles and Conveyer Belts – Minimum of 3 random grab samples per 1000 tons
- Aggregate Covered Surfaces – Minimum of 3 random grab samples per
 - 1 mile of road
 - 1 acre of surface area
 - 2 miles or 2 acres of road shoulder

The second ATCM, which applies to construction, grading, quarrying, and surface mining operations was adopted in July, 2002. This ATCM requires more stringent dust control measures at these operations. For example, an approved dust mitigation plan may be required, depending on the size of the project, or proximity to a receptor such as a hospital, school, day care center, work site, business, residence or permanent campground. The requirements for road

construction and maintenance differ somewhat from those for general construction and grading (e.g., development of a shopping center). Other requirements of the proposed ATCM address post-construction stabilization of disturbed areas. These areas must be revegetated, paved, or covered with at least three inches of non-asbestos-containing material. NOA-containing material may be transported if the loads are adequately wetted or covered with tarps.

According to the CARB's Regulatory Advisory: Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining⁴⁸, the second California ATCM applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally-occurring asbestos is likely to be present according to currently published NOA maps. Areas are subject to the regulation if they are identified on maps published by the department of Conservation as ultramafic rock units or if the Air Pollution Control Officer (APCO) or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally-occurring asbestos on the site. The ATCM also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

Road construction and maintenance operations are required to use dust control measures for a specified set of emission sources and prevent visible emissions from crossing the project boundaries. California has local air pollution control or air quality management districts which must also be notified before any work begins. For construction and grading projects that will disturb one acre or less, the regulation requires several specific actions to minimize emissions of dust such as vehicle speed limitations, application of water prior to and during the ground disturbance, keeping storage piles wet or covered, and track-out prevention and removal. Construction projects that will disturb more than one acre must prepare and obtain district approval for an asbestos dust mitigation plan. The plan must specify how the operation will minimize emissions and must address specific emission sources. Regardless of the size of the disturbance, activities must not result in emissions that are visible crossing the property line. Quarries and surface mines must also obtain district approval for an asbestos dust mitigation plan which must address specific emission sources. In addition, they must meet specific opacity standards for certain types of equipment and ensure that there are no emissions visibly crossing the property line.

Records related to the applicability of the regulation or compliance with the specific provisions of the regulation or the asbestos dust mitigation plan must be kept for seven years. The results of any air monitoring or bulk sampling required by the district, any bulk sampling to document the applicability of, or compliance with, the regulation, and any other records specified in the dust mitigation plan must be reported to the district.

The second ATCM has the following exemptions:

- Homeowners and tenants working on their own residential property

- Agricultural operations and timber harvesting
 - Except for the construction of roads and structures in connection with agricultural and timber operations

In addition, districts may grant an exemption under any of the following conditions:

- A geological evaluation demonstrates that ultramafic rock or serpentine is not likely to be found;
- Road construction and maintenance activities in a remote location;
- The processing of rock from an alluvial deposit.
- For emergency road repairs, district notification may be delayed.

CARB's Manager of Emissions Evaluations, Robert Krieger, provided feedback on California's NOA regulations. Mr. Krieger explained that while the state of California has developed the ATCM's, it is the responsibility of the local air pollution district authority to implement and regulate, and the districts have the option of placing more stringent requirements than the ATCM's. While asbestos has several definitions, California has taken a conservative approach that any asbestos exposure is harmful, thus the ATCM's designed to reduce or eliminate asbestos exposure to the public; consequently, imposing the 0.25% standard. Additionally, districts can implement air sampling requirements for projects encountering NOA; the ATCM does not address air monitoring requirements.

Mr. Krieger mentioned that historically when NOA was discovered on a school's property it had been removed. More recently, however, this practice has been determined to be costly and unnecessary. If NOA-containing material is found to be on a school's property, or is used as fill during a construction project, it must be covered with a minimum of 12 inches of clean fill. Projects not on school grounds where NOA-containing material is used a 3 inch layer of clean fill is required.

John Clinkenbeard, a Certified Professional Geologist (C.P.G.) for the State of California, explained the USGS has developed geological maps of the entire state of California available at 1:250,000 resolution. At this resolution, a boundary line on the map is approximately 1,000 feet wide and the smallest area resolution is 25 acres. When the local district authority reviews a construction permit, they reference these maps to evaluate if the proposed project site falls within areas of known ultramafic or serpentine formations, or an area with known asbestos present. If the project is to occur in an area of concern the ATCM applies. If the project area is outside of the known areas of concern, the project site must undergo a geological evaluation by a third party C.P.G. Evaluations are also used when the project location is close to the boundary line, or the Contractor believes that asbestos is not present. California is presently working on increasing the statewide geological map resolution to 1:100,000; however, this project is not anticipated on being completed for several years. Some districts have funded mapping efforts in order to obtain a 1:24 map resolution.

After discussing NOA in Alaska, Mr. Clinkenbeard referenced Airborne Visual Inferred Spectroscopy (AVIRIS) as a possible geological mapping option. Imaging spectroscopy is a new tool that can be used to map specific materials by detecting specific chemical bonds. As a result it is an excellent tool for environmental assessments, mineral mapping and exploration, vegetation communities/species and health studies, and general land management studies.⁴⁹ The AVIRIS technology is aircraft-mounted and can collect data at a rate of 2 square kilometers per second. While this technology may not be feasible for Alaska's entire landmass, project specific uses may prove to be beneficial.

Jeff Wright with the CARB was contacted regarding M435 asbestos testing. The M435 method was developed in 1990 and was designed to detect serpentine asbestos in gravel/soil. The ATCM's requirements result in a large quantity of soil and gravel being tested for the presence of asbestos per M435; therefore, many testing laboratories throughout the state perform this analysis. CARB performed an interlaboratory study of California laboratories which offered the M435 testing. Samples were "spiked" with a known amount of asbestos and sent to the labs for analysis. The results of the study indicated vast discrepancies in the sample results.⁵⁰ All the laboratories included in the study were national accredited to analyze asbestos, however; M435 is unique from other test methods and while all the labs were adhering to M435 protocol, several different varieties of milling and homogenizing equipment was used. Mr. Wright explained that increased sample pulverization has been known to decrease asbestos concentrations via PLM analysis because the fibers are reduced in size to the point where they no longer meet the definition of a fiber; in contrast, asbestos concentration results per TEM analysis tend to increase. Because NOA is typically not uniform in samples, after the material has been milled sample homogenization should occur. PLM analysis examines only a small fraction of the sample, and TEM examines approximately one millionth of that, making homogenizing the samples an extremely important process.

Mr. Wright explained that California is in the process of undergoing several changes to M435. The proposed changes are as followed:

- Sampling
 - Bias field sampling per the discretion of the C.P.G.
 - Perform "target sampling" which focuses on areas or materials most likely to contain NOA opposed to "random" sampling in which the NOA may not be sampled
- Processing
 - Formulate a M435 accreditation for testing laboratories
 - California is working with NVLAB to develop an M435 accreditation

- Require specific equipment to be used for the pulverizing and homogenizing processes
- Analysis
 - Move away from quantitative analysis
 - Results would be reported as “present” or “absent”
 - Additional analysis
 - If PLM observes no asbestos, require the sample to be analyzed via TEM

Other States

The following states either have, or are in the process of implementing NOA regulations: Massachusetts, New Hampshire, Pennsylvania, and Texas.

NOA CONTROL STRATEGIES AND TECHNOLOGIES

The following are a number of NOA control strategies and technologies that can be used to ameliorate asbestos release from NOA and NOA-containing material. After presenting some general information generated by the federal EPA, the items are divided into manage-in-place, dust suppression methods, covering or capping, and road maintenance. Finally, long term maintenance requires some public education.

EPA Facts Sheet: Methods for Reducing NOA Exposure⁵¹

Below is a list of methods recommended by the EPA to reduce asbestos exposure resulting from NOA. These are general methods, and must be applied on a project-specific basis:

- *Wet road surfaces with water using trucks, hoses, or sprinklers*
- *Wet piles of excavated material and cover them with tarps, plastic sheeting, or other items*
- *Continuously mist the work area*
- *Install wind barriers around the work area*
- *Clean or decontaminate equipment and vehicles to ensure that no equipment or workers track soil out of the work area (a gravel pad, tire shaker, or wheel wash system may be used to clear soil from vehicles)*
- *Wet the work area using a spray system attached directly to rock cutting or drilling equipment, such as a fine-mist sprayer or a variable-rate fogger nozzle*
- *Excavate utility trenches to an adequate depth and backfill them with clean soil so that future repair work will not need excavation into potential NOA-containing materials*
- *When transporting NOA-containing materials, avoid overloading trucks; keep the material below the top of each truck compartment and cover material with a tarp*
- *Limit personnel and vehicle access to the work area*
- *Identify NOA-containing areas with signs*
- *Reduce driving speed*
- *Reduce drilling or excavating speeds*
- *Excavate during periods of calm or low winds*

Roads and Parking with NOA in place and for unpaved roads and parking areas:

- *Cover roads with non-NOA-containing rock, chemical sealants or dust suppressants, chip seals, limestone aggregate, petroleum sealants, or asphalt cement paving*

- *Wet road surfaces with water*
- *Install windbreaks or berms*
- *Reduce driving speed*
- *Avoid dusty areas, especially in windy conditions*

And throughout communities:

- *Cover areas of rock and soil with clean soil, rock, vegetation, or other material*
- *Pave over unpaved walkways, driveways, or roadways containing NOA*
- *Landscape areas with vegetation, such as NOA-tolerant plants, and add a layer of organic mulch or NOA-free soil. Water plants often until they are established to minimize erosion*
- *Water garden areas before digging*
- *Keep windows and doors closed on windy days and during periods when nearby rock or soil may be disturbed, such as during construction*
- *Limit track-in by using entryway (door) mats, and wipe down pets before they enter buildings to reduce the amount of soil tracked indoors*
- *Allow children to play in outdoor areas only if the area has a ground covering, such as wood chips, mulch, sand, pea gravel, grass, asphalt, shredded rubber, or rubber mats*
- *Relocate outdoor activities to areas that do not contain NOA (walk, run, hike, and bike only on paved trails)*
- *Avoid dusty areas, especially in windy conditions*

Manage In Place

The ideal method for managing NOA material is in place and undisturbed; especially if the NOA material is not exposed. Fairfax County, Virginia, for example has a large NOA deposit which exists beneath non-NOA material. Unless this material is required to be impacted through construction or other activities, Fairfax County has taken the position to leave the material in place. NOA does not pose a health risk if it remains in a location where asbestos fibers cannot become airborne; such as beneath non-NOA material.

Separation

A variation on manage-in-place is to separate the NOA from associated non-NOA materials. Separation and excavation of the NOA materials for a source of gravel aggregate might serve as a control method, if the locations are known and the amounts are small. However this method seldom practical, since NOA deposits commonly extend miles, if not hundreds of miles. Excavation is generally only utilized as amelioration method when soils with known NOA are required to be impacted for projection such as road and building construction and utility work. Excavation requires the disturbance of the NOA, hence the potential for airborne exposure.

Dust Suppression

If NOA material is required to be disturbed, dust generating activities should be limited at all times. The most common engineering control used to reduce dust levels, hence airborne asbestos exposure, is the use of water and/or wet methods during NOA-related activities. The following is a list produced by the EPA of engineering and work practices that reduce exposure to NOA on excavation, grading, or utility work at construction sites.⁵¹

Reducing Vehicle Traffic and/or Speed

Dust emissions from unpaved road surfaces are directly proportional to the number of vehicles traveling on it, thus, reducing the amount of traffic will in turn reduce the amount of dust generated. By implementing weight or use restrictions on vehicles traversing the unpaved road could significantly limit the amount of traffic on a NOA-containing unpaved road and in some circumstances it may be possible to remove an unpaved road, or section of road, from service to the general public. An example of this type of control was recently imposed by the City of Kotzebue, in an effort to reduce particulate matter smaller than 10 microns in diameter (PM₁₀) emissions, where anyone under the age of 14 is prohibited from operating off road vehicles on city streets unless accompanied by an adult on the same vehicle.⁵²

The rate at which a vehicle travels on an unpaved surface is also proportional to the amount of dust generated⁵³ meaning the efficiency of speed reduction as a dust control measure increases as the speed is reduced. For example, if the base speed is 40 miles per hour, a reduction to 20 miles per hour results in a 65% reduction in dust emissions; a further reduction to 15 miles per hour results in an 80% reduction in dust emissions.⁵⁴ Vehicular speed reduction can be achieved through posted signage coupled with enforcement and/or roadway manipulation such as speed bumps. The initial implementation of both these methods would be minimal, with immediate results. Major costs associated with these methods include increased travel time and additional law enforcement. While enforcement of these methods may be difficult in some rural Alaska communities, it may be a very practical, enforceable and effective for reducing airborne asbestos at quarries, construction sites and more densely populated areas.

In a best case scenario, at optimal conditions, both of these control methods would still not address the issue of exposed NOA on the roadway. Substantial amounts of dust would still be produced during dry conditions and natural elements such as wind would continue to make asbestos airborne. In most situations, these methods should be either approached as interim responses, or used in combination with other methods.

Water Application

Federal regulations require the use of "wet methods" when impacting ACM's which have potential of releasing asbestos into the air. Due to the moisture, particles/fibers adhere to each other through the surface tension of connecting water droplets and the adhesion of droplets to particles/fibers reducing the amount of emissions released during impact. The same principle applies to NOA-containing unpaved road systems; if they remain wet, dust emissions will be minimal. The easiest and most effective way to accomplish this is direct application of water to the surface of the roadway.

A large water source exists in most communities throughout Alaska. While more heavily populated areas have the required means to extract and apply water in sufficient quantities, many smaller communities do not. Often times some form of water application system can be implemented; however, may be too laborious to continue for long term.⁵⁵ In Amber, for example, no water trucks or large tanks were available for water application on so a simple gravity feed system was utilized. This system consisted of 4 - 275 gallon interconnected square plastic containers (totes) placed in the back of a truck which were filled with water from the Kobuk River and attached to a perforated pipe on the back of the truck.³⁷

Applying water to surfaces provides effective, but short-term reductions in dust generation with water typically needing to be re-applied ever 0.5 – 12 hours depending on temperature and humidity. It has been determined that regular, light watering is more effective than less frequent, heavy watering.⁵⁵

If the necessary equipment and water source are available, wetting unpaved surfaces can be greatly reduce dust emissions while remaining cost effective. Additionally, if wetting were coupled with one or both of the traffic control methods, evaporation from the roads surface would occur slower and dust emissions would be lower yet. Continuing costs would include equipment maintenance and workers performing the application. If equipment is not available, start up costs could be significant. Wetting is a practical control method to be used as a construction project control method or a short-term solution. Due to water having to be continuously applied to keep the surface moist, alternate long term control strategies should be investigated.

Increasing Moisture Content

The application of deliquescent salts such as calcium chloride, magnesium chloride and sodium chloride (common rock salt) are also implemented as dust control methods. These salts absorb moisture from the atmosphere and when mixed with surfacing soils will keep the treated soils at higher moisture content than untreated soils. For example at 77°F and 90% humidity calcium chloride will absorb more than 17 times its own weight in water.⁵³ Potential disadvantages to the use of these salts are that roads may become slippery when wet, vehicle corrosion may occur and roads may become more susceptible to freeze and

thaw damage. Additionally, salts applied for dust suppression initially penetrate the roads surface several centimeters, followed by a gradual rise to the surface by capillarity action, making them susceptible to being washed off by rain. Prolonged rainfall will leach the salts from the roadway, potentially impact groundwater and surface water quality, and attract wildlife potentially causing safety concerns. Typically if the proper buffer zone exists between the water and the treated area, water quality impacts will remain minimal.⁵⁴ The practical utility of an application of one of these salts is no more than one year.⁵³ Sodium chlorides generally considered less effective than either calcium or magnesium chloride. Application of these materials is generally required 1-2 times per season.

Several locations in Alaska have utilized calcium chloride for dust control in recent years including Kotzebue, Teck Cominco's Red Dog Mine, and Haines, among other locations.⁵³ Environmental impacts of chlorides include metal corrosion, and degradation to nearby vegetation, surface, groundwater, and aquatic species.⁵³ In addition, because calcium chloride can substantially lower the freezing temperature of water, concentrations of the palliative in road soils can change the thermal stability of these soils.⁵³ This could potentially create issues in areas where extremely heavy loads are forced to wait until the road has completely frozen in order to supply adequate reinforcement such as on the Dalton Highway.

Covering or Capping of Installed NOA

Another common engineering control is to place a cover system (or cap) over the NOA. These materials may include non-NOA soil or rock, concrete, chemical sealants or dust suppressants, chip seals, limestone aggregate, petroleum sealants, asphalt paving, geotextiles, wood chips, mulch, sand, pea gravel, shredded rubber, rubber mats, and vegetation. Several factors, including cover material properties and site characteristics, affect the type of cover system appropriate for a particular area.

Palliatives

The majority of palliatives used on unpaved roads and airfields consist of chemicals designed to bind soil particulates together, forming larger particles less likely to become airborne. Petroleum-based binders, organic nonpetroleum dust suppressants (lignins), electrochemical stabilizers, synthetic polymer products and pozzuolannic minerals comprise the main palliatives and are discussed further below:

Petroleum-based binders used as capping materials for dust suppression include emulsified asphalts, cutback asphalt (liquid asphalt), dust oils and modified asphalt emulsions.⁵⁵ These products are applied to the surface soil as a thin layer of asphalt which binds the soil particles together, consequently

waterproofing the road as well. Some binders increase the mass of fine particulates, instead of binding particles together. Both variations result in decreased emissions. When asphalt is used to bind particles together, the emulsified asphalt, because it is a mixture of asphalt and water in very small droplets, has the capability to penetrate unpaved road surfaces to coat more than just the surface particles, especially if the product is mechanically mixed into the top inch or two of road surface with a grader. Petroleum-based binders that contain fractions of lighter solvents, and especially those containing polycyclic aromatic hydrocarbons (many of which are carcinogens), can contaminate waterways if any migration of these lighter fractions occurs due to runoff.⁵³

Organic non-petroleum dust suppressants include lignosulfonates, resins, and vegetable oils. Lignosulfonates originate from lignin, a complex compound which binds wood cells together as a natural polymer. Most commonly lignin is derived from wood fibers during paper manufacturing. Lignosulfonates bind surface soil particles together due to a combination of chemical and physical interactions. Lignosulfonates are known to greatly increase dry strength under dry conditions and retain effectiveness through extended dry periods. Generally 1-2 applications of lignosulfonates are required per season. Lignosulfonates are water soluble and will leach out of, or deeper into, roadway surface with rainfall and may become partially or totally destroyed.⁵⁵ These products are also corrosive to aluminum and its alloys unless calcium carbonate is added. Glacial tills contain low levels of clay and have low plasticity; consequently, lignosulfonates may be of limited value in controlling dust emissions from these soils. Furthermore, because lignosulfonates are derivatives of sulfuric acid, leaching may adversely impact watershed areas by affecting the acidity of water sources. Lignosulfonates are reported to not bind well on roads that had been treated previously with chloride compounds.⁵⁶

Electrochemical stabilizers include sulphonated petroleum, ionic stabilizers, and enzymes. These products are intended to neutralize the ionic charges of clay-sized particles, thereby allowing electrostatic forces to bind the particles. Electrochemical stabilizers are generally effective regardless of climatic conditions.⁵⁵ To be effective, electrochemical stabilizers need to be worked into the road surface, requiring equipment that may not be available in remote rural communities. The performance of this material is dependent on fine-clay mineralogy which is unlikely to be encountered in most areas of Alaska.

Synthetic polymer products include polyvinyl acrylics and acetates that bind soil particles together and form a semi-rigid film on the road surface. These products are found as either a water soluble liquid or a powder intended to be mixed with water. Because synthetic polymer products are almost exclusively applied as a liquid, the material takes approximately 12-24 hours to cure during which time traffic should be kept minimal on application surfaces until the curing process is complete. Additionally, the product should be applied during a time of year when temperatures will not approach freezing, otherwise the curing process will not

work. The synthetic polymer products "Durasoil" was used as the dust suppressant in Ambler, as well as many other unpaved runways throughout northwest Alaska.³⁷ Synthetic polymer treatments are generally required once every 3-5 years.

Pozzolanic minerals, such as lime and cement, are typically added to non-plastic road surface material to produce a thin crust by agglomerating with fine dust particles. These stabilizers must be field mixed into the road material and compacted. These surfaces do increase the dry strength of material under dry conditions; however, once hardened it cannot re-harden if disturbed by abrasive forces, such as some off road vehicles and grading. Generally treatment with this method is applied once every ten years.

Gravel Replenishment

Asbestos-containing dust emissions from unpaved surfaces can be reduced by the addition of several inches of non-NOA containing gravel. This action would reduce the concentration of NOA on the surface; therefore, reduce the rate at which asbestos is allowed to become airborne.⁵⁷ Gravel provides a hard-wearing surface that shields underlying NOA from the abrasive forces of vehicle wheels. Traffic causes abrasion between the NOA and non-NOA aggregates, however, which over time creates fine dust. The degradation is somewhat dependent upon the hardness of the aggregate. Newly applied gravel will not reduce the strength of vortex airflows behind passing vehicles from entraining loose soil particles into the air. If the road-base is not well-constructed using crushed aggregate, surface gravel will be pushed down into the road surface by traffic, especially during wet conditions. If the road surface does not contain enough fine material of high cohesion to hold surface gravel in place, traffic can also cause surface gravel to be expelled laterally from the road's driving lanes. To be effective over more than a short period of time, new gravel applied to a road should be anchored to the road surface by incorporation into a cohesive surface layer through either well-graded aggregate mixes or by the use of soil adhesives (i.e., palliatives).⁵³

In the event the newly applied gravel is lost to the roadway surface through vertical migration into non-cohesive soils, the use of geotextile fabrics may be of benefit. These fabrics are constructed of polymer threads that are very high in tensile strength, and are available in designs that either form.

Paving

Paving includes a variety of surfacing materials with the three general types being bituminous concrete, concrete and chip seals.

The most effective, and expensive, method currently available to control dust emissions from unpaved surfaces is the application of pavement or other durable materials to the road surfaces. Bituminous or Portland concrete provide durable

surface which prevents the abrasion of underlying soils. Bituminous concrete is a hot mixture of asphalt and well-graded aggregate, while Portland concrete is a composite material of cement, water and aggregate. Concrete requires less maintenance and is considered more durable than bituminous surfacing. Both methods are designed to support heavy traffic and unless the roadway typically carries 250 to 500 vehicles per day, the use of either of these paving options will likely not be cost effective.⁵⁵ Kotzebue has several roads which typically meet this "traffic quota" on a daily basis, and recently have had some of the main roads paved.⁵³ These forms of paving are not typically used on secondary roads, and would virtually never be considered for rural Alaska.

Chip seal surfaces, also called macadam, consist of one to three layers of aggregate and asphalt. Asphalt is sprayed over each aggregate layer as it is applied. After all the aggregate layers are in place with asphalt being applied over each individually, a covering of smaller stones is placed on top and then the entire system is compacted with the finished chip seal typically being 1 to 4 cm thick. Applying chip –sealing to an NOA-containing unpaved road would reduce dust emissions into the atmosphere because the chip sealant would bind the surface material. Annual dust control efficiencies of paved surfaces have been estimated by researchers to range from 90 to 99.9 percent.⁵⁷ A standard three-layered chip surface at 3.75 cm would be expected to last 10 years before additional surface treatment is required. Most chip seals require a second coat after 1 year and a third in approximately five years.

Durable Surfacing Materials

Fiberglass plates are used in cold climate oilfields to provide temporary road surfaces over native soil. These interlocking plates are typically manufactured in sections that are 14 feet long by 8 feet wide by 2 inches thick. The plates are designed to carry very heavy loads over short distances without the need to construct structural roadbeds in areas like northwestern Alaska, where construction aggregate is in very limited supply. The plates are expensive, costing about \$2,000 per plate, but appear to have a significant lifespan.⁵⁸ Some questions exist, however, as to whether such plates are skid resistant at the vehicle speeds typical in rural communities.

Road Maintenance

The effectiveness of any dust suppressant applied to a road surface depends upon many factors such as type of road, traffic, intended uses climate, type of dust suppressant, drainage, and available maintenance resources. These factors must be considered together in the proper maintenance of a road that will safely and cost-effectively resist dust generation. For example, if the road surface is not well drained, water will puddle either on the road surface or in adjacent low spots. Standing water will float soil fines to the surface and distribute them across the roadway surface with passing traffic. Standing water adjacent to a roadway has

the potential to saturate the road sub-base, resulting in structural failure as evidenced by potholes. Aggregate in a roadway surface reduces tire forces on fine materials that increases the release of dust from a roadway. The loss of fines in the roadway surface leaves the aggregate unanchored and vulnerable to being pushed to the side of the road by tire forces. The success of palliatives to reduce dust depends on the repair and maintenance of good drainage on and adjacent to the road.⁵³

Control Strategies for long term management of in place NOA.

Education

In rural communities throughout Alaska, the availability of law enforcement to assist in applicable dust suppressing methods is likely to be limited or non-existent. Imposing speed limits and vehicle use restrictions in these communities will be most effective if the residents of the community understand their purpose. Education about NOA and its potential health effects is a vital step in obtaining local support for any control method used. Education techniques for NOA-affected areas may include advertising, public meetings, information packets and making available NOA-knowledgeable experts. If residents understand the reasons for implemented controlled methods in their communities, a positive local response can result in social pressure applied throughout to adhere to new policies for the well-being of the community as a whole.

Residents in areas with geology favorable for NOA formation should be educated in basic NOA knowledge. In rural communities with a known NOA issue, such as Ambler, where airborne asbestos fibers from NOA are likely to be present, NOA general housekeeping and personal hygiene techniques should be implemented which requires specific education efforts. Education efforts could be carried out through State agencies or consulting firms with knowledge and experience with NOA. The cost for this effort would include travel to the subject community, preparation of materials (information packets) and potentially on-going assistance as new issues develop; however, these costs will be minimal considering many control methods are dependent on community support. If residents are unwilling to comply with newly imposed policies, any control method is likely to fail or have minimal effect.

Workers and the general public need to be properly educated regarding general housekeeping and personal hygiene practices appropriate for locals with NOA exposure potential. This control technologies include:

- Routine hand and clothes washing
- Boot/shoe removal at work and home
- Wet wiping and/or HEPA vacuum of visible dust accumulations as they develop
- Wet methods
- Controlling or avoiding visible NOA dust

Analysis with Discussion

Introduction

The asbestos standards, such as the training requirements for asbestos workers, were written on the premise of encounters solely in manufactured products. While the EPA has developed several documents to help increase knowledge and prevent exposure resulting from NOA, no Federal regulations have been implemented. This has resulted in several states implementing their own set of regulations and guidance documents. However, of the 20 states where NOA is known to exist, only a few have, or are beginning to, implement NOA regulations. The remaining states (such as Alaska) deal with NOA on a project-specific basis which typically exhibits substantial project delays and increased costs.

While there are limited general recommendations (see EPA NOA dust guidance), recommended NOA amelioration methods need to be selected on a site-specific basis because the exposure is dependent on a vast number of variables related to site specific conditions and work practices chosen for processing/handling. The single most important goal for almost all NOA-containing sites, materials, and systems is to prevent asbestos fibers from becoming airborne to eliminate respiratory exposure to asbestos. Several methods have been utilized to achieve this goal, with the main options being: manage in-place, dust suppression, cover or cap, and excavation/removal of NOA-containing material.

It is clear that gravel sources with NOA are present in Alaska and they have the potential to affect public health, project development and costs. At the same time it is well documented nationally and with Alaskan experience that use of proper NOA control strategies allow the safe employment of NOA materials. While past project experience in Alaska has not documented significant exposure or post project health concerns, NOA has been costly to some projects. This was primarily due to lack of advanced knowledge of NOA's presence, failure to characterize and notify, which resulted in changed conditions and non-competitive contract modifications after the contract has been awarded. Even if NOA is known during the project planning stages, the best course of action may not be clear because there are professional NOA geologic, risk and regulatory interpretations and definitional issues that will generate discussion and require resolution. The successful implementation of a NOA program will therefore require development and needs to involve training and transition for all involved including state, regional corporations, private resource owners, project designers, contractors, operation and maintenance staff, community and local residents.

Resource owners need to better understand their resource, develop the knowledge and marketing expertise to have it properly characterized and categorized for appropriate uses. Designer's need to develop the necessary project specifications requiring resource certification as well as contractor training and experience. Successful contractors need to learn how to develop

competitive work plans for safely utilizing NOA materials on project specific basis. For both companies and citizens in affected areas these changes include learning about the hazards and taking personal responsibility for controlling or avoiding activities creating airborne visible dust as well as implementing life style and work practice changes involving life style modifications such as housing/office boot/shoe removal, utilization of wet methods and HEPA filtration for routine cleaning of visible dust accumulations.

Liability

The liability of ADOT and suppliers of NOA materials may be divided into three:

1. Tort liability to individuals and organizations,
2. Contractors have additional liability to protect their workers and the public from the contractor's operations, and
3. Legal liability to agencies for failure to follow applicable laws and regulations.

Tort

If the ADOT's use of NOA damages an individual or organization, ADOT may incur tort liability. For example, if a resident of a village downwind from an ADOT airport that used NOA in the runway were to die of a disease known to be caused by asbestos exposure, the victims family might sue the ADOT. Although it takes years of heavy asbestos exposure to cause those diseases, and for most asbestos diseases asbestos is a "risk factor" not the sole cause, there are other causes, most notably smoking, sympathetic juries frequently find for the plaintiff, almost regardless of fault. Due to the tort reform movement, Alaska's current tort laws have reduced the windfall aspects of such suits, but they are certainly possible. Here we can suggest little except developing good standards for use of NOA, having review by all agencies concerned with health and environmental safety, then strictly documenting conformance. Such defensive practices will not make such suits impossible, but will make their defense much easier.

The owners of NOA materials sites face essentially the same tort issues as the ADOT. The question if this liability can be handed off from the owner to the ADOT is one that requires legal advice. California has a system of notification and paperwork that would seem to hand that liability off to the purchaser of the materials. We do not know if this has been tested in court. We doubt the CARB has the legal authority to change the state's tort laws. However, as above, conforming to established procedures is often a strong defense.

Contractors' liability

The contractors' liability to follow the state's labor laws regarding occupation health and safety are fairly straight-forward, if the NOA is mentioned in the project bid documents. The contractor's liability to third parties, such as the public, may be more complicated. The contractor's general liability insurance will defend them; however the contractor's insurance company will then try to recover

from the state and/or the material owner. This may be forestalled by appropriate contract terms regarding insurance, but clearly this is a item for expert risk management and legal advice. Finally, if the specifications do not make clear the need to get certain permits and the contractor's operations are impacted, the contractor may try recover from the ADOT for defective specifications.

Liability for laws and regulation compliance

CERCLA and RCRA deal with *wastes*. NOA is not a *waste* thus mining and incorporation of NOA does not come under either of those laws. However, for example, if the NOA mining segregated some materials that had a lot of asbestos from other materials, and thus had small mounds of asbestos materials on the site, might these mounds be waste piles? Here the regulatory standard is 1% asbestos, so if the mounds had less than 1% asbestos, they would not be asbestos under the CERCLA or RCRA regulations. Here the authors have not obtained further clarifications regarding mining and mine waste. While this would be the responsibility of the owner of the NOA materials site, these clarifications should be obtained in the next phase to enhance communications between the ADOT and the material site owners.

California Experiences

The California NOA regulations do address many issues and procedures that may bear on liability. The California NOA regulations separate the "notice requirements" into two categories; material intended for surfacing, and material not intended for surfacing. In addition to the notification variations, material intended for surfacing must have an asbestos content of <0.25% asbestos per the CARB 435 analysis, unless the surfacing application is considered one or more of the 11 surfacing ATCM exemptions. These notification requirements are intended to both "hand-off" liability to the purchasers and produce adequate documentation. (Signage and placard requirements for regulated material are intended more to prevent accidental misuse and/or handling than for recordkeeping or proof of receipt.)

Once the NOA-containing material is in the possession of the purchaser, it is their responsibility to provide adequate protection and training to the employees which handle the material. The end-use of the material is also the purchaser's responsibility at this point. They must insure they not only adhere to all OSHA, EPA, State and Local requirements during handling and transport, but also to their approved site specific Work Plan. The purchaser must also insure the material is approved by the regulating agency for its intended end use. Often the end use of the regulated material will managed by a third party where they would be in responsible charge of obtaining approval, permits, etc., for the materials end use and any required dust control strategies (capping, paving, etc.).

Resource owners and contractors have raised liability concerns regarding the sale and use of NOA materials. In some instances it is understood litigation may

already have been filed against NOA resource owners for the sale and use of NOA materials. This is a real concern that if not properly understood and addressed will impact the safe use of NOA materials and create unnecessary project costs. CERCLA Section 9604 provides for resource owner protection against naturally occurring hazards. Liability for resource processors and/or contractors can be addressed through their compliance with NOA program requirements. It is not possible to prevent all lawsuits and particularly frivolous filed cases. Therefore the effectiveness of the recommended NOA program to be developed will likely be tested legally and provide court interpretation and resolution of liability concerns.

Ambler, for example, is a unique case which would not completely comply with any of the existing 11 surfacing exemptions or the Construction, Grading, Quarrying and Surface Mining ATCM for California. While California's state NOA regulations are undoubtedly the most developed in the United States, it is unlikely the drafters/authors were required to take into account communities such as this. Had similar circumstances existed, certainly specific exemptions would have been established to address this. Alaska can look to, and even adopt, the California NOA regulations; however, scenarios exist in Alaska unlike anywhere else in the United States, and special provisions and/or exemptions will be a necessity of this future rule.

Examples of Liability

In the Swift Creek Washington case where NOA-containing Sumas Mountains would periodically experience landslides which flowed into the Swift Creek River where the material was dredged and staged along the shoreline to prevent flooding. There was no organization deemed the Responsible Party, and several federal, state and local agencies are currently involved in the Swift Creek NOA concern. It was determined that the EPA Superfund program had limitations on spending money on this type of cleanup because the material of concern was naturally-occurring. This makes NOA sites exempt by law from the EPA Superfund program, except where the material was moved by unnatural forces (ie construction, dredging). This caveat allowed the EPA to use funding to assist in the Swift Creek NOA concern.⁶⁰

Libby, Montana, which has been declared an EPA Superfund site, has had ongoing federal cleanup efforts since 1999. In this case, processing mined vermiculite constituted the majority of the contamination; consequently, the asbestos was not viewed as naturally-occurring. In 2003, in a ruling issued by the District Court of Montana, the court said the mining company, W.R. Grace, was liable for costs related to the investigation and cleanup of asbestos contamination in Libby and ruled that the EPA's revised method for calculating indirect, or overhead, costs is appropriate and that those costs may be recovered from W.R. Grace. The ruling meant W.R. Grace was responsible to pay all of the \$54.5 million in costs that the EPA incurred through December 31, 2001. Costs incurred after that date were to be resolved in future proceedings if disputed by

W.R. Grace. In May, 2009, W.R. Grace and three individual defendants were acquitted of criminal charges under the Clean Air Act alleging they conspired to conceal the health dangers posed by the contamination.⁶¹

NOA proposed for use

While NOA materials are known to be present in 20 of the 50 states, only a handful are moving ahead with implementing NOA regulatory control policies. Those states that have implemented NOA regulations have focused their programs on:

- Geologic mapping of “restricted” areas with materials likely to contain NOA
- Compliance level characterization of NOA free materials based on the limit of detection of less than 0.25% asbestos content
- Asbestos characterization sampling for use of materials from restricted areas
- Utilization Compliance Plan Submittal, Review and Approval
 - Source, transport route and work product
- Providing local authority to interpret program requirements site specifically and implement additional testing where necessary.
- Development of necessary program exemptions
 - area wide
 - regional

While education and training with regards to NOA exposure, work practices, and safe uses is key to any program, the submittal and approval of site specific compliance plans for approval by local authorities will insure the long term viability of an effective “living” program for that project’s NOA.

NOA site specific work plan might note the availability and cost of NOA-free material as those affect project design options. Control technologies that eliminate or reduce exposure pathways might minimize individual project costs. The remoteness of many Alaska projects and absence of alternative transportation routes may require reasonable exemptions, based on a balance of benefits and risks.

Similarly, the concentration and variety of NOA will play a major role in determining the most cost effective control strategies. While federal regulations are indifferent to the form of asbestos, control methods for NOA should not be. Forms of asbestos that break apart and easily become airborne should be held to a higher standard than those which are tightly bound within a rock matrix. This highlights the importance of developing a consensus standard as well as mapping and sampling efforts to properly characterize specific asbestos materials present as well as the risk. The authors recognize this may be quite difficult in practice, but certain broad guidelines are possible and these may help project planners and designers.

NOA in place - control technologies

NOA control methods should start with the least expensive options first. In general terms there are four control methods: education, wetting, palliatives, and capping.

By itself and together with all the other control methods educational outreach to the staff, industry and general public regarding the hazards and methods of controlling or avoiding airborne dust is almost always advised. Outreach such as encouraging implementing speed controls and restrictions on vehicle use in sensitive areas (i.e., near schools, hospitals, and residential areas) and modifying life style habits to reduce personal exposure are all worthy of consideration.

If a road base lacks adequate drainage, the embankment will be weak and the effectiveness of dust control measures will be limited. Reconstructing unpaved roads to provide good drainage and a solid base is needed for dust palliatives, capping with clean material, or paving to be effective. If the road soils are of poor quality, geotextiles may be a feasible option to add support to the road surface. According to Succarieh,⁵⁴ expert professional advice about the road is often needed. The ADOT Local Technical Assistance Program (LTAP) may assist. As part of the educational program it is recommended that the ADOT LTAP enhance their NOA knowledge and resources for distribution.

If sufficient equipment and manpower is available, watering roads during high dust periods should be performed; however, this is a short-term effective method of dust control and more long-term control methods should be investigated. Historical monitoring data illustrates that high dust generation rates are greatest during the two-month period following breakup, therefore, short term control measures like watering can provide limited benefits if impacted communities have access to watering equipment.⁵⁴

Another control technology is application of dust palliatives. In order to obtain the greatest benefits from the application of dust palliatives, site-specific investigations of local traffic and soil is required. Investigations should begin with an assessment of the soils used to construct and surface the unpaved roads. The ADOT's LTAP, may assist rural communities with technical assistance and/or training on proper techniques for soil analyses useful in the palliative selection process.⁵⁴

Some deliquescent salts and/or synthetic polymer products may provide adequate levels of dust control on unpaved roads. Again this depends heavily on the soil and traffic conditions in the respective community. These products have been tested in several locations in Alaska and have been demonstrated to provide varying control of dust emissions. Because the successful use of these products is dependent upon a number of factors that vary from community to

community, pilot tests of selected products for a summer season should be undertaken in affected communities before community-wide application is pursued.⁵⁴

Contractor Feedback

Approximately 150 contractors in California who likely encounter NOA were contacted via email and asked to provide general feedback regarding associated California regulations. The email contained 5 basic questions in combination with a short narrative explaining the purpose of the inquiries. Only one of the contractors contacted replied, with limited applicable information. This contractor expressed the following when asked about their opinion on the California NOA regulations:

For the most part, the measures taken are reasonable and consist of greater than normal dust control through the use of more water on grade during earth moving operations and trenching.

The contractor explained equipment “wash systems” are routinely utilized for decontaminating equipment prior to leaving a NOA site. Another precaution was capping the native material with either a hard surface (concrete, asphalt, ect) or “clean” soil. The thickness of the cap varies depending on the perceived threat of the asbestos, and when soil capping is used it is underlain with a warning fabric to prevent excavations being made into the NOA at a later date.

This contractor did not have certified asbestos workers on staff to perform the removal/handling of hazardous materials such as NOA. They stated their employees are trained to look for hazardous while work is being performed, and if material is encountered which may be hazardous it is either avoided or remediated by a qualified contractor. The following quote explains their route of action if hazardous materials are required to be abated:

When we do have a situation develop where hazardous materials are present and they need to be remediated then a proper contractor is brought into service under contract with the property owner keeping us out of the loop.

To close, the contractor states the NOA regulations in California are not “unbearable” but do add additional costs to affected projects.

Future and Plan of Action

The regulatory authority utilized in the states evaluated included a state-wide program that was implemented across at the local, county level. Typically, multiple disciplines are involved including health, environmental and air pollution control divisions of the regulatory authority.

To date the Alaskan documented experiences in Juneau, Dalton and Ambler all involved transportation projects. Fortunately, once identified they were handled appropriately with additional assessment, training and work practice and product use modifications, each demonstrating once it is known, the NOA material can be safely used. However, while the experiences may not have resulted in any significant human exposures, the late identification resulted in changed conditions and costly non-competitive contract modifications. While NOA encounters in Alaska have been comparatively limited, the need for implementation of a state-wide NOA policy is reinforced by the lengthy, problematic and consequently expensive circumstances that have occurred due to lack of standard operating procedure and/or regulatory guidance. Road and pipeline pad construction and maintenance have and will be the largest future use of gravel resources. For these reasons it is recommended and appropriate for ADOT to take the lead in the further evaluation and development of NOA strategy alternatives and program development. It is anticipated and recommended that ADOT develop internal NOA operations and maintenance (O&M) and design standards for ADOT projects. For maximum effectiveness the department's internal policies and SOP for NOA should reflect a statewide, industry and regulatory consensus. These NOA standards will involve awareness education, resource characterization, acquisition, use as well as required training and development of design requirements, contractor's work practices and O&M practices.

It is readily apparent that the NOA concerns go well beyond the ADOT areas of responsibility involving all aspects of the local people, resource use and community. As demonstrated by other states moving to address NOA issues, a more holistic approach to NOA should involve public health, worker, community and environmental protection advocacy. The existing Alaskan "dust working group" comprised of regulatory and government stakeholders appears as a natural technical committee that could be expanded to include industry and be instrumental for the technical information exchange, development of a statewide NOA strategy(s) consensus and facilitate with the implementation of a successful statewide program.

Clearly the ADOT needs an SOP that that tells ADOT planners, designers and operators how to handle NOA, and this SOP will certainly call for a specific plan for each project. However in order for the SOP to be successful, it must be acceptable to all relevant state and federal agencies, and acceptable to all other stakeholders, such a contractors, materials site owners, and affected communities. Thus the first step is for the ADOT to formulate a NOA Action Plan to solicit comments and advice from all stakeholders, develop drafts of the SOP, circulate drafts to all stakeholders, and present the drafts to all stakeholders.

Working Group

Through the development of the NOA Action Plan (AP) the professional and technical issues can be resolved by the stakeholders working group and applied

with state conditions to existing programs developed elsewhere to develop an Alaskan specific program consensus and AP. It is recommended that the working group be comprehensive in make up and include all interested parties or stakeholders. Representatives from government, community and industry should be included. The following is considered a minimum list of known stakeholders that we recommend ADOT consider and include in forming a statewide stakeholder working group.

- BIA
- Alaska Geological Survey
- Denali Commission
- EPA
- ADOT
- ADEC
- DHSS
- Alaska Native Tribal Health Consortium.
- Alaska Tribal Air Call
- Denali Pipeline
- Alyeska Pipeline
- Native Corporations
- Village corporations in areas with NOA
- Community Health Consortium

Coordinating the working group and developing an NOA AP to achieve the goals and targets of these recommendations will require significant commitment and change in operational, management, building and behavioral practices at all levels of agencies and state government. For the AP to be successful, it must have both long term overarching goals and short term, manageable and achievable actions that have short delivery timelines. The statewide working group of stakeholders will be important to providing the forum for technology transfer, alternative strategy consideration, program development and successful implementation of the consensus achieved.

Work of the Working Groups

ADOT's initial working group purpose and scope of work should be fivefold:

- Inform stakeholders on NOA background and needs and solicit participation;
- Define existing NOA control strategies in use;
- Brainstorm actions that best meet all NOA stakeholders unique needs and objectives;
- Develop a Statewide government, industry and community NOA SOP
- Meet and present the SOP to all stakeholders
- Finalize the SOP and develop an example of a site-specific plan for Implementation

How to begin

The California regulations and EPA guidance are a good beginning to any NOA SOP. With some cut and paste and modification for remote projects and Alaskan conditions, those documents could form a draft of the SOP. However caution is needed to not present these or any document to the agencies as a fait accompli. Rather, all stakeholders, especially the relevant agencies, need to help ADOT define the issues and insure the final SOP does not conflict with the charge of any of those agencies

CONCLUSIONS AND RECOMMENDATIONS

This paper reviews NOA background, analytical issues, policies and regulations that have been considered and/or implemented by other authorities involved with NOA and have developed NOA policy options. Based on the analysis of the findings the following conclusions and recommendations have been developed.

- NOA gravels are present throughout the nation and in Alaska which have the potential to impact public health, project development and associated costs.
 - Transportation projects have been adversely impacted by NOA in Juneau, Ambler and on the Dalton Highway.
 - Material site investigations must check for NOA, especially in regions with mineral types likely to contain NOA.
- NOA gravels can be used safely with proper training, understanding and implementation of appropriate control strategies and technologies
 - Technical and regulatory interpretation and definitional issues remain
- Established state NOA programs evaluated have focused their programs on
 - Geologic mapping of “restricted” NOA areas
 - Characterization of NOA free materials based on the analytical procedure’s limit of detection of less than 0.25% asbestos content
 - Source characterization sampling from restricted areas
 - If $\geq 0.25\%$ asbestos, Compliance Plan Submittal and Approval should be required
 - Local authority enforcement to interpret program requirements site specifically and implement additional testing where necessary
 - Development of necessary program exemptions
 - States with NOA programs were developed across public health, environmental and air pollution divisions at the state level and implemented at the local, county level.

It is recommended that ADOT write an action plan to undertake development of a NOA SOP as the lead coordinating entity of a holistic statewide approach that involves all stakeholders and develops a statewide agency, industry and community consensus standard for NOA use. In order to do this, the ADOT should convene a statewide stakeholder’s working group to resolve technical issues, work out a consensus on a state wide NOA program.

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CSSB 180: Sectional and Explanation of Changes

Section 1. Findings - deleted in this version, can travel with bill.

Section 2. Immunities. The bill creates a new subsection in title 9 (Code of Civil Procedure) Ch. 65, which deals with limits or conditions for immunity. The original bill provided immunity to landowners, and to the state and contractors, as long as they followed the provisions of a site specific plan outlined later in this bill.

The new CS removes immunity provisions for the state, since it will be the state's decision to allow use of NOA in certain circumstances. The immunity provisions for the others remain (if they follow the provisions of the bill and the site-specific plans).

Sec. 3 Naturally Occurring Asbestos

Title 18 deals with Asbestos. This creates a new Article 2A regarding naturally occurring asbestos and the use of materials containing NOA. These provisions apply to non-state entities.

- (a) Provides that an entity may qualify for immunity under the provisions in title 9 when using a gravel or aggregate material that has a content **equal to or greater than 0.25 percent** of naturally occurring asbestos using a bulk test method specified by DOT.
- (b) In order to qualify, the person having legal authority for a private contractor that is within the designated area must prepare and submit a site specific plan. Before gravel extraction can begin, DOT must approve the plan.
- (c) In order to be immunized the private contractor has to adhere to the plan, including monitoring and mitigation requirements.

A new subsection was added in the house version to define the minimum detectable amount of asbestos as .25 for the purpose of designating gravel and aggregate as NOA.

Section 4. Title 44 (Authorizing statutes, Department of Transportation)

A new article 3A. **Use of Materials Containing Naturally Occurring Asbestos**, provides:

44.42.400 Program Administration

- (a) A single employee is responsible for oversight for the provisions that follow.
- (b) A municipality or community may request to become an area designated by the Department as an area which may use NOA under the immunity provisions. The community must apply to the department, the department can approve only after reviewing tests for NOA, considering availability of other construction materials that are free of NOA, and after soliciting public input from the resident of the area. The department can require relevant information from the applicant (tests, information on other options, etc). After designation, the department shall notify, including through signage, potentially affected persons that the area has been so designated.
- (c) The department can also make designations in places where there is no municipality or community. The department is responsible for tests, etc., in these areas and must notify potentially affected persons using same methods as in (b).
- (d) Provides a definition of “community, which follows PCE model.

44.42.410 Site-Specific Use Plans.

- (a) Requires contractors, after consultation with the owners of land on which the NOA will be placed, to submit a site-specific use plan to the department which
 - (1) Meets standards adopted by the Department in consultation in regulation as outlined in 420 (the next section of the bill)
 - (2) Demonstrates how methods used will comply with acceptable standards
 - (3) Outlines long-term maintenance plans to ensure that human health and air quality are maintained
 - (4) - (6) Describes how the material will be contained, buried, sealed or otherwise capped to ensure that asbestos does not become airborne because of vehicle use, road maintenance or grading if applicable.
- (b) Similar set of provisions for department managed projects such as airports, or other public works projects

- (c) The department will review and either approve or disapprove plans taking into account construction seasons in the project location.
- (d) Projects may not be approved unless the Department determines it is economically unreasonable to undertake the project with materials free from naturally occurring asbestos.
- (e) The department in consultation with other departments, shall develop a monitoring and mitigation plan for the project. If the site specific use plan is approved, the monitoring and mitigation plan developed by DOT will be attached to that plan and to qualify for immunity the party that has direct control over or responsibility for the monitoring and mitigation must comply with the plan developed by DOT.
- (f) On approval, the department
 - (1) Provides the contractor a copy of the approved SSUP that includes
 - (A) The monitoring and mitigation plan
 - (B) Requirement that the contractor submit all asbestos-related data
 - (C) Recommendations for reducing exposure to airborne asbestos fibers
 - (2) Provides the plan to the mayor or manager of a municipality affected by the use of the gravel
 - (3) may provide to all contractors copies of OSHA, EPA and USMS recommended practices
- (g) Provides for recording the presence of naturally occurring asbestos and noting that subsequent interest holders may have legal obligations with regard to the NOA in the project area.
- (h) Results of monitoring or testing performed must be provided to the department.

There is a new provision that surfacing materials cannot contain NOA.

44.42.420 Regulations

Section provides that the Department in consultation with listed other departments may adopt regulations under the AAPA to revise statewide standards on use of NOA, and that must include procedures for completing site investigations, laboratory standards, procedures for evaluating human health concerns, construction operation and maintenance practices etc., etc.

Section 5. Uncodified law:

Provides interim project authorization through December 31, 2013, which allows early designation by DOT on a temporary basis of sites, which may then submit site specific plans etc... Sets California Air Resources Board CARB Method 435 as the interim standard for determining asbestos content under these provisions.

Note that the data base provisions in SB 180 were dropped from the house version, since the House decided to require applications from communities as the trigger for DOT decisions on use.

STATE OF ALASKA

DEPT. OF HEALTH AND SOCIAL SERVICES
DIVISION OF PUBLIC HEALTH, SECTION OF EPIDEMIOLOGY
ENVIRONMENTAL HEALTH, HIV/STD, IMMUNIZATION, INFECTIOUS DISEASES

SEAN PARNELL, GOVERNOR

3601 C STREET, SUITE 540
ANCHORAGE, AK 99503
PHONE: (907) 269-8000
FAX: (907) 562-7802

April 2, 2012

The Honorable Hollis French
State Senate
Alaska State Capitol
Juneau, AK 99801-1182

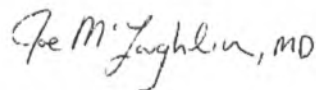
Dear Senator French,

During the March 23rd Senate Judiciary Committee hearing regarding SB180, a question was raised about the baseline prevalence of pleural changes in the United States or Alaska. I have personally researched this question.

Unfortunately, there is no formal surveillance system for pleural changes among the general state or U.S. population. I spoke with Dr. Al Franzblau, a physician with the University of Michigan School of Public Health who is a subject matter expert in the field of radiographic diagnosis of pneumoconiosis, which includes pleural changes due to asbestos-related diseases. Dr. Franzblau stated that an accurate prevalence estimation is difficult to make because of the wide variability in the sensitivity and specificity of diagnosing pleural changes from chest x-rays. He stated that he has seen papers that estimate the prevalence of pleural abnormalities among people with no known exposure to asbestos to vary considerably (from <1% to >10%), depending on the population studied, methodology employed, and experience/training of the individual(s) reading the films. Dr. Franzblau said that he would try to send me a link to some of the papers he was referring to when he is able.

Below is a list of the abstracts I was able to pull from PubMed related to this issue for your review. Please let me know if you have additional questions related to this matter.

Sincerely,



Joe McLaughlin, MD, MPH
State Epidemiologist and Chief,
Alaska Section of Epidemiology
3601 C Street, Suite 540
Anchorage, AK 99503

Related abstracts from PubMed:

Br J Ind Med. 1984 Aug;41(3):384-8.

Radiographic changes in a group of chrysotile miners and millers exposed to low asbestos dust concentrations.

Cordier S, Theriault G, Provencher S.

Abstract

Radiographic changes in 342 Quebec asbestos miners exposed to low levels of asbestos dust for an average period of 20 years were studied. Their estimated cumulative exposure ranged from 7 fibres per cubic centimeter X years (f-y/cc) to 300 f-y/cc. Of these workers, 2.1% showed a small opacity score of 1/0 or more and 2.7% showed pleural changes. No linear relationship could be established between small opacity score and any index of exposure to asbestos. Pleural changes were related to age. A referent group of office workers within the same mining industry showed a prevalence of 2.1% (1/48) for small irregular opacities 1/0 or more, and for pleural changes.

J Occup Med. 1989 Sep;31(9):775-80.

Public health implications of the variability in the interpretation of 'B' readings for pleural changes.

Parker DL, Bender AP, Hankinson S, Aeppli D.

Abstract

During 1985 in Minnesota, an initial reading of 566 radiographs found 30% of them to be positive for pleural changes. However, only 4% were considered positive by at least two out of three readers from National Institute for Occupational Safety and Health panel reading the radiographs under blind conditions. The implications of this variability in radiographic readings for public health decisions was illustrated in Minnesota, where selective overreading of radiographs of female subjects created an illusion of a generalized environmental problem rather than an occupational exposure. One solution to this dilemma is establishment of criteria to minimize false-positive pleural findings. The study also supports the need for more careful consideration of other disease processes in the interpretation of "B" readings.

Am J Ind Med. 2000 Mar;37(3):291-5.

The prevalence of pleural plaques and/or pulmonary changes among construction workers in Okayama, Japan.

Kishimoto T, Morinaga K, Kira S.

Abstract

BACKGROUND:

Since asbestos has been widely used in Japanese building materials since 1960s, a large number of Japanese construction workers may be exposed to asbestos occupationally.

METHODS:

Among 2951 construction workers in Okayama, Japan, the prevalence of asbestos-induced pleural or pulmonary changes was examined by screening chest x-rays; these findings were confirmed by computed tomography (CT) scanning of the chest.

RESULTS:

Among 2951 construction workers, 168 (5.7%) were found to have significant findings for pleural plaque or pulmonary changes on chest x-ray. Seventy-four had both pleural plaque and asbestosis, 85 pleural plaques alone, and 9 asbestosis alone. In 11 subjects, pleural plaques were suggested by chest x-ray, but neither pleural plaque nor asbestosis was demonstrated by chest CT. Honeycombing as one of the characteristic findings of asbestosis was found in 29 subjects. Others showed subpleural spots or curvilinear shadow, which suggested the early stage of asbestosis. The occupations of these workers were carpenters (64), plasterers (27), and concrete board cutters (14). About 30% of the workers with these findings were aware that they were handling asbestos in activities such as installation of asbestos boards, and/or asbestos spraying.

CONCLUSIONS:

As the incidence of malignant mesothelioma and primary lung cancer associated with asbestos exposure are high, screening by chest CT is necessary for detecting asbestos-induced pulmonary and/or pleural lesions. Education for protection such as telling about the presence of asbestos in building materials is also necessary.

Occup Environ Med. 2003 Jan;60(1):35-41; discussion 41-2.

Asbestos related diseases from environmental exposure to crocidolite in Da-yao, China. I. Review of exposure and epidemiological data.

Luo S, Liu X, Mu S, Tsai SP, Wen CP.

Abstract

BACKGROUND:

Scattered patches of crocidolite, one form of asbestos, were found in the surface soil in the rural county of Da-yao in southwestern China. In 1983, researchers from the West China University of Medical Sciences (WCUMS) discovered that residents of two villages in Da-yao had hyperendemic pleural plaques and excessive numbers of pleural mesotheliomas.

AIMS:

To review and summarise epidemiological studies, along with other relevant data, and to discuss the potential contribution to environmental risk assessment.

METHODS:

This report is based on a review of several clinical/epidemiological studies conducted by WCUMS researchers since 1984, which included one cross sectional medical examination survey, one clinical/pathological analysis of 46 cases of mesothelioma, and three retrospective cohort mortality studies. Additional information acquired from reviewing original data first hand during a personal visit along with an interview of medical specialists from Da-yao County Hospital was also incorporated.

RESULTS:

The prevalence of pleural plaque was 20% among peasants in Da-yao over 40 years of age in the cross sectional survey. The average number of mesothelioma cases was 6.6 per year in the 1984-95 period and 22 per year in the 1996-99 period, in a population of 68 000. For those mesothelioma cases that were histology confirmed, there were 3.8 cases/year in the first period and 9 cases/year in the second. Of the 2175 peasants in this survey, 16 had asbestosis. Lung cancer deaths were significantly increased in all three cohort studies. The annual mortality rate for mesothelioma was 85 per million, 178 per million, and 365 per million for the three cohort studies, respectively. The higher exposed peasants had a fivefold increased mesothelioma mortality compared to their lower exposed counterparts. There were no cases of mesothelioma in the comparison groups where no crocidolite was known to exist in the environment. In the third cohort study, almost one of five cancer deaths (22%) was from mesothelioma. The ratio of lung cancer to mesothelioma deaths was low for all three studies (1.3, 3.0, and 1.2, respectively).

CONCLUSIONS:

The observation of numerous mesothelioma cases at Da-yao was a unique finding, due mainly to their lifetime exposure to crocidolite asbestos. The finding of cases dying at a younger age and the relatively high ratio of mesothelioma cases to lung cancer could also be another unique result of lifetime environmental exposure to crocidolite asbestos. Although the commercial use of crocidolite has been officially banned since 1984, the incidence of mesothelioma has continued to show a steady increase, particularly among peasants. Since the latency of mesothelioma is approximately 30-40 years, the ban had little effect in the 1990s. The increased awareness and changes in diagnosis over time may also contribute to the increase. Furthermore, exposure to asbestos stoves and walls continued. The government implemented reduction of these exposures. However, from a public health standpoint, the most important issue is the complete avoidance of further exposure to asbestos.

Environ Health. 2008 Jun 20;7:30.

Modelling prevalence and incidence of fibrosis and pleural plaques in asbestos-exposed populations for screening and follow-up: a cross-sectional study.

Paris C, Martin A, Letourneux M, Wild P.

Abstract

BACKGROUND:

CT-Scan is currently under assessment for the screening of asbestos-related diseases. However, to date no consensus exists as to how to select high-risk asbestos-exposed populations suitable for such screening programs. The objective of this study is to select the most relevant exposure variables for the prediction of pleural plaques and asbestosis in order to guide clinicians in their use of CT-Scan.

METHODS:

A screening program of non malignant asbestos-related diseases by CT-scan was conducted among asbestos-exposed volunteers in France. Precise assessments of asbestos exposure were obtained by occupational hygiene measurements and a job-exposure matrix. Several parameters were calculated (time since first exposure, duration, intensity and cumulative exposure to asbestos). Predictive parameters of prevalence and incidence were then estimated by standard logistic and a complementary log-log regression models.

RESULTS:

1011 subjects were recruited in this screening program among them 474 (46.9%) presented with pleural plaques and 61 (6.0%) with interstitial changes compatible with asbestosis on CT-scan. Time since first exposure ($p < 0.0001$) and either cumulative or mean exposure ($p < 0.0001$) showed independent associations with both pleural plaques and asbestosis prevalence and pleural plaques incidence. Modelling incidence of pleural plaques showed a 0.8% to 2.4% yearly increase for a mean exposure of 1 f/ml.

CONCLUSION:

Our findings confirmed the role played by time since first exposure and dose but not duration in asbestos-related diseases. We recommend to include these parameters in high-risk populations suitable for screening of these diseases. Short-periodicity of survey of pleural plaques by CT-Scan seemed not to be warranted.

Radiologically recognized pleural changes in nonpneumoconiotic silica-exposed coal miners.

Orriols R, Muñoz X, Sunyer J, Isidro I, Tura JM, Ferrer J.

Abstract**OBJECTIVES:**

Whether nonpneumoconiotic silica-exposed coal miners develop radiologically recognizable pleural changes was studied.

METHODS:

In a retrospective follow-up study, the oldest and the most recent chest X-rays of 765 workers with a profusion category lower than 1/0 according to the International Labour Office were read.

RESULTS:

Altogether 720 (94.1%) workers had no abnormalities, and 45 (5.9%) showed some pleural alteration in the first X-ray. In 43 (6%) of the 720 with no initial abnormalities, some pleural change was detected in the last X-ray. There was a statistical difference ($P = 0.022$) according to silica exposure category [low: 5 (2.4%); medium: 8 (6%); high: 30 (8%)]. The relative risk for any pleural alteration was significantly increased in relation to the silica-exposed group [medium: odds ratio (OR) 5.72, 95% confidence interval (95% CI) 1.4-23.5, $P = 0.016$; high: OR 7.62, 95% CI 2.1-27.2, $P = 0.002$] and to rib alterations (OR 3.74, 95% CI 1.4-9.7, $P = 0.007$). In 19 (2.6%) workers with no alterations initially, a costophrenic sinus alteration was detected later. Again the silica exposure categories [low: 1 (0.5%); medium: 3 (2.2%); high: 15 (4.2%)] differed significantly ($P = 0.033$). The relative risk of costophrenic sinus obliteration was significantly increased in relation to the silica-exposed group [medium: OR 8.59, 95% CI 0.7-113, $P = 0.102$; high: OR 16.44, 95% CI 1.5-177, $P = 0.021$]. The appearance of two costophrenic sinus obliterations and the disappearance of four were detected in the last chest X-ray of the 45 workers with some pleural alteration initially.

CONCLUSIONS:

Costophrenic sinus obliteration can be found in nonpneumoconiotic silica-exposed coal miners and seems to be associated with silica exposure intensity.

STATE OF ALASKA

DEPARTMENT OF HEALTH & SOCIAL SERVICES

DIVISION OF PUBLIC HEALTH
SECTION OF EPIDEMIOLOGY

3601 C STREET, SUITE 640
P.O. BOX 240249
ANCHORAGE, ALASKA 99524-0249

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(907) 562-7802

Asbestos Exposure – Ambler Public Health Evaluation and Assessment Interim Report

May 20, 2005

John P. Middaugh, M.D.
Scott Arnold, Ph.D.

Introduction

Many individuals, agencies, and stakeholders have been working together to evaluate the significance of the discovery in the fall of 2003 of naturally occurring asbestos in the gravel pit at Ambler. Several meetings have been hosted by the Northwest Arctic Borough to share information and identify steps needed to develop recommendations for the community.

Public Health Findings

The Alaska Division of Public Health has been working with the Maniilaq Health Center, Maniilaq Association, the Alaska Native Tribal Health Consortium, and several national asbestos experts to obtain information on the medical and public health significance of the presence of asbestos in Ambler.

Inhalation of asbestos fibers is the primary route of human exposure. The likelihood of developing asbestos-related diseases is related to the length of exposure and the concentration of asbestos.

We performed a medical records search to determine if any asbestos-related diseases have ever been identified in residents of Ambler, Kobuk, Shungnak, and Kiana.

- We reviewed all death certificates from 1980 to the present to see if there were any residents of Maniilaq villages who had died with any asbestos-related diagnosis. There were no residents with any asbestos-related diagnoses on the death certificate.
- We reviewed the State Cancer Registry and the Alaska Native Tumor Registry to see if there were any asbestos-related cancers that had been diagnosed and reported from any residents of Ambler, Kobuk, Shungnak, and Kiana. There were no residents who had been diagnosed with mesothelioma from any of these villages dating back to 1970. There were no reported cases of lung cancer from Ambler, Kobuk, or Shungnak dating back to 1970. There were 5 reported cases of lung cancer, all from the village of Kiana. These 5 cases occurred from 1984 to 2003, and they included 4 different cell types of lung cancer.

- We reviewed computerized medical records in the RPMS medical record system. There were no residents of the 4 villages who ever had been diagnosed with any asbestos-related disease.
- We reviewed existing chest x-rays from 128 residents from the 4 villages who were 50 years and older – 28 of these residents were from Ambler. Because of the past epidemics of tuberculosis and other common pulmonary diseases, there were many abnormalities. An expert, certified nationally as a chest x-ray reader for asbestos-related disease, reviewed these x-rays on behalf of the Maniilaq Association and the Alaska Division of Public Health.
 - Of the 28 residents of Ambler whose chest x-rays were reviewed, 2 had pleural changes that were probably caused by prior exposure to asbestos.
 - Of the 100 residents of Kobuk, Shungnak, and Kiana whose chest x-rays were reviewed, 7 had pleural changes that might have been caused by prior exposure to asbestos.
 - The asbestos-related changes were in the form of pleural plaques, and their appearance suggests that they were due to asbestos exposure many years ago, possibly due to occupational exposure.
- After receiving the information from reading the chest x-rays, a medical epidemiologist from the Section of Epidemiology visited Maniilaq, reviewed all available medical records, and with the help of a local interpreter, interviewed the patients who were still living and who agreed to be interviewed.
 - Several of the residents described past employment working in mines.
 - Many of the residents worked in mining many years ago, and they were unable to provide detailed information that would enable specific characterization of exposure to asbestos.
 - Of the 9 people with pleural plaques suspicious for asbestos exposure, 1 recalled working in an asbestos mine, 1 worked with asbestos as a construction worker, 1 was repeatedly exposed to high levels of mine dust while washing her husband's clothing, 1 refused interview, 2 had other medical conditions not-related to asbestos that definitively explained the x-ray findings, and the results for the remaining 3 were inconclusive because they had non-asbestos related lung diseases but these diseases did not definitively account for the x-ray changes.
- There are no medical tests to determine the amount of asbestos a person has been exposed to during their lifetime.
- There are no medical tests that are uniquely specific to identifying asbestos-related disease, but general clinical tests of lung function and chest x-rays are used to diagnose the disease and its impact. It is particularly difficult to identify mild cases.
- Persons who are exposed to asbestos have a greatly increased risk of developing asbestos-related disease if they smoke tobacco.

Asbestos Deposits in the Kobuk River Area

- Asbestos has been documented to be naturally present in the Kobuk valley for at least one century, and archaeologists have evidence that asbestos has been used by Alaska Natives for hundreds of years.

- Twelve asbestos deposits have been identified in the Ambler/Shungnak/Kobuk area.
- Asbestos mining occurred near Shungnak in the 1940s. Approximately 45 tons of tremolite asbestos was mined from Asbestos Mountain near the head of Dahl Creek in the 1940s.
- Approximately one ton of chrysotile asbestos was removed near Dahl Creek in 1945.
- Limited development of asbestos deposits on Bismark Mountain, Jade Mountain, and Cosmos Creek also occurred in the 1940s.
- Local Alaska Natives were employed to mine and develop these asbestos deposits in the 1940s.

Environmental Sampling Near Ambler

Since the discovery of naturally occurring asbestos in the Ambler gravel pit during the fall of 2003, several sampling efforts have occurred (Table 1). Gravel from the Ambler gravel pit has been used throughout Ambler for roads, housing and building pads, and the airport runway for 30 to 40 years.

- The unprocessed soil from the easternmost portion of the gravel pit contains trace amounts of asbestos (<1%). The sieved processed soil remaining in the gravel pit contains 5% to 10% asbestos. Pure chrysotile asbestos has also been identified in the gravel pit.
- Chrysotile asbestos has been detected in air samples within the school at 0.01 fibers/cubic centimeter. For comparison, the OSHA standard based on an 8-hour time weighted average is 0.1 fibers/cubic centimeter.
- Asbestos concentrations ranged from trace amounts (<1%) to 5% in samples of gravel used for construction that came from the Ambler gravel pit.
- Chrysotile asbestos was found in soil used to cover the gravel at the new Ambler school, although in very low levels.
- Asbestos was not detected in three ambient air samples collected last year near the road in Ambler.
- In an effort to locate a new, asbestos-free gravel pit site, the Alaska Department of Transportation and Public Facilities investigated 7 candidate material sites adjacent to the Ambler and Kobuk Rivers over an approximately 10 mile area. Of the 40 soil samples collected from the proposed new material site, 17 contained trace amounts (<1%) of asbestos. Of the 30 samples collected from the other 6 candidate sites, 12 samples contained trace amounts to 1% asbestos.

Planned Construction Activities

- Several major construction projects important to the village have been on hold until the extent of asbestos could be determined and its significance assessed:
 - Runway repairs at the airport
 - New sewage lagoon
 - New washeteria with underground piping to the new sewage lagoon
- The Alaska Native Tribal Health Consortium (ANTHC) engineers are proceeding with construction planning, including provisions to protect workers from asbestos exposure in accordance with Occupational Safety and Health Administration (OSHA) requirements.

- Based upon the characteristics of the planned construction projects, ANTHC believes that all of the construction projects can be accomplished within OSHA standards for worker protection.

Summary and Public Health Recommendations

- Additional public health medical record and chest x-ray reviews will be needed, but they will not provide much additional information to assist in deciding on construction this summer.
- There would be minimal increase in risk to residents from marginal exposure to asbestos as a result of any of the proposed construction activities if they were to proceed this summer. The asbestos that is present has been present for decades, and now that it is known to be present, construction projects can take precautions to minimize airborne dust and worker exposure can be controlled to OSHA standards.
- Deferring the construction projects carries risks to the community. The community needs to have a sound airport runway, a functioning sewage lagoon, and a working water and sewer system.
- With use of personal air monitors, worker safety and health can be protected if the proposed construction proceeds.
- Ambient air monitoring during construction will enable monitoring of community exposures.
- Additional soil testing in Ambler is essential to determine if asbestos is present other than from past use of gravel from the Ambler gravel pit.
- Soil testing in Kobuk, Shungnak, and Kiana should be done to determine if asbestos is present in the villages.
- Given the long history of use of gravel from the gravel pit, it is unlikely that Ambler will ever be asbestos-free in the future. However, the low concentrations of asbestos to which the residents will be exposed are unlikely to pose a significant threat to the public's health. The Alaska Division of Public Health will continue to assist the community to assess the extent of past, present, and future health hazards and, if necessary, develop practical risk management approaches.

Table 1. Recent Sampling for Asbestos in the Ambler area.

Agency	Year	Sample location	Number of samples	Amount of asbestos
Alaska Department of Transportation and Public Facilities	2003	Ambler gravel pit	3	1 to 10%
Department of Labor and Workforce Development	2003	Under school-original soil	2	not detected
		Near school from gravel originating from the gravel pit	3	< 1%
		Gravel pit	2	<1%
		Gravel pit	1	pure chrysotile mineral
		Wipe samples inside of school	3	asbestos detected
		Air sample	1	0.01 fibers/cc
NANA (prepared by Stevens Exploration Management Corp.)	2004	Ambler gravel pit	visual examination of screened reject	5 to 10 % asbestos
		Gravel pit-easternmost portion	3	<1%
Alaska Native Tribal Health Consortium	2004	Lagoon test hole	2 composite	not detected
		Sand/gravel from the Redstone Ave stockpile,WTP and washeteria pad, and lift station	3	0.75% to 5%
		WTP and washeteria pad	1 composite	1.7%
		Ambler borrow pit	1 composite	1.46%
Alaska Department of Environmental Conservation	2004	Air samples collected July and August for Total Suspended Particulates (TSP)	The 3 filters with the highest TSP	not detected
		Soil sample from the school yard	1	asbestos detected
Alaska Department of Transportation and Public Facilities	2005	Seven material sites were investigated	Proposed site-40 samples	17/40 samples-asbestos detected at <1%
			Six other sites-five samples each	12/30 samples-asbestos detected <1% to 1%

**NORTHWEST ARCTIC BOROUGH ASSEMBLY
RESOLUTION 12-05**

**A RESOLUTION OF THE
NORTHWEST ARCTIC BOROUGH
ASSEMBLY SUPPORTING THE
EXTRACTION AND USE OF GRAVEL
WITH LOW LEVELS OF NATURALLY
OCCURRING ASBESTOS AND FOR
RELATED PURPOSES**

WHEREAS: many gravel sources—particularly in the Ambler region—of the Northwest Arctic Borough contain low levels of naturally occurring asbestos (NOA); and

WHEREAS: the presence of NOA has prevented a significant number of gravel sources from being developed, and in turn prevented many construction and community projects from being undertaken; and

WHEREAS: the City of Ambler stated an urgent need for gravel to repair eroding beaches, the airport runway; and community homes; and

WHEREAS: without using gravel containing low levels of NOA potentially available through sale from NANA Regional Corporation, the City of Ambler cannot otherwise undertake these repair projects without affordable gravel sources; and

WHEREAS: a recent study indicates that careful use and appropriate control strategies can minimize the risk that low amounts of NOA in gravel and aggregate sources present during extraction and use; and

WHEREAS: House Bill 258 is being considered by the Alaska Legislature to allow for the use of gravel and aggregate containing low levels of NOA by implementing standards and operating procedures for use and extraction; and

WHEREAS: the Borough desires to support the use of gravel containing low levels of NOA in a safe and responsible manner.

NOW THEREFORE BE IT RESOLVED, by the Northwest Arctic Borough Assembly:

1. The Borough supports the passage of HB 258 to facilitate the use of gravel or aggregate containing low levels of naturally occurring asbestos; and
2. The Borough supports NANA and City of Ambler's extraction and use of gravel containing low levels of naturally occurring asbestos.

PASSED AND ADOPTED THIS 28th DAY OF FEBRUARY, 2012.



Walter G. Sampson, Assembly President

PASSED AND APPROVED THIS 28th DAY OF FEBRUARY, 2012.



Siikauraq Martha Whiting, Mayor

ATTESTED THIS 28th DAY OF FEBRUARY, 2012.



Helena Hildreth, Borough Clerk

ATTEST:



**A RESOLUTION SUPPORTING SALE OF GRAVEL TO BE USED FOR AMBLER
EMERGENCY AND BUILDING PROJECTS**

WHEREAS, the City of Ambler is organized as a municipal corporation under the laws of the State of Alaska; and

WHEREAS, NANA Regional Corporation, Inc. (NANA) is organized pursuant to the Alaska Native Claims Settlement Act (ANCSA, P.L. 92-203); and

WHEREAS, beach erosion is an ongoing and urgent problem that is putting structures as well as community infrastructure at risk of eroding; and,

WHEREAS, the airport at Ambler is in urgent need of gravel to make it safer to land aircraft; and

WHEREAS, naturally occurring asbestos (NOA) has been found in the gravel at Ambler; and,

WHEREAS this naturally occurring asbestos (NOA) has held up projects that better the community needs for the past (however many) years; and,

WHEREAS, the City of Ambler recognizes that housing needs have not been met due to the gravel shortage; and,

WHEREAS, the City of Ambler recognizes the urgent need to have gravel supplied to upgrade the airport runway and other Ambler projects, and fully supports NANA'S sale of gravel containing NOA for community projects, and;

WHEREAS, if NANA sells gravel with NOA, standard operating procedures for the extraction, transportation, and placement of the gravel will be followed and in addition the airport runway will be paved; and

BE IT THEREFORE RESOLVED by the City Council of the City of Ambler that the City of Ambler supports NANA's sale of gravel containing NOA and understands that standard operating procedures will be used in the extraction, transportation, and placement of the gravel.

ADOPTED, this 15th day of July, 2011, at a duly called meeting held in Ambler, Alaska by a vote of 4 for, 0 against, and 3 not voting.




LEGISLATIVE RESEARCH SERVICES

Alaska State Legislature
Division of Legal and Research Services
State Capitol, Juneau, AK 99801

(907) 465-3991 phone
(907) 465-3908 fax
research@legis.state.ak.us

Memorandum

TO: Senator Donald Olson
FROM: Susan Haymes, Legislative Analyst 
DATE: March 21, 2012
RE: Naturally Occurring Asbestos and Immunity from Liability
LRS Report 12.257

You asked if laws governing the use of naturally occurring asbestos in California and Virginia provide for immunity from liability similar to the proposed language in SB 180 and HB 258.

The short answer to your question is no. Neither California nor Virginia have any provisions that create immunity from a civil action or a claim for civil damages based on the use of gravel and aggregate materials containing naturally occurring asbestos (NOA).

According to John Yeltman, Environmental Health Specialist, Fairfax County Health Department, the state of Virginia does not have a law that provides for liability immunity from claims relating to the use of gravel or other aggregate materials containing naturally occurring asbestos.¹ Mr. Yeltman notes that the potential exposure to naturally occurring asbestos is not a statewide issue, but exists primarily in Fairfax County. The county operates a NOA program which has established standards and requirements to control exposure to asbestos generated from construction activities. Soil and other materials containing asbestos can be used as fill as long as the recipient has been notified of the asbestos and the fill is capped with at least six inches of clean material. Mr. Yeltman explained that if the responsible party does not provide a warning and an asbestos-related injury or illness occurs, the party could be sued under Virginia law.

The California Air Resources Board (CARB) implemented regulations in that state, known as Airborne Toxic Control Measures, to minimize public exposure to NOA in rock and soil. The CARB established a 0.25 percent threshold for asbestos content. If the asbestos content is less than 0.25 percent, the material may be used for surfacing or any other use; if the material has greater than or equal to 0.25 percent, its use is restricted. Any person who sells, supplies, or offers for sale restricted material for non-surfacing applications must provide a written receipt containing a warning that it is unlawful to use the material for surfacing or any application in which the material would remain exposed (CA Code of Regulations, Title 17, Section 93106).²

We searched Lexis, the state of California's online statutes, and the National Conference of State Legislature's 50-State Bill Information Service for state laws and proposed legislation. We found no laws or proposed legislation that provide immunity from liability for persons supplying or using materials containing naturally occurring asbestos for asbestos-related claims.³

We hope this is helpful. If you have questions or need additional information, please let us know.

¹ Mr. Yeltman can be reached at 703.246.2541.

² More information on the California NOA program can be accessed at www.arb.ca.gov/toxics/asbestos/reginfo.htm.

³ California laws can be accessed at www.leginfo.ca.gov/calaw.html, and state legislation can be accessed at the National Conference of State Legislature's 50-State Bill Information Service at www.ncsl.org/issues-research.aspx?tabs=966,124,829. California does allow immunity from liability to an owner of a building that has asbestos-containing construction materials, if the owner provides notice to employees and occupants of the buildings (Cal Health & Safety Code § 25915.5).



Representative Reggie Joule

Alaska State Legislature

District 40

Department of Law & Department Labor and Workforce Development Answers on Worker's Compensations Claims and HB 258 Immunity

From: Scavera, Paula D (DOL)
Sent: Tuesday, March 20, 2012 9:59 AM
To: Badgley, Cori M (LAW); Brodie Anderson
Cc: Anjilvel, Saritha R (LAW)
Subject: RE: HB 258 (naturally occurring asbestos) - Immunity and Work

After reviewing HB 258 within the Department (including the Workers' Compensation Division), the Department agrees with the Department of Law's assessment of the bill. Thank you. Paula Scavera

From: Badgley, Cori M (LAW)
Sent: Tuesday, March 20, 2012 7:43 AM
To: Anderson, Brodie (LAA)
Cc: Anjilvel, Saritha R (LAW); Scavera, Paula D (DOL)
Subject: HB 258 (naturally occurring asbestos) - Immunity and Work

Brodie,

Per our discussion, we asked our immunity experts about worker's compensation, and it turns out that as worker's compensation is considered a benefit rather than a claim, it is typically NOT affected by immunity statutes. We are looking into this further with the specific immunity language in the bill in mind, but I wanted to let you know that this is our initial conclusion.

Department of Labor might also have some thoughts on worker's compensation from an administration and policy point of view.

Thanks!

Cori Badgley
Assistant Attorney General
Legislation and Regulations Section
Department of Law
P.O. Box 110300
Juneau, Alaska 99811
cori.badgley@alaska.gov
(907) 465-2132

27-LS1219\X

Nauman

3/30/12

CS FOR SENATE BILL NO. 180(JUD)

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-SEVENTH LEGISLATURE - SECOND SESSION

BY THE SENATE JUDICIARY COMMITTEE

Offered:

Referred:

Sponsor(s): SENATOR OLSON

A BILL

FOR AN ACT ENTITLED

1 "An Act directing the Department of Transportation and Public Facilities to develop
2 and implement standards and operating procedures, to evaluate site-specific use plans,
3 and to designate project areas concerning gravel or other aggregate material containing
4 naturally occurring asbestos; authorizing use on an interim basis of gravel or other
5 aggregate material containing naturally occurring asbestos for certain transportation
6 projects and public facilities; providing immunity for certain landowners, extractors,
7 suppliers, transporters, and contractors for certain actions or claims arising in
8 connection with the use of gravel or aggregate material containing naturally occurring
9 asbestos in certain areas; requiring reporting of certain asbestos-related data to the
10 Department of Transportation and Public Facilities; and providing for an effective
11 date."

12 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

1 * **Section 1.** AS 09.65 is amended by adding a new section to read:

2 **Sec. 09.65.245. Immunity for certain persons supplying or using gravel or**
3 **other aggregate material; limitations on asbestos-related actions against**
4 **defendants.** (a) Except as provided in (b) of this section, a civil action or claim for
5 damages or costs alleging a death, injury, illness, disability, property damage, or any
6 other damages resulting from the use of gravel or other aggregate material that
7 contains naturally occurring asbestos may not be brought against a defendant

8 (1) based on the ownership of land within an area designated by the
9 Department of Transportation and Public Facilities under AS 44.42.400(b) or (c) from
10 which gravel or other aggregate material is extracted that, when tested using a bulk
11 method prescribed by the Department of Transportation and Public Facilities by
12 regulation, is determined to have a content equal to or greater than 0.25 percent
13 naturally occurring asbestos by mass; or

14 (2) for an act or omission occurring in the course of extracting,
15 supplying, transporting, or using gravel or other aggregate material containing
16 naturally occurring asbestos within an area designated by the Department of
17 Transportation and Public Facilities under AS 44.42.400(b) or (c) when the act or
18 omission was in compliance with the requirements of AS 18.31.250, AS 44.42.410(a)
19 and (d), and applicable regulations developed under AS 44.42.420.

20 (b) The immunity provided by this section does not apply to the state, but the
21 immunity does apply to a state employee acting within the scope of employment or by
22 a contractor employed by the state acting within the scope of the contract.

23 (c) In this section, "naturally occurring asbestos" has the meaning given in
24 AS 44.42.430.

25 * **Sec. 2.** AS 18.31 is amended by adding new sections to read:

26 **Article 2A. Naturally occurring asbestos.**

27 **Sec. 18.31.250. Use of materials containing naturally occurring asbestos.**

28 (a) A principal construction contractor or, in the absence of an identified principal
29 construction contractor, person having legal authority for the design and construction
30 of a project may qualify for immunity in a civil action under AS 09.65.245(a)(2) for
31 the use of gravel or other aggregate material that, when tested using a bulk test method

1 prescribed by the Department of Transportation and Public Facilities by regulation, is
2 determined to have a content equal to or greater than 0.25 percent of naturally
3 occurring asbestos by mass.

4 (b) To qualify for the immunity provided under AS 09.65.245(a)(2), before
5 initiating a construction project not subject to AS 44.42.410(b) that is within an area
6 designated by the Department of Transportation and Public Facilities under
7 AS 44.42.400(b) or (c) and that will use gravel or other aggregate material that
8 contains naturally occurring asbestos, the principal construction contractor or, in the
9 absence of an identified principal construction contractor, the person having legal
10 authority for the design and construction of the project, shall prepare and submit to the
11 Department of Transportation and Public Facilities specific project plans
12 demonstrating compliance with the standards adopted by the department under
13 AS 44.42.420 and the requirements of the site-specific use plan under AS 44.42.410.
14 Before extraction of gravel or other aggregate material may begin, the plan must be
15 approved and returned to the contractor by the department.

16 (c) To preserve the immunity provided under AS 09.65.245(a)(2), the
17 principal construction contractor or, in the absence of an identified principal
18 construction contractor, the person having legal authority for the design and
19 construction of the project, shall adhere to the site-specific use plan approved by the
20 department and the monitoring and mitigation plan created by the department.

21 **Sec. 18.31.260. Presence of naturally occurring asbestos.** The state shall
22 consider 0.25 percent by mass, the minimum detectable amount of asbestos under the
23 California Air Resources Board Method 435, as the baseline for the presence of
24 naturally occurring asbestos in gravel or other aggregate material.

25 * **Sec. 3.** AS 44.42 is amended by adding new sections to read:

26 **Article 3A. Use of Materials Containing Naturally Occurring Asbestos.**

27 **Sec. 44.42.400. Administration and designated use areas.** (a) The
28 department shall designate a single employee who reports to the commissioner to
29 oversee the duties assigned to the department in AS 44.42.400 - 44.42.430 and to
30 serve as the point of contact for inquiries related to projects using gravel or other
31 aggregate material containing naturally occurring asbestos.

1 (b) An area that includes land within a municipality or community may be
2 designated by the department as an area in which certain landowners and contractors
3 are granted immunity under AS 09.65.245(a) for causing asbestos-related injuries only
4 if the municipality or community requests that designation. A municipality or
5 community may request to become an area designated by the department under this
6 subsection by submitting an application to the department. The department may
7 approve an application received under this subsection only after reviewing tests
8 documenting the presence of naturally occurring asbestos in that area, analyzing the
9 effect of the presence of naturally occurring asbestos on construction projects in the
10 area, considering the availability of gravel or other aggregate material free from
11 naturally occurring asbestos in the area, and soliciting public input from residents in
12 the affected municipality or community. The department may require a municipality
13 or community that applies to become a designated area to provide the department with
14 tests documenting the presence of naturally occurring asbestos, information related to
15 the effect of the presence of naturally occurring asbestos on construction projects in
16 the area, information related to availability of gravel or other aggregate material free
17 from naturally occurring asbestos, and other information relevant to the application.
18 After designating an area after approval of an application under this subsection, the
19 department shall notify, including through signage, potentially affected persons that
20 the area has been designated as an area where immunity may be granted under
21 AS 09.65.245(a) for certain landowners and contractors causing asbestos-related
22 injuries.

23 (c) In places that do not include a municipality or community, the department
24 may designate an area in which certain landowners and contractors are granted
25 immunity under AS 09.65.245(a) for causing asbestos-related injuries. Before
26 designating an area under this subsection, the department shall document the presence
27 of naturally occurring asbestos in that area, analyze the effect of the presence of
28 naturally occurring asbestos on construction projects in the area, consider the
29 availability of gravel or other aggregate material free from naturally occurring
30 asbestos in the area, and solicit public input from potentially affected persons. After
31 designating an area under this subsection, the department shall notify, including

1 through signage, potentially affected persons that the area has been designated as an
2 area where immunity may be granted under AS 09.65.245(a) for certain landowners
3 and contractors causing asbestos-related injuries.

4 (d) In this section, "community" means a place in the unorganized borough, in
5 a borough, or in a unified municipality that is not incorporated as a municipality, that
6 is not a reserve, and in which 25 or more individuals reside as a social unit.

7 **Sec. 44.42.410. Site-specific use plan.** (a) To qualify for the immunity
8 provided under AS 09.65.245(a)(2), a contractor intending to use, within an area
9 designated by the department under AS 44.42.400(b) or (c), gravel or other aggregate
10 material that, when tested using a bulk test method prescribed by the department in
11 regulation, is determined to have a content equal to or greater than 0.25 percent of
12 naturally occurring asbestos by mass, shall, after consulting with the owner of the land
13 on which the gravel or other aggregate material containing naturally occurring
14 asbestos will be placed, submit a site-specific use plan to the department that

15 (1) describes the manner in which the proposed use of gravel or other
16 aggregate material that contains naturally occurring asbestos conforms to the standards
17 adopted under AS 44.42.420(b);

18 (2) demonstrates how the proposed construction operation and
19 maintenance practices comply with those that are required and those that are
20 minimally acceptable, as described in AS 44.42.420(b)(5), and otherwise meet
21 requirements of law applicable to the handling of compounds that contain asbestos;

22 (3) outlines the efforts that will be made, as a component of long-term
23 maintenance on the completed project or facility, to ensure that human health and air
24 quality are not compromised by the use of the gravel or other aggregate material that
25 contains naturally occurring asbestos;

26 (4) describes how the gravel or other aggregate material to be used can
27 be contained underneath the project or buried so that asbestos fibers cannot become
28 airborne or otherwise transferred outside of the project area, except as provided in (5)
29 and (6) of this subsection;

30 (5) if the requirements in (4) of this subsection are economically
31 unreasonable, describes how the gravel or other aggregate material to be used will be

1 sealed, including chip sealing or mixing with asphalt, in order to prevent asbestos
2 fibers from becoming airborne or otherwise transferred outside of the project area,
3 except as provided in (6) of this subsection; and

4 (6) if the requirements under (4) and (5) of this subsection are
5 economically unreasonable, describes how the gravel or other aggregate material will
6 be used in order to prevent asbestos from becoming airborne or otherwise transferred
7 outside of the project area, including how the gravel or other aggregate material will
8 be used in order to prevent asbestos from becoming airborne because of vehicle
9 traffic, road maintenance, or grading, if applicable.

10 (b) For a project that is a transportation facility, including a public highway,
11 airport, or pipeline or railroad track bed, or a public work, as that term is defined in
12 AS 35.95.100, for which the department is the principal construction contractor, and
13 for which the department intends to use, within an area designated by the department
14 under AS 44.42.400(b) or (c), gravel or other aggregate material that, when tested
15 using a bulk testing method prescribed by the department in regulation, is determined
16 to have a content equal to or greater than 0.25 percent of naturally occurring asbestos
17 by mass, the department shall develop a site-specific use plan that details the use of
18 gravel or other aggregate material in the construction or maintenance of the
19 transportation project or public facility in accordance with the requirements of (a) of
20 this section and regulations developed under AS 44.42.420. The department may not
21 begin extraction of the gravel or aggregate material containing naturally occurring
22 asbestos until the site-specific use plan is approved and the monitoring and mitigation
23 plan is completed by the department. The department shall adhere to the site-specific
24 use and monitoring and mitigation plans.

25 (c) The department shall review each site-specific use plan and shall work
26 toward approving or disapproving the plan, taking into consideration the construction
27 season in the project location.

28 (d) The department may not approve a plan for construction with gravel or
29 other aggregate material determined to have a content equal to or greater than 0.25
30 percent of naturally occurring asbestos by mass unless

31 (1) the department determines that it is economically unreasonable to

1 undertake the construction project with gravel or other aggregate material free from
2 naturally occurring asbestos; and

3 (2) the completed project will not use gravel or other aggregate
4 material containing naturally occurring asbestos for a surface application.

5 (e) On developing or receiving a site-specific use plan that meets the
6 requirements of (a) and (d) of this section and the regulations adopted under
7 AS 44.42.420, the department, in consultation with the Department of Environmental
8 Conservation, the Department of Health and Social Services, the Department of
9 Natural Resources, the Department of Law, and the Department of Labor and
10 Workforce Development, shall develop a monitoring and mitigation plan for the
11 project. If the site-specific use plan is approved, the monitoring and mitigation plan
12 developed by the department shall be attached to the site-specific use plan. To qualify
13 for the immunity provided in AS 09.65.245(a)(2), the person that has direct control
14 over or responsibility for the monitoring or mitigation shall comply with the
15 monitoring or mitigation plan developed by the department.

16 (f) On approval of a site-specific use plan, the department

17 (1) shall provide to the contractor a copy of the approved site-specific
18 use plan that includes

19 (A) the monitoring and mitigation plan developed under (e) of
20 this section;

21 (B) a requirement that all asbestos-related data collected by the
22 contractor during or after construction be submitted to the department; and

23 (C) recommended methods for reducing exposure to airborne
24 asbestos fibers;

25 (2) shall provide a copy of the site-specific use plan, including the
26 monitoring and mitigation plan, to the mayor or manager of a municipality affected by
27 the use of gravel or other aggregate material containing asbestos; and

28 (3) may provide to the contractor copies of the United States
29 Occupational Safety and Health Administration, United States Mine Safety and Health
30 Administration, and United States Environmental Protection Agency recommended
31 practices for handling and use of gravel or other aggregate material containing

1 naturally occurring asbestos.

2 (g) Within 60 days after completing a project in accordance with a site-
3 specific plan approved by the department, the person responsible for compliance with
4 the site-specific use plan shall record in the recording district where the property is
5 located a document that includes a description of the affected property, a reference to
6 the most recent recorded conveyance of that property, and a notice indicating the
7 presence of naturally occurring asbestos, and stating that subsequent interest holders
8 may have legal obligations with respect to preventing the naturally occurring asbestos
9 from becoming airborne or otherwise transferred outside of the project area. The
10 person that records a document required under this section shall provide written
11 notification to the department and the landowner that the document has been recorded.

12 (h) The person responsible for compliance with the site-specific use plan shall
13 submit to the department the results of any monitoring or testing performed in
14 accordance with the site-specific use plan and any mitigation measures undertaken.

15 **Sec. 44.42.420. Regulations.** (a) The department, after consultation with the
16 Department of Environmental Conservation, the Department of Health and Social
17 Services, the Department of Natural Resources, the Department of Law, and the
18 Department of Labor and Workforce Development, shall prescribe in regulation a bulk
19 testing method for gravel or other aggregate material containing naturally occurring
20 asbestos.

21 (b) The department, after consultation with the Department of Environmental
22 Conservation, the Department of Health and Social Services, the Department of
23 Natural Resources, the Department of Law, and the Department of Labor and
24 Workforce Development, may adopt regulations under AS 44.62 (Administrative
25 Procedure Act) to implement AS 44.42.400 - 44.42.430, including regulations revising
26 statewide standards on the use in the construction and maintenance of transportation
27 projects and public facilities of gravel or aggregate material that, when tested using a
28 bulk test method prescribed by the department by regulation, is determined to have a
29 content equal to or greater than 0.25 percent of naturally occurring asbestos by mass.
30 The regulations adopted under this subsection must include

31 (1) procedures for completing site investigations and characterizations

1 of proposed projects, including the development and description of appropriate
2 laboratory practices;

3 (2) procedures for reviewing design alternatives and preparing and
4 evaluating appropriate comparative cost analyses that consider the use of gravel or
5 other aggregate material that does not contain naturally occurring asbestos;

6 (3) procedures for evaluating human health concerns arising out of
7 gravel or other aggregate material that contains naturally occurring asbestos and
8 documentation of methods and means to be used during periods of handling of the
9 gravel or other aggregate material to ensure compliance with appropriate workplace
10 safety and air quality standards relating to the project and to ensure the health and
11 safety of communities affected by construction projects that use gravel or other
12 aggregate material containing naturally occurring asbestos;

13 (4) procedures for preparing designs and design specifications for
14 facilities involving use of gravel or other aggregate material that contains naturally
15 occurring asbestos;

16 (5) procedures for outlining construction operation and maintenance
17 practices that are required and those that are minimally acceptable to meet
18 requirements of law applicable to the handling of compounds that contain asbestos;

19 (6) procedures for processing, reviewing, and approving or
20 disapproving site-specific use plans and area designation requests received under
21 AS 44.42.400(b) in a uniform manner;

22 (7) guidelines to analyze the cost of a project;

23 (8) guidelines for determining whether the cost associated with the use
24 of gravel or other aggregate material free from naturally occurring asbestos under
25 AS 44.42.410(d) is economically unreasonable;

26 (9) guidelines for determining whether the cost associated with
27 burying or sealing gravel or other aggregate material containing naturally occurring
28 asbestos under AS 44.42.410(a)(2) and (3) is economically unreasonable;

29 (10) guidelines for establishing areas designated under
30 AS 44.42.400(b) or (c) that take into account the effect on human health in and around
31 the designated area and environmental factors affecting the transfer of asbestos fibers

1 within and outside of a designated area.

2 **Sec. 44.42.430. Definitions.** In AS 44.42.400 - 44.42.430,

3 (1) "contractor" means the principal construction contractor, or in
4 absence of an identified principal construction contractor, the person having legal
5 authority for the design and construction of the project and includes the department;

6 (2) "naturally occurring asbestos" means chrysotile, amosite,
7 crocidolite, fibrous tremolite, fibrous anthophyllite, and fibrous actinolite asbestos-
8 containing material that has not been processed in an asbestos mill and that, when
9 tested using a bulk method prescribed by the Department of Transportation and Public
10 Facilities by regulation, is determined to have a content equal to or greater than 0.25
11 percent naturally occurring asbestos by mass.

12 * **Sec. 4.** The uncodified law of the State of Alaska is amended by adding a new section to
13 read:

14 INTERIM PROJECT AUTHORIZATION. (a) Notwithstanding AS 44.42.400(a) and
15 (b), added by sec. 2 of this Act, the Department of Transportation and Public Facilities may,
16 on a temporary basis, designate a limited number of areas in the state in which certain
17 landowners and contractors are granted immunity under AS 09.65.245(a) for causing
18 asbestos-related injuries where an inability to complete construction projects has been
19 demonstrated because of lack of gravel or other aggregate material free from naturally
20 occurring asbestos. After designating an area on a temporary basis, the department shall
21 notify, including through signage, potentially affected persons that the area has been
22 designated as an area in which immunity may be granted under AS 09.65.245(a) for certain
23 landowners and contractors causing asbestos-related injuries. Notwithstanding AS 18.31.250,
24 added by sec. 2 of this Act, the Department of Transportation and Public Facilities may
25 approve a limited number of appropriate construction projects until the development and
26 implementation of initial standards under AS 44.42.420, added by sec. 3 of this Act, for
27 projects not subject to AS 44.42.410(b), if, under (b) of this section, the Department of
28 Transportation and Public Facilities prepares and adopts interim standards and requires its
29 contractors to prepare site-specific plans for the use of gravel or other aggregate material that,
30 when tested using the bulk method prescribed in sec. 5 of this Act, is determined to have a
31 content equal to or greater than 0.25 percent naturally occurring asbestos by mass in

1 transportation projects and public facilities. The department shall apply the standards
2 developed under (b) of this section to a person described in AS 18.31.250 for a project that is
3 not subject to AS 44.42.410(b).

4 (b) Notwithstanding AS 44.42.400(a) and (b), added by sec. 2 of this Act, the
5 Department of Transportation and Public Facilities may, on a temporary basis, designate a
6 limited number of areas in the state in which certain landowners and contractors are granted
7 immunity under AS 09.65.245(a) for causing asbestos-related injuries where an inability to
8 complete construction projects has been demonstrated because of lack of gravel or other
9 aggregate material free from naturally occurring asbestos. After designating an area on a
10 temporary basis, the department shall notify, including through signage, potentially affected
11 persons that the area has been designated as an area where immunity may be granted under
12 AS 09.65.245(a) for certain landowners and contractors causing asbestos-related injuries.
13 Notwithstanding AS 44.42.410(b), added by sec. 3 of this Act, the Department of
14 Transportation and Public Facilities may approve a limited number of appropriate
15 transportation projects and public facilities until the development and implementation of
16 initial standards under AS 44.42.420, added by sec. 3 of this Act, after consultation with the
17 Department of Environmental Conservation, the Department of Health and Social Services,
18 the Department of Labor and Workforce Development, and appropriate federal agencies. The
19 Department of Transportation and Public Facilities may prepare and adopt interim standards
20 and operating procedures and may require of its contractors the preparation of site-specific
21 plans for the use of gravel or other aggregate material that when tested using the bulk method
22 prescribed in sec. 5 of this Act, is determined to have a content equal to or greater than 0.25
23 percent naturally occurring asbestos by mass.

24 (c) The authority granted by (a) and (b) of this section expires December 31, 2013.

25 * **Sec. 5.** The uncodified law of the State of Alaska is amended by adding a new section to
26 read:

27 INTERIM STANDARDS FOR APPLICATION OF ASBESTOS BULK TESTING.

28 Until the Department of Transportation and Public Facilities adopts and prescribes a method
29 of bulk testing under AS 44.42.420(a), added by sec. 3 of this Act, the department shall use
30 California Air Resources Board Method 435, Determination of Asbestos Content of
31 Serpentine Aggregate, adopted on June 6, 1991, as that standard has effect on the effective

- 1 date of this Act, as the basis for determining the asbestos content of a bulk sample or for
2 interim use as authorized by sec. 4 of this Act.
- 3 * **Sec. 6.** This Act takes effect immediately under AS 01.10.070(c).

Alaska State Legislature

Senator Hollis French, Chair
State Capitol, Room 417
Juneau, Alaska 99801
Phone: (907) 465-3892
Fax: (907) 465-6595



Committee Members:
Senator Bill Wielechowski
Senator Lesil McGuire
Senator Joe Paskvan
Senator John Coghill

Senate Judiciary Committee

MEMORANDUM

Date: March 29, 2012

TO: Leg Legal

From: Cindy Smith

RE: SB 180 27-LS1219\E Naturally Occurring Asbestos

Please prepare a Senate Judiciary CS for SB 180, as follows:

1. Import the language of the House Finance version of this bill (HB 258, version G).
2. Eliminate all provisions providing immunity to the state (retain immunity provisions for landowners, contractors, etc.)
3. Add a provision that states that no site specific plan shall be approved by DOT using NOA greater than .25% for any surface application, and that any use of NOA gravel over .25% must include plans for capping or sealing the material.

CS FOR HOUSE BILL NO. 258(FIN)

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-SEVENTH LEGISLATURE - SECOND SESSION

BY THE HOUSE FINANCE COMMITTEE

Offered: 3/29/12

Referred: Rules

Sponsor(s): REPRESENTATIVES JOULE, Tammie Wilson

A BILL

FOR AN ACT ENTITLED

1 "An Act directing the Department of Transportation and Public Facilities to develop
2 and implement standards and operating procedures, to evaluate site-specific use plans,
3 and to designate project areas concerning gravel or other aggregate material containing
4 naturally occurring asbestos; authorizing use on an interim basis of gravel or other
5 aggregate material containing naturally occurring asbestos for certain transportation
6 projects and public facilities; providing immunity for the state and for landowners,
7 extractors, suppliers, transporters, and contractors for certain actions or claims arising
8 in connection with the use of gravel or aggregate material containing naturally
9 occurring asbestos in certain areas; requiring contractors to report certain asbestos-
10 related data to the Department of Transportation and Public Facilities; and providing
11 for an effective date."

12 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

1 * **Section 1.** The uncodified law of the State of Alaska is amended by adding a new section
2 to read:

3 LEGISLATIVE FINDINGS AND PURPOSE. (a) The legislature finds that

4 (1) gravel or similar aggregate material is constantly in demand for major
5 construction and maintenance of state and local transportation projects and public facilities
6 and for all types of construction by public and private entities;

7 (2) naturally occurring asbestos may be found in sources of gravel and similar
8 aggregate material throughout the state;

9 (3) while airborne asbestos fibers are a significant threat to workplace safety
10 and public health and are subject to close regulation by federal and state authorities under 42
11 U.S.C. 7401 - 7671q (Clean Air Act) and 15 U.S.C. 2601 - 2692 (Toxic Substances Control
12 Act), use of materials containing naturally occurring asbestos in construction projects may be
13 regulated by states;

14 (4) in communities that do not have sources of gravel or similar aggregate
15 material that is free of naturally occurring asbestos, costs of construction are substantially
16 increased because of the necessity of locating alternative sources of gravel or similar
17 aggregate material and transporting that material to distant construction and maintenance
18 sites; and

19 (5) a recent study suggests that, with careful use and close adherence to
20 appropriate control strategies, state and local transportation projects and public facilities may
21 be safely completed using sources of gravel or similar aggregate material that contains
22 naturally occurring asbestos; the study recommends that the Department of Transportation
23 and Public Facilities establish standards and operating procedures through a statewide process
24 that will apply to the use of gravel and aggregate material that contains asbestos by the
25 department and by any public or private entity.

26 (b) It is the purpose of this Act

27 (1) to authorize and direct the Department of Transportation and Public
28 Facilities to develop, implement, and, as circumstances may require or indicate, modify
29 standards and operating procedures to allow the use in the construction and maintenance of
30 transportation projects and public facilities in certain areas of the state of gravel or aggregate
31 material that contains naturally occurring asbestos, with the expectation that use of that

1 material in a manner that is consistent with those standards and procedures may avoid
2 significant risk to human health and eliminate significantly higher costs of construction and
3 maintenance of projects and facilities associated with using only construction material that is
4 free of asbestos;

5 (2) to establish that a person that uses gravel that contains naturally occurring
6 asbestos in certain areas of the state may prepare specific project plans that conform to the
7 requirements of this Act and the department's standards and operating procedures; and

8 (3) to shield persons and the state, including its agencies, officers, and
9 employees, under certain conditions, from liability based on exposure to naturally occurring
10 asbestos.

11 (c) This Act creates a voluntary program in certain areas of the state and provides
12 civil immunity for the use of gravel or other aggregate material that contains naturally
13 occurring asbestos for contractors meeting the requirements of the program; nothing in this
14 Act mandates a contractor to submit a site-specific plan or to adhere to the requirements of a
15 plan approved by the department.

16 (d) Because neither the state nor the federal government has established a scale
17 assigning a specific risk level to a corresponding amount of naturally occurring asbestos, this
18 Act accepts 0.25 percent by mass, the minimum detectable amount of asbestos under the
19 California Air Resources Board Method 435, as the baseline for the presence of naturally
20 occurring asbestos in gravel or other aggregate material. Health risks resulting from asbestos
21 exposure vary according to the level, type, and duration of exposure. While exposure to very
22 small concentrations of asbestos may pose some health risk, there is not a practical way to
23 prevent all exposure to asbestos for residents in close proximity to deposits that contain
24 naturally occurring asbestos. The intent of this act is to establish a sensible analytical
25 threshold for detection of naturally occurring asbestos in gravel or other aggregate material
26 and to establish appropriate exceptions for the use of gravel or other aggregate material that
27 contains naturally occurring asbestos for certain public facilities and transportation projects
28 involving unusual circumstances, including projects in remote locations or in regions where
29 gravel or other aggregate material free from naturally occurring asbestos is not reasonably
30 available.

31 * **Sec. 2.** AS 09.65 is amended by adding a new section to read:

1 **Sec. 09.65.245. Immunity for certain persons supplying or using gravel or**
 2 **other aggregate material; limitations on asbestos-related actions against**
 3 **defendants.** (a) Notwithstanding AS 09.50.250, a civil action or claim for damages or
 4 costs alleging a death, injury, illness, disability, property damage, or any other
 5 damages resulting from the use of gravel or other aggregate material that contains
 6 naturally occurring asbestos may not be brought against a defendant, including a
 7 contractor meeting the requirements of the program or the state and its agencies,
 8 officers, and employees,

9 (1) based on the ownership of land within an area designated by the
 10 Department of Transportation and Public Facilities under AS 44.42.400(b) or (c) from
 11 which gravel or other aggregate material is extracted that, when tested using a bulk
 12 method prescribed by the Department of Transportation and Public Facilities by
 13 regulation, is determined to have a content equal to or greater than 0.25 percent
 14 naturally occurring asbestos by mass; or

15 (2) for an act or omission occurring in the course of extracting,
 16 supplying, transporting, or using gravel or other aggregate material containing
 17 naturally occurring asbestos within an area designated by the Department of
 18 Transportation and Public Facilities under AS 44.42.400(b) or (c) when the act or
 19 omission was in compliance with the requirements of AS 18.31.250 or
 20 AS 44.42.410(b), as applicable, and AS 44.42.410(a) and (d) and applicable
 21 regulations developed under AS 44.42.420.

22 (b) A civil action or claim based on noncompliance with the requirements of
 23 AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a) and (e) and
 24 applicable regulations developed under AS 44.42.420 for damages or costs alleging an
 25 asbestos-related death, injury, illness, or disability or alleging asbestos-related
 26 property damage or any other asbestos-related damages may only be brought against a
 27 defendant that has direct control over or responsibility for compliance with the
 28 requirements of AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a)
 29 and (e) and applicable regulations developed under AS 44.42.420.

30 (c) Notwithstanding AS 09.50.250, a civil action or claim for damages or costs
 31 alleging an asbestos-related death, injury, illness, or disability or alleging asbestos-

1 related property damage or any other asbestos-related damages may not be brought
2 against any state agency or officer or employee of the state for an act or omission
3 occurring in the course of designating a project area under AS 44.42.400(a) or (b),
4 approving a site-specific use plan, or developing or approving a monitoring plan or a
5 mitigation plan under AS 44.42.410.

6 (d) In this section, "naturally occurring asbestos" has the meaning given in
7 AS 44.42.430.

8 * Sec. 3. AS 18.31 is amended by adding new sections to read:

9 **Article 2A. Naturally occurring asbestos.**

10 **Sec. 18.31.250. Use of materials containing naturally occurring asbestos.**

11 (a) A principal construction contractor or, in the absence of an identified principal
12 construction contractor, person having legal authority for the design and construction
13 of a project may qualify for immunity in a civil action under AS 09.65.245(a)(2) for
14 the use of gravel or other aggregate material that, when tested using a bulk test method
15 prescribed by the Department of Transportation and Public Facilities by regulation, is
16 determined to have a content equal to or greater than 0.25 percent of naturally
17 occurring asbestos by mass.

new immunity provisions

18 (b) To qualify for the immunity provided under AS 09.65.245(a)(2), before
19 initiating a construction project not subject to AS 44.42.410(b) that is within an area
20 designated by the Department of Transportation and Public Facilities under
21 AS 44.42.400(b) or (c) and that will use gravel or other aggregate material that
22 contains naturally occurring asbestos, the principal construction contractor or, in the
23 absence of an identified principal construction contractor, the person having legal
24 authority for the design and construction of the project, shall prepare and submit to the
25 Department of Transportation and Public Facilities specific project plans
26 demonstrating compliance with the standards adopted by the department under
27 AS 44.42.420 and the requirements of the site-specific use plan under AS 44.42.410.
28 Before extraction of gravel or other aggregate material may begin, the plan must be
29 approved and returned to the contractor by the department.

state constructor

*(?)
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state specific*

30 (c) To preserve the immunity provided under AS 09.65.245(a)(2), the
31 principal construction contractor or, in the absence of an identified principal

(250)

1 construction contractor, the person having legal authority for the design and
2 construction of the project, shall adhere to the site-specific use plan approved by the
3 department and the monitoring and mitigation plan created by the department.

4 **Sec. 18.31.260. Presence of naturally occurring asbestos.** The state shall
5 consider 0.25 percent by mass, the minimum detectable amount of asbestos under the
6 California Air Resources Board Method 435, as the baseline for the presence of
7 naturally occurring asbestos in gravel or other aggregate material.

8 * **Sec. 4.** AS 44.42 is amended by adding new sections to read:

9 **Article 3A. Use of Materials Containing Naturally Occurring Asbestos.**

10 **Sec. 44.42.400. Administration.** (a) The department shall designate a single
11 employee who reports to the commissioner to oversee the duties assigned to the
12 department in AS 44.42.400 - 44.42.430 and to serve as the point of contact for
13 inquiries related to projects using gravel or other aggregate material containing
14 naturally occurring asbestos.

15 (b) An area that includes land within a municipality or community may be
16 designated by the department as an area in which certain landowners and contractors
17 are granted immunity under AS 09.65.245(a) for causing asbestos-related injuries only
18 if the municipality or community requests that designation. A municipality or
19 community may request to become an area designated by the department under this
20 subsection by submitting an application to the department. The department may
21 approve an application received under this subsection only after reviewing tests
22 documenting the presence of naturally occurring asbestos in that area, analyzing the
23 effect of the presence of naturally occurring asbestos on construction projects in the
24 area, considering the availability of gravel or other aggregate material free from
25 naturally occurring asbestos in the area, and soliciting public input from residents in
26 the affected municipality or community. The department may require a municipality
27 or community that applies to become a designated area to provide the department with
28 tests documenting the presence of naturally occurring asbestos, information related to
29 the effect of the presence of naturally occurring asbestos on construction projects in
30 the area, information related to availability of gravel or other aggregate material free
31 from naturally occurring asbestos, and other information relevant to the application.

1 After designating an area after approval of an application under this subsection, the
 2 department shall notify, including through signage, potentially affected persons that
 3 the area has been designated as an area where immunity may be granted under
 4 AS 09.65.245(a) for certain landowners and contractors causing asbestos-related
 5 injuries.

6 (c) In places that do not include a municipality or community, the department
 7 may designate an area in which certain landowners and contractors are granted
 8 immunity under AS 09.65.245(a) for causing asbestos-related ^{illness} injuries. Before
 9 designating an area under this subsection, the department shall document the presence
 10 of naturally occurring asbestos in that area, analyze the effect of the presence of
 11 naturally occurring asbestos on construction projects in the area, consider the
 12 availability of gravel or other aggregate material free from naturally occurring
 13 asbestos in the area, and solicit public input from potentially affected persons. After
 14 designating an area under this subsection, the department shall notify, including
 15 through signage, potentially affected persons that the area has been designated as an
 16 area where immunity may be granted under AS 09.65.245(a) for certain landowners
 17 and contractors causing asbestos-related injuries.

18 (d) In this section, "community" means a place in the unorganized borough, in
 19 a borough, or in a unified municipality that is not incorporated as a municipality, that
 20 is not a reserve, and in which 25 or more individuals reside as a social unit.

21 **Sec. 44.42.410. Site-specific use plan.** (a) To qualify for the immunity
 22 provided under AS 09.65.245(a)(2), a contractor intending to use, within an area
 23 designated by the department under AS 44.42.400(b) or (c), gravel or other aggregate
 24 material that, when tested using a bulk test method prescribed by the department in
 25 regulation, is determined to have a content equal to or greater than 0.25 percent of
 26 naturally occurring asbestos by mass, shall, after consulting with the owner of the land
 27 on which the gravel or other aggregate material containing naturally occurring
 28 asbestos will be placed, submit a site-specific use plan to the department that

29 (1) describes the manner in which the proposed use of gravel or other
 30 aggregate material that contains naturally occurring asbestos conforms to the standards
 31 adopted under AS 44.42.420(b);

1 (2) demonstrates how the proposed construction operation and
2 maintenance practices comply with those that are required and those that are
3 minimally acceptable, as described in AS 44.42.420(b)(5), and otherwise meet
4 requirements of law applicable to the handling of compounds that contain asbestos;

5 (3) outlines the efforts that will be made, as a component of long-term
6 maintenance on the completed project or facility, to ensure that human health and air
7 quality are not compromised by the use of the gravel or other aggregate material that
8 contains naturally occurring asbestos;

9 (4) describes how the gravel or other aggregate material to be used can
10 be contained underneath the project or buried so that asbestos fibers cannot become
11 airborne or otherwise transferred outside of the project area, except as provided in (5)
12 and (6) of this subsection;

13 (5) if the requirements in (4) of this subsection are economically
14 unreasonable, describes how the gravel or other aggregate material to be used will be
15 sealed, including chip sealing or mixing with asphalt, in order to prevent asbestos
16 fibers from becoming airborne or otherwise transferred outside of the project area,
17 except as provided in (6) of this subsection; and

18 (6) if the requirements under (4) and (5) of this subsection are
19 economically unreasonable, describes how the gravel or other aggregate material will
20 be used in order to prevent asbestos from becoming airborne or otherwise transferred
21 outside of the project area, including how the gravel or other aggregate material will
22 be used in order to prevent asbestos from becoming airborne because of vehicle
23 traffic, road maintenance, or grading, if applicable.

24 (b) To qualify for and preserve the immunity provided under
25 AS 09.65.245(a)(2), the department, in its operating procedures applicable to a project
26 that is a transportation facility, including a public highway, airport, or pipeline or
27 railroad track bed, or a public work, as that term is defined in AS 35.95.100, and for
28 which the contractor intends to use, within an area designated by the department under
29 AS 44.42.400(b) or (c), gravel or other aggregate material that, when tested using a
30 bulk testing method prescribed by the department in regulation, is determined to have
31 a content equal to or greater than 0.25 percent of naturally occurring asbestos by mass,

1 shall require that

2 (1) the contractor submit a plan that details the use of gravel or other
3 aggregate material in the construction or maintenance of the transportation project or
4 public facility in accordance with the requirements of (a) of this section and
5 regulations developed under AS 44.42.420;

6 (2) before the extraction of the gravel or aggregate material containing
7 naturally occurring asbestos may begin, the plan be approved and returned to the
8 contractor by the department;

9 (3) the contractor adhere to the monitoring, mitigation, and site-
10 specific use plans.

11 (c) The department shall review each submitted site-specific use plan and shall
12 work toward approving or disapproving the plan, taking into consideration the
13 construction season in the project location.

14 (d) The department may not approve a plan for construction with gravel or
15 other aggregate material determined to have a content equal to or greater than 0.25
16 percent of naturally occurring asbestos by mass unless the department determines that
17 it is economically unreasonable to undertake the construction project with gravel or
18 other aggregate material free from naturally occurring asbestos.

19 (e) On receiving a plan that meets the requirements of (a) and (d) of this
20 section and the regulations adopted under AS 44.42.420, the department, in
21 consultation with the Department of Environmental Conservation, the Department of
22 Health and Social Services, the Department of Natural Resources, the Department of
23 Law, and the Department of Labor and Workforce Development, shall develop a
24 monitoring and mitigation plan for the project. If the site-specific use plan is approved,
25 the monitoring and mitigation plan developed by the department shall be attached to
26 the site-specific use plan. To qualify for the immunity provided in AS 09.65.245(a)(2),
27 the party that has direct control over or responsibility for the monitoring or mitigation
28 shall comply with the monitoring or mitigation plan developed by the department.

29 (f) On approval of a site-specific use plan, the department

30 (1) shall provide to the contractor a copy of the approved site-specific
31 use plan that includes

1 (A) the monitoring and mitigation plan developed under (e) of
2 this section;

3 (B) a requirement that all asbestos-related data collected by the
4 contractor during or after construction be submitted to the department; and

5 (C) recommended methods for reducing exposure to airborne
6 asbestos fibers;

7 (2) shall provide a copy of the site-specific use plan, including the
8 monitoring and mitigation plan, to the mayor or manager of a municipality affected by
9 the use of gravel or other aggregate material containing asbestos; and

10 (3) may provide to the contractor copies of the United States
11 Occupational Safety and Health Administration, United States Mine Safety and Health
12 Administration, and United States Environmental Protection Agency recommended
13 practices for handling and use of gravel or other aggregate material containing
14 naturally occurring asbestos.

15 (g) Within 60 days after completing a project in accordance with a site-
16 specific plan approved by the department, the contractor shall record in the recording
17 district where the property is located a document that includes a description of the
18 affected property, a reference to the most recent recorded conveyance of that property,
19 and a notice indicating the presence of naturally occurring asbestos, and stating that
20 subsequent interest holders may have legal obligations with respect to preventing the
21 naturally occurring asbestos from becoming airborne or otherwise transferred outside
22 of the project area. The contractor shall provide written notification to the department
23 and the landowner that the document has been recorded.

24 (h) The contractor shall submit to the department the results of any monitoring
25 or testing performed in accordance with the site-specific use plan and any mitigation
26 measures undertaken.

27 **Sec. 44.42.420. Regulations.** (a) The department, after consultation with the
28 Department of Environmental Conservation, the Department of Health and Social
29 Services, the Department of Natural Resources, the Department of Law, and the
30 Department of Labor and Workforce Development, shall prescribe in regulation a bulk
31 testing method for gravel or other aggregate material containing naturally occurring

1 asbestos.

2 (b) The department, after consultation with the Department of Environmental
3 Conservation, the Department of Health and Social Services, the Department of
4 Natural Resources, the Department of Law, and the Department of Labor and
5 Workforce Development, may adopt regulations under AS 44.62 (Administrative
6 Procedure Act) to implement AS 44.42.400 - 44.42.430, including regulations revising
7 statewide standards on the use in the construction and maintenance of transportation
8 projects and public facilities of gravel or aggregate material that, when tested using a
9 bulk test method prescribed by the department by regulation, is determined to have a
10 content equal to or greater than 0.25 percent of naturally occurring asbestos by mass.
11 The regulations adopted under this subsection must include

12 (1) procedures for completing site investigations and characterizations
13 of proposed projects, including the development and description of appropriate
14 laboratory practices;

15 (2) procedures for reviewing design alternatives and preparing and
16 evaluating appropriate comparative cost analyses that consider the use of gravel or
17 other aggregate material that does not contain naturally occurring asbestos;

18 (3) procedures for evaluating human health concerns arising out of
19 gravel or other aggregate material that contains naturally occurring asbestos and
20 documentation of methods and means to be used during periods of handling of the
21 gravel or other aggregate material to ensure compliance with appropriate workplace
22 safety and air quality standards relating to the project and to ensure the health and
23 safety of communities affected by construction projects that use gravel or other
24 aggregate material containing naturally occurring asbestos;

25 (4) procedures for preparing designs and design specifications for
26 facilities involving use of gravel or other aggregate material that contains naturally
27 occurring asbestos;

28 (5) procedures for outlining construction operation and maintenance
29 practices that are required and those that are minimally acceptable to meet
30 requirements of law applicable to the handling of compounds that contain asbestos;

31 (6) procedures for processing, reviewing, and approving or

1 disapproving site-specific use plans and area designation requests received under
2 AS 44.42.400(b) in a uniform manner;

3 (7) guidelines to analyze the cost of a project;

4 (8) guidelines for determining whether the cost associated with the use
5 of gravel or other aggregate material free from naturally occurring asbestos under
6 AS 44.42.410(d) is economically unreasonable;

7 (9) guidelines for determining whether the cost associated with
8 burying or sealing gravel or other aggregate material containing naturally occurring
9 asbestos under AS 44.42.410(a)(2) and (3) is economically unreasonable;

10 (10) guidelines for establishing areas designated under
11 AS 44.42.400(b) or (c) that take into account the effect on human health in and around
12 the designated area and environmental factors affecting the transfer of asbestos fibers
13 within and outside of a designated area.

14 **Sec. 44.42.430. Definitions.** In AS 44.42.400 - 44.42.430,

15 (1) "contractor" means the principal construction contractor, or in
16 absence of an identified principal construction contractor, the person having legal
17 authority for the design and construction of the project;

18 (2) "naturally occurring asbestos" means chrysotile, amosite,
19 crocidolite, fibrous tremolite, fibrous anthophyllite, and fibrous actinolite asbestos-
20 containing material that has not been processed in an asbestos mill and that, when
21 tested using a bulk method prescribed by the Department of Transportation and Public
22 Facilities by regulation, is determined to have a content equal to or greater than 0.25
23 percent naturally occurring asbestos by mass.

24 * **Sec. 5.** The uncodified law of the State of Alaska is amended by adding a new section to
25 read:

26 INTERIM PROJECT AUTHORIZATION. (a) Notwithstanding AS 44.42.400(a) and
27 (b), added by sec. 3 of this Act, to ensure early application of the policy described in sec. 1 of
28 this Act, the Department of Transportation and Public Facilities may, on a temporary basis,
29 designate a limited number of areas in the state in which certain landowners and contractors
30 are granted immunity under AS 09.65.245(a) for causing asbestos-related injuries where an
31 inability to complete construction projects has been demonstrated because of lack of gravel or

1 other aggregate material free from naturally occurring asbestos. After designating an area on a
2 temporary basis, the department shall notify, including through signage, potentially affected
3 persons that the area has been designated as an area in which immunity may be granted under
4 AS 09.65.245(a) for certain landowners and contractors causing asbestos-related injuries.
5 Notwithstanding AS 18.31.250, added by sec. 3 of this Act, the Department of Transportation
6 and Public Facilities may approve a limited number of appropriate construction projects until
7 the development and implementation of initial standards under AS 44.42.420 and the
8 administrative requirements of AS 44.42.400, added by sec. 4 of this Act, for projects not
9 subject to AS 44.42.410(b), if, under (b) of this section, the Department of Transportation and
10 Public Facilities prepares and adopts interim standards and requires its contractors to prepare
11 site-specific plans for the use of gravel or other aggregate material that, when tested using the
12 bulk method prescribed in sec. 6 of this Act, is determined to have a content equal to or
13 greater than 0.25 percent naturally occurring asbestos by mass in transportation projects and
14 public facilities. The department shall apply the standards developed under (b) of this section
15 to a person described in AS 18.31.250 for a project that is not subject to AS 44.42.410(b).

16 (b) Notwithstanding AS 44.42.400(a) and (b), added by sec. 3 of this Act, to ensure
17 early application of the policy described in sec. 1 of this Act, the Department of
18 Transportation and Public Facilities may, on a temporary basis, designate a limited number of
19 areas in the state in which certain landowners and contractors are granted immunity under
20 AS 09.65.245(a) for causing asbestos-related injuries where an inability to complete
21 construction projects has been demonstrated because of lack of gravel or other aggregate
22 material free from naturally occurring asbestos. After designating an area on a temporary
23 basis, the department shall notify, including through signage, potentially affected persons that
24 the area has been designated as an area where immunity may be granted under
25 AS 09.65.245(a) for certain landowners and contractors causing asbestos-related injuries.
26 Notwithstanding AS 44.42.410(b), added by sec. 4 of this Act, the Department of
27 Transportation and Public Facilities may approve a limited number of appropriate
28 transportation projects and public facilities until the development and implementation of
29 initial standards under AS 44.42.420 and the administrative requirements of AS 44.42.400,
30 after consultation with the Department of Environmental Conservation, the Department of
31 Health and Social Services, the Department of Labor and Workforce Development, and

1 appropriate federal agencies. The Department of Transportation and Public Facilities may
2 prepare and adopt interim standards and operating procedures and may require of its
3 contractors the preparation of site-specific plans for the use of gravel or other aggregate
4 material that when tested using the bulk method prescribed in sec. 6 of this Act, is determined
5 to have a content equal to or greater than 0.25 percent naturally occurring asbestos by mass.

6 (c) The authority granted by (a) and (b) of this section expires December 31, 2013.

7 * **Sec. 6.** The uncodified law of the State of Alaska is amended by adding a new section to
8 read:

9 INTERIM STANDARDS FOR APPLICATION OF ASBESTOS BULK TESTING.
10 Until the Department of Transportation and Public Facilities adopts and prescribes a method
11 of bulk testing under AS 44.42.420(a), added by sec. 4 of this Act, the department shall use
12 California Air Resources Board Method 435, Determination of Asbestos Content of
13 Serpentine Aggregate, adopted on June 6, 1991, as that standard has effect on the effective
14 date of this Act, as the basis for determining the asbestos content of a bulk sample or for
15 interim use as authorized by sec. 5 of this Act.

16 * **Sec. 7.** This Act takes effect immediately under AS 01.10.070(c).

new

AMENDMENT #3

OFFERED IN THE HOUSE FINANCE COMMITTEE

REPRESENTATIVE LES GARA

TO: CSHB 258, Version LS0400\Y

- 1 Page 6, line 25:
- 2 Insert after the word "area" as follows:
- 3 " while, if economic, shall be used instead of material containing naturally occurring
asbestos,"
- 4
- 5 Page 7, Line 10:
- 6 Insert after the word "area", as follows:
- 7 " while, if economic, shall be used instead of material containing naturally occurring
asbestos,"

P. 6 line 19 insert, "after at least 2 public
hearings," after "request."

w/d

likely offer
this on the
floor

DOT already
requires 2 public
meetings.
(Roger Healy)

AMENDMENT #3

OFFERED IN THE HOUSE FINANCE COMMITTEE

REPRESENTATIVE LES GARA

TO: CSHB 258, Version LS0400\Y

- 1 Page 6, line 25:
- 2 Insert after the word "area" as follows:
- 3 " while, if economic, shall be used instead of material containing naturally occurring
asbestos,"
- 4
- 5 Page 7, Line 10:
- 6 Insert after the word "area", as follows:
- 7 " while, if economic, shall be used instead of material containing naturally occurring
asbestos,"

Replaced

Asbestos
no objection
4

A M E N D M E N T

OFFERED IN THE HOUSE

BY REPRESENTATIVE GARA

TO: CSHB 258(FIN), Draft Version

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Page 10, line 3:

Delete "and"

Page 10, line 5, following "fibers":

Insert "; and

(D) a requirement that the contractor post conspicuously located and easily readable warning signs that notify residents of an affected area and persons travelling through an affected area that potentially dangerous airborne asbestos may be present because of the extraction, transportation, or use in a construction project of gravel or other aggregate material containing naturally occurring asbestos"

at p 7 line 2, after "notify",
and at p. 13 line 22, after "notify",
insert " , including through signage, "

*allows compensatory damage
but deny punitive - not offered
likely to come up on the floor*

27-LS0400L.1
Nauman
3/27/12

AMENDMENT #1

OFFERED IN THE HOUSE

BY REPRESENTATIVE GARA

TO: CSHB 258(FIN), Draft Version "L"

- 1 Page 1, line 6:
- 2 Delete "for the state and for"
- 3 Insert "from class action lawsuits and barring a claim for punitive damages
- 4 against the state and"
- 5
- 6 Page 1, lines 7 - 8:
- 7 Delete "or claims arising in connection with"
- 8 Insert "related to"
- 9
- 10 Page 1, line 10, following "Facilities;":
- 11 Insert "amending Rule 23, Alaska Rules of Civil Procedure;"
- 12
- 13 Page 3, line 9:
- 14 Delete "liability"
- 15 Insert "class action lawsuits and claims for punitive damages"
- 16
- 17 Page 3, line 12:
- 18 Delete "civil immunity"
- 19 Insert "protection from a class action lawsuit and bars a claim for punitive damages"
- 20
- 21 Page 4, line 3:
- 22 Delete "civil"
- 23 Insert "class"

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Page 4, lines 3 - 4:

Delete "damages or costs"

Insert "punitive damages"

Page 4, line 22:

Delete "civil"

Insert "class"

Following "claim":

Insert "for punitive damages"

Page 4, line 30:

Delete "civil"

Insert "class"

Delete "damages or costs"

Insert "punitive damages"

Page 5, line 13:

Delete "immunity in a civil action"

Insert "the immunity provided"

Page 12, following line 22:

Insert a new bill section to read:

**** Sec. 5.** The uncodified law of the State of Alaska is amended by adding a new section to read:

INDIRECT COURT RULE CHANGE. AS 09.65.245, added by sec. 2 of this Act, has the effect of amending Rule 23, Alaska Rules of Civil Procedure, by prohibiting a class action lawsuit against a state or private party in certain circumstances."

Renumber the following bill sections accordingly.

1 Page 13, line 11:

2 Delete "sec. 6"

3 Insert "sec. 7"

4

5 Page 14, line 3:

6 Delete "sec. 6"

7 Insert "sec. 7"

8

9 Page 14, line 14:

10 Delete "sec. 5"

11 Insert "sec. 6"

12

13 Page 14, following line 14:

14 Insert a new bill section to read:

15 **** Sec. 8.** The uncodified law of the State of Alaska is amended by adding a new section to
16 read:

17 **CONDITIONAL EFFECT.** Sections 1 - 3 of this Act, AS 44.42.400(b) and (c), and
18 AS 44.42.410, added by sec. 4 of this Act, and sec. 5 of this Act take effect only if sec. 5 of
19 this Act receives the two-thirds majority vote of each house required by art. IV, sec. 15,
20 Constitution of the State of Alaska."

21

22 Renumber the following bill section accordingly.

AMENDMENT #2

OFFERED IN THE HOUSE

BY REPRESENTATIVE GARA

TO: CSHB 258(FIN), Draft Version "L"

1 Page 10, line 3:

2 Delete "and"

3

4 Page 10, line 5, following "fibers":

5 Insert "; and"

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(D) a requirement that the contractor post conspicuously located and easily readable warning signs that notify residents of an affected area and persons travelling through an affected area that potentially dangerous airborne asbestos may be present because of the extraction, transportation, or use in a construction project of gravel or other aggregate material containing naturally occurring asbestos"

w/d

27-LS1219E
Nauman
3/16/12

CS FOR SENATE BILL NO. 180()
IN THE LEGISLATURE OF THE STATE OF ALASKA
TWENTY-SEVENTH LEGISLATURE - SECOND SESSION

BY

Offered:
Referred:

Sponsor(s): SENATOR OLSON

A BILL
FOR AN ACT ENTITLED

1 **"An Act directing the Department of Transportation and Public Facilities to develop**
2 **and implement standards and operating procedures, evaluate site-specific use plans,**
3 **develop and maintain an information database that includes locations of gravel or other**
4 **aggregate material that contains naturally occurring asbestos and gravel or other**
5 **aggregate material free from naturally occurring asbestos, and suggests locations to**
6 **stockpile gravel or other aggregate material free from naturally occurring asbestos, and**
7 **transmit reports related to the use in the construction and maintenance of**
8 **transportation projects and public facilities and in the construction of projects by public**
9 **and private entities of gravel or aggregate material that contains naturally occurring**
10 **asbestos, and authorizing use on an interim basis of that material for certain**
11 **transportation projects and public facilities; providing immunity for the state and for**
12 **landowners, extractors, suppliers, transporters, and contractors for certain actions or**

1 **claims arising in connection with the use of gravel or aggregate material containing**
2 **naturally occurring asbestos; requiring contractors to report certain asbestos-related**
3 **data to the Department of Transportation and Public Facilities; and providing for an**
4 **effective date."**

5 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

6 * **Section 1.** The uncodified law of the State of Alaska is amended by adding a new section
7 to read:

8 LEGISLATIVE FINDINGS AND PURPOSE. (a) The legislature finds that

9 (1) gravel or similar aggregate material is constantly in demand for major
10 construction and maintenance of state and local transportation projects and public facilities
11 and for all types of construction by public and private entities;

12 (2) naturally occurring asbestos may be found in sources of gravel and similar
13 aggregate material throughout the state;

14 (3) while airborne asbestos fibers are a significant threat to workplace safety
15 and public health and are subject to close regulation by federal and state authorities under 42
16 U.S.C. 7401 - 7671q (Clean Air Act) and 15 U.S.C. 2601 - 2692 (Toxic Substances Control
17 Act), use of materials containing naturally occurring asbestos in construction projects may be
18 regulated by states;

19 (4) in communities that do not have sources of gravel or similar aggregate
20 material that is free of naturally occurring asbestos, costs of construction are substantially
21 increased because of the necessity of locating alternative sources of gravel or similar
22 aggregate material and transporting that material to distant construction and maintenance
23 sites; and

24 (5) a recent study suggests that, with careful use and close adherence to
25 appropriate control strategies, state and local transportation projects and public facilities may
26 be safely completed using sources of gravel or similar aggregate material that contains
27 naturally occurring asbestos; the study recommends that the Department of Transportation
28 and Public Facilities establish standards and operating procedures through a statewide process
29 that will apply to the use of gravel and aggregate material that contains asbestos by the

1 department and by any public or private entity.

2 (b) It is the purpose of this Act

3 (1) to authorize and direct the Department of Transportation and Public
4 Facilities to develop, implement, and, as circumstances may require or indicate, modify
5 standards and operating procedures to allow the use in the construction and maintenance of
6 transportation projects and public facilities of gravel or aggregate material that contains
7 naturally occurring asbestos, with the expectation that use of that material in a manner that is
8 consistent with those standards and procedures may avoid significant risk to human health and
9 eliminate significantly higher costs of construction and maintenance of projects and facilities
10 associated with using only construction material that is free of asbestos;

11 (2) to establish that a person that uses gravel that contains naturally occurring
12 asbestos may prepare specific project plans that conform to the requirements of this Act and
13 the department's standards and operating procedures; and

14 (3) to shield persons and the state, including its agencies, officers, and
15 employees, under certain conditions, from liability based on exposure to naturally occurring
16 asbestos.

17 (c) This Act creates a voluntary program and provides civil immunity for the use of
18 gravel or other aggregate material that contains naturally occurring asbestos for contractors
19 meeting the requirements of the program; nothing in this Act mandates a contractor to submit
20 a site-specific plan or to adhere to the requirements of a plan approved by the department.

21 (d) Because neither the state nor the federal government has established a scale
22 assigning a specific risk level to a corresponding amount of naturally occurring asbestos, this
23 Act accepts 0.25 percent by mass, the minimum detectable amount of asbestos under the
24 California Air Resources Board Method 435, as the baseline for the presence of naturally
25 occurring asbestos in gravel or other aggregate material. Health risks resulting from asbestos
26 exposure vary according to the level, type, and duration of exposure. While exposure to very
27 small concentrations of asbestos may pose some health risk, there is not a practical way to
28 prevent all exposure to asbestos for residents in close proximity to deposits that contain
29 naturally occurring asbestos. The intent of this act is to establish a sensible analytical
30 threshold for detection of naturally occurring asbestos in gravel or other aggregate material
31 and to establish appropriate exceptions for the use of gravel or other aggregate material that

1 contains naturally occurring asbestos for certain public facilities and transportation projects
2 involving unusual circumstances, including projects in remote locations or in regions where
3 gravel or other aggregate material free from naturally occurring asbestos is not reasonably
4 available.

5 * Sec. 2. AS 09.65 is amended by adding a new section to read:

Ch 65
Acting, Immunities
Defenses
Prizes

6 **Sec. 09.65.245. Immunity for certain persons supplying or using gravel or**
7 **other aggregate material; limitations on asbestos-related actions against**
8 **defendants.** (a) Notwithstanding AS 09.50.250, a civil action or claim for damages or
9 costs alleging a death, injury, illness, disability, property damage, or any other
10 damages resulting from the use of gravel or other aggregate material that contains
11 naturally occurring asbestos may not be brought against a defendant, including a
12 ~~contractor meeting the requirements of the program or the state and its agencies,~~
13 ~~officers, and employees,~~

14 (1) based on the ownership of land from which gravel or other
15 aggregate material is extracted that, when tested using a bulk method prescribed by the
16 Department of Transportation and Public Facilities by regulation, is determined to
17 have a content equal to or greater than 0.25 percent naturally occurring asbestos by
18 mass; or

19 (2) for an act or omission occurring in the course of extracting,
20 supplying, transporting, or using gravel or other aggregate material containing
21 naturally occurring asbestos when the act or omission was in compliance with the
22 requirements of AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a)
23 and (d) and applicable regulations developed under AS 44.42.420.

24 (b) A civil action or claim based on noncompliance with the requirements of
25 AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a) and (e) and
26 applicable regulations developed under AS 44.42.420 for damages or costs alleging an
27 asbestos-related death, injury, illness, or disability or alleging asbestos-related
28 property damage or any other asbestos-related damages may only be brought against a
29 defendant that has direct control over or responsibility for compliance with the
30 requirements of AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a)
31 and (e) and applicable regulations developed under AS 44.42.420.

?

1 (c) Notwithstanding AS 09.50.250, a civil action or claim for damages or costs
2 alleging an asbestos-related death, injury, illness, or disability or alleging asbestos-
3 related property damage or any other asbestos-related damages may not be brought
4 against any state agency or officer or employee of the state for an act or omission
5 occurring in the course of approving a site-specific use plan or in the course of
6 developing or approving a monitoring plan or a mitigation plan under AS 44.42.410.

7 (d) In this section,

8 (1) "asbestos" has the meaning given in AS 18.31.500;

9 (2) "naturally occurring asbestos" means asbestos-containing material
10 that has not been processed in an asbestos mill.

11 * Sec. 3. AS 18.31 is amended by adding a new section to read: *Ch 31 Asbestos*

12 **Article 2A. Use of materials containing naturally occurring asbestos.**

13 **Sec. 18.31.250. Use of materials containing naturally occurring asbestos.**

14 (a) A principal construction contractor or, in the absence of an identified principal
15 construction contractor, person having legal authority for the design and construction
16 of a project may qualify for immunity in a civil action under AS 09.65.245(a)(2) for
17 the use of gravel or other aggregate material that, when tested using a bulk test method
18 prescribed by the Department of Transportation and Public Facilities by regulation, is
19 determined to have a content equal to or greater than 0.25 percent of naturally
20 occurring asbestos by mass.

21 (b) To qualify for the immunity provided under AS 09.65.245(a)(2), before
22 initiating a construction project not subject to AS 44.42.410(b) that will use gravel or
23 other aggregate material that contains naturally occurring asbestos, the principal
24 construction contractor or, in the absence of an identified principal construction
25 contractor, the person having legal authority for the design and construction of the
26 project, shall prepare and submit to the Department of Transportation and Public
27 Facilities specific project plans demonstrating compliance with the standards adopted
28 by the department under AS 44.42.420 and the requirements of the site-specific use
29 plan under AS 44.42.410. Before extraction of gravel or other aggregate material may
30 begin, the plan must be approved and returned to the contractor by the department.

31 (c) To preserve the immunity provided under AS 09.65.245(a)(2), the

principal construction contractor or, in the absence of an identified principal construction contractor, the person having legal authority for the design and construction of the project, shall adhere to the site-specific use plan approved by the department and the monitoring and mitigation plan created by the department.

* Sec. 4. AS 44.42 is amended by adding new sections to read:

Article 3A. Use of Materials Containing Naturally Occurring Asbestos.

*DOT and
state rules*

Sec. 44.42.400. Administration. The department shall

(1) designate a single employee who reports to the commissioner to oversee the duties assigned to the department in AS 44.42.400 - 44.42.430 and to serve as the point of contact for inquiries related to projects using gravel or other aggregate material containing naturally occurring asbestos;

(2) coordinate with the Department of Natural Resources to establish and maintain a database of

(A) sites in the state for which the department has acquired or received information indicating that the sites contain naturally occurring asbestos;

(B) sources of gravel or other aggregate material that, according to information available to the department from reasonably reliable sources, are free from naturally occurring asbestos within reasonable proximity to known sites of naturally occurring asbestos;

(C) sources of gravel or other aggregate material for all known projects the state or a municipality intends to undertake within 25 miles of a community in the next five years where the state or municipality intends to use gravel or other aggregate material containing naturally occurring asbestos that, according to information available to the department from reasonably reliable sources, are free from naturally occurring asbestos; the database must include all sources of gravel or other aggregate material within 25 miles of the community;

(D) communities that have reported to the department that they do not have reasonable access to gravel or other aggregate material free from naturally occurring asbestos; and

1 (E) all data collected under the requirements of
2 AS 44.42.410(f)(1)(B), by project;

3 (3) annually transmit to the commissioner and publish on the
4 department's Internet website a report containing

5 (A) a listing of all current projects for which a plan has been
6 submitted under AS 18.31.250 or AS 44.42.410(b);

7 (B) a listing of all known projects intended to be undertaken by
8 the state or a municipality in the next five years where the state or municipality
9 intends to use gravel or aggregate material containing naturally occurring
10 asbestos;

11 (C) suggestions for potential locations to stockpile gravel or
12 other aggregate material free from naturally occurring asbestos for use in
13 future projects and an estimate of the cost of stockpiling that gravel; and

14 (D) suggestions for potential locations, in coordination with
15 ongoing state and municipal construction projects, to stockpile gravel or other
16 aggregate material free from naturally occurring asbestos for future projects
17 and an estimate of the cost of stockpiling that gravel; and

18 (4) annually provide a report on the monitoring and mitigation data
19 transmitted by contractors to the department under AS 44.42.410(h) and the results of
20 site monitoring performed by the department to the Department of Environmental
21 Conservation, the Department of Health and Social Services, and the Department of
22 Labor and Workforce Development.

23 **Sec. 44.42.410. Site-specific use plan.** (a) To qualify for the immunity
24 provided under AS 09.65.245(a)(2), a contractor intending to use gravel or other
25 aggregate material that, when tested using a bulk test method prescribed by the
26 department in regulation, is determined to have a content equal to or greater than 0.25
27 percent of naturally occurring asbestos by mass shall, after consulting with the owner
28 of the land on which the gravel or other aggregate material containing naturally
29 occurring asbestos will be placed, shall submit a site-specific use plan to the
30 department that

31 (1) describes the manner in which the proposed use of gravel or other

1 aggregate material that contains naturally occurring asbestos conforms to the standards
2 adopted under AS 44.42.420(b);

3 (2) demonstrates how the proposed construction operation and
4 maintenance practices comply with those that are required and those that are
5 minimally acceptable, as described in AS 44.42.420(b)(5), and otherwise meet
6 requirements of law applicable to the handling of compounds that contain asbestos;

7 (3) outlines the efforts that will be made, as a component of long-term
8 maintenance on the completed project or facility, to ensure that human health and air
9 quality are not compromised by the use of the gravel or other aggregate material that
10 contains naturally occurring asbestos;

11 (4) describes how the gravel or other aggregate material to be used can
12 be contained underneath the project or buried so that asbestos fibers cannot become
13 airborne or otherwise transferred outside of the project area, except as provided in (5)
14 and (6) of this subsection;

15 (5) if the requirements in (4) of this subsection are economically
16 unreasonable, describes how the gravel or other aggregate material to be used will be
17 sealed, including chip sealing or mixing with asphalt, in order to prevent asbestos
18 fibers from becoming airborne or otherwise transferred outside of the project area,
19 except as provided in (6) of this subsection; and

20 (6) if the requirements under (4) and (5) of this subsection are
21 economically unreasonable, describes how the gravel or other aggregate material will
22 be used in order to prevent asbestos from becoming airborne or otherwise transferred
23 outside of the project area.

24 (b) To qualify for and preserve the immunity provided under
25 AS 09.65.245(a)(2), the department, in its operating procedures applicable to a project
26 that is a transportation facility, including a public highway, airport, or pipeline or
27 railroad track bed, or a public work, as that term is defined in AS 35.95.100, and for
28 which the contractor intends to use gravel or other aggregate material that, when tested
29 using a bulk testing method prescribed by the department in regulation, is determined
30 to have a content equal to or greater than 0.25 percent of naturally occurring asbestos
31 by mass, shall require that

1 (1) the contractor submit a plan that details the use of gravel or other
2 aggregate material in the construction or maintenance of the transportation project or
3 public facility in accordance with the requirements of (a) of this section and
4 regulations developed under AS 44.42.420;

5 (2) before the extraction of the gravel or aggregate material containing
6 naturally occurring asbestos may begin, the plan be approved and returned to the
7 contractor by the department;

8 (3) the contractor adhere to the monitoring, mitigation, and site-
9 specific use plans.

10 (c) The department shall review each submitted site-specific use plan and shall
11 work toward approving or disapproving the plan, taking into consideration the
12 construction season in the project location.

13 (d) The department may not approve a plan for construction with gravel or
14 other aggregate material determined to have a content equal to or greater than 0.25
15 percent of naturally occurring asbestos by mass unless the department determines that
16 it is economically unreasonable to undertake the construction project with gravel or
17 other aggregate material free from naturally occurring asbestos.

18 (e) On receiving a plan that meets the requirements of (a) and (d) of this
19 section and the regulations adopted under AS 44.42.420, the department, in
20 consultation with the Department of Environmental Conservation, the Department of
21 Health and Social Services, and the Department of Labor and Workforce
22 Development, shall develop a monitoring and mitigation plan for the project. If the
23 site-specific use plan is approved, the monitoring and mitigation plan developed by the
24 department shall be attached to the site-specific use plan. To qualify for the immunity
25 provided in AS 09.65.245(a)(2), the party that has direct control over or responsibility
26 for the monitoring or mitigation shall comply with the monitoring or mitigation plan
27 developed by the department.

28 (f) On approval of a site-specific use plan, the department

29 (1) shall provide to the contractor a copy of the approved site-specific
30 use plan that includes

31 (A) the monitoring and mitigation plan developed under (e) of

1 this section;

2 (B) a requirement that all asbestos-related data collected by the
3 contractor during or after construction be submitted to the department; and

4 (C) recommended methods for reducing exposure to airborne
5 asbestos fibers;

6 (2) shall provide a copy of the site-specific use plan, including the
7 monitoring and mitigation plan, to the mayor or manager of a municipality affected by
8 the use of gravel or other aggregate material containing asbestos; and

9 (3) may provide to the contractor copies of the United States
10 Occupational Safety and Health Administration, United States Mine Safety and Health
11 Administration, and United States Environmental Protection Agency recommended
12 practices for handling and use of gravel or other aggregate material containing
13 naturally occurring asbestos.

14 (g) Within 60 days after completing a project in accordance with a site-
15 specific plan approved by the department, the contractor shall record in the recording
16 district where the property is located a document that includes a description of the
17 affected property, a reference to the most recent recorded conveyance of that property,
18 and a notice indicating the presence of naturally occurring asbestos, and stating that
19 subsequent interest holders may have legal obligations with respect to preventing the
20 naturally occurring asbestos from becoming airborne or otherwise transferred. The
21 contractor shall provide written notification to the department and the landowner that
22 the document has been recorded.

23 (h) The contractor shall submit to the department the results of any monitoring
24 or testing performed in accordance with the site-specific use plan and any mitigation
25 measures undertaken.

26 **Sec. 44.42.420. Regulations.** (a) The department, after consultation with the
27 Department of Environmental Conservation, Department of Health and Social
28 Services, and Department of Labor and Workforce Development, shall prescribe in
29 regulation a bulk testing method for gravel or other aggregate material containing
30 naturally occurring asbestos.

31 (b) The department, after consultation with the Department of Environmental

1 Conservation, Department of Health and Social Services, and Department of Labor
2 and Workforce Development, may adopt regulations under AS 44.62 (Administrative
3 Procedure Act) to implement AS 44.42.400 - 44.42.430, including regulations revising
4 statewide standards on the use in the construction and maintenance of transportation
5 projects and public facilities of gravel or aggregate material that, when tested using a
6 bulk test method prescribed by the department by regulation, is determined to have a
7 content equal to or greater than 0.25 percent of naturally occurring asbestos by mass.
8 The regulations adopted under this subsection must include procedures for

9 (1) completing site investigations and characterizations of proposed
10 projects, including the development and description of appropriate laboratory
11 practices;

12 (2) reviewing design alternatives and preparing and evaluating
13 appropriate comparative cost analyses that consider the use of gravel or other
14 aggregate material that does not contain naturally occurring asbestos;

15 (3) evaluating human health concerns arising out of gravel or other
16 aggregate material that contains naturally occurring asbestos and documentation of
17 methods and means to be used during periods of handling of the gravel or other
18 aggregate material to ensure compliance with appropriate workplace safety and air
19 quality standards relating to the project;

20 (4) preparing designs and design specifications for facilities involving
21 use of gravel or other aggregate material that contains naturally occurring asbestos;

22 (5) outlining construction operation and maintenance practices that are
23 required and those that are minimally acceptable to meet requirements of law
24 applicable to the handling of compounds that contain asbestos;

25 (6) processing, reviewing, and approving or disapproving site-specific
26 use plans in a uniform manner.

27 **Sec. 44.42.430. Definitions.** In AS 44.42.400 - 44.42.430,

28 (1) "asbestos" has the meaning given in AS 18.31.500;

29 (2) "contractor" means the principal construction contractor, or in
30 absence of an identified principal construction contractor, the person having legal
31 authority for the design and construction of the project;

1 (3) "naturally occurring asbestos" means asbestos-containing material
2 that has not been processed in an asbestos mill.

3 * Sec. 5. The uncodified law of the State of Alaska is amended by adding a new section to
4 read:

5 INTERIM PROJECT AUTHORIZATION. (a) Notwithstanding AS 18.31.250, added
6 by sec. 3 of this Act, to ensure early application of the policy described in sec. 1 of this Act to
7 a limited number of appropriate construction projects until the development and
8 implementation of initial standards under AS 44.42.420 and the administrative requirements
9 of AS 44.42.400, added by sec. 4 of this Act, for projects not subject to AS 44.42.410(b), if,
10 under (b) of this section, the Department of Transportation and Public Facilities prepares and
11 adopts interim standards and requires its contractors to prepare site-specific plans for the use
12 of gravel or other aggregate material that, when tested using the bulk method prescribed in
13 sec. 6 of this Act, is determined to have a content equal to or greater than 0.25 percent
14 naturally occurring asbestos by mass in transportation projects and public facilities, the
15 department shall apply those standards to a person described in AS 18.31.250 for a project
16 that is not subject to AS 44.42.410(b).

*initially.
site plan*

17 (b) Notwithstanding AS 44.42.410(b), added by sec. 4 of this Act, to ensure early
18 application of the policy described in sec. 1 of this Act to a limited number of appropriate
19 transportation projects and public facilities until the development and implementation of
20 initial standards under AS 44.42.420 and the administrative requirements of AS 44.42.400,
21 after consultation with the Department of Environmental Conservation, Department of Health
22 and Social Services, Department of Labor and Workforce Development, and appropriate
23 federal agencies, the Department of Transportation and Public Facilities may prepare and
24 adopt interim standards and operating procedures and may require of its contractors the
25 preparation of site-specific plans for the use of gravel or other aggregate material that when
26 tested using the bulk method prescribed in sec. 6 of this Act, is determined to have a content
27 equal to or greater than 0.25 percent naturally occurring asbestos by mass.

28 (c) The authority granted by (a) and (b) of this section expires December 31, 2013.

29 * Sec. 6. The uncodified law of the State of Alaska is amended by adding a new section to
30 read:

31 INTERIM STANDARDS FOR APPLICATION OF ASBESTOS BULK TESTING.

1 Until the Department of Transportation and Public Facilities adopts and prescribes a method
2 of bulk testing under AS 44.42.420(a), added by sec. 4 of this Act, the department shall use
3 California Air Resources Board Method 435, Determination of Asbestos Content of
4 Serpentine Aggregate, adopted on June 6, 1991, as that standard has effect on the effective
5 date of this Act, as the basis for determining the asbestos content of a bulk sample or for
6 interim use as authorized by sec. 5 of this Act.

7 * **Sec. 7.** This Act takes effect immediately under AS 01.10.070(c).

ALASKA STATE LEGISLATURE

SENATOR DONALD C. OLSON

Session

Alaska State Capitol, Rm. 508
Juneau, AK 99801
(907) 465-3707
Fax: (907) 465-4821

Interim

716 W. 4th Ave. Ste 530
Anchorage, AK 99501
(907) 269-0254
Fax:(907)269-2031



Chair

Community & Regional Affairs

Member

Senate Finance Committee
Ethics Committee
Legislative Council
Northern Waters Task Force
Education Funding District Cost Factor
Finance Subcommittee Chair
Fish & Game
Health & Social Services
Public Safety
Finance Subcommittee Member
Environmental Conservation

Senator_Donny_Olson@legis.state.ak.us

Explanation of Changes to version D

- Page 3, lines 12-13
 - After the word “state”, inserted “including its agencies, officers, and employees”
- Page 3, lines 19-23
 - On the recommendation of LAW, this language is added to establish why .25 percent NOA by mass is used.
- Page 3, line 31
 - After the word “state”, inserted “and its agencies, officers, and employees”
- Page 4, lines 22-23
 - After the word “agency”, inserted “or officer or employee of the state”
- Page 5, Line 19
 - Changed AS 09.65.245 to AS 09.65.245**(a)(2)**, to separate the gravel pit landowner from the immunity provided to the contractor for adherence to the site-specific plan.
- Page 9, lines 15-22
 - Adds new section to direct DOT to approve or disapprove a submitted site-specific plan. Directs DOT to provide findings to support a determination that a project is “economically unreasonable”.

- Page 9, line 23
 - Rewrites the section to:
 - Direct DOT to provide to the contractor a copy of the “approved” plan.
 - Remove the requirement that DOT provide copies of the recommended practices for handling NOA from OSHA, Mine Safety & Health Administration, and the EPA.

ALASKA STATE LEGISLATURE

SENATOR DONALD C. OLSON

Session

Alaska State Capitol, Rm. 508
Juneau, AK 99801
(907) 465-3707
Fax: (907) 465-4821

Interim

716 W. 4th Ave. Ste 530
Anchorage, AK 99501
(907) 269-0254
Fax:(907)269-2031



Chair

Community & Regional Affairs
Member

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Ethics Committee

Legislative Council

Northern Waters Task Force

Education Funding District Cost Factor

Finance Subcommittee Chair

Fish & Game

Health & Social Services

Public Safety

Finance Subcommittee Member

Environmental Conservation

Senator_Donny_Olson@legis.state.ak.us

SB 180 Use of Naturally Occurring Asbestos v.D Sectional Analysis

Affected Statutes:

- **AS 09.65 – Actions, Immunities, Defenses, & Duties**
- **AS 18.31 – Asbestos**
- **AS 44.42 – Dept. of DOT&PF**

<u>Section</u>	<u>Statute</u>	<u>Change</u>	<u>Purpose or Effect</u>
1	Uncodified Law	Adds new section	Legislative Findings and Purpose
2	AS 09.65	Adds new section	<p>Creates immunity from civil action or claim for civil damages based on an alleged asbestos related death, injury, illness, disability, or property damage in specific circumstances to certain persons, the State, & state employees.</p> <p>Liability Immunity is provided to persons owning, extracting, supplying, transporting or using gravel or aggregate material containing NOA if the following apply:</p> <ol style="list-style-type: none">1) Gravel or aggregate material contains equal to or greater 0.25 % NOA by mass; and

			<p>2) The use of gravel was in compliance with DOT's SOP.</p> <p>If not in compliance, lawsuits can only be brought against those that have direct control or responsibility for the compliance requirements.</p>
3	AS 18.31	Adds New section	Describes how a person may qualify for immunity under section 2 in construction projects that are not initiated or contracted for by DOT.
4	44.42.400	Adds 4 new sections	<p>44.42.400 Administration</p> <ol style="list-style-type: none"> 1. Designates a single employee to oversee this program 2. Directs DOT to establish & maintain an informational database on known sites of NOA. 3. Directs DOT to provide annual reports on the use of NOA in AK.
	44.42.410		<p>44.42.410(a) Site-specific use plan States the requirements for a site-specific use plan submitted by a contractor intending to use NOA, including a requirement that the contractor bury or seal the NOA material if economically practicable.</p> <p>44.42.410(b) Directs DOT to require site-specific use plans for DOT projects using NOA material.</p> <p>44.42.410(c) Directs DOT to review submitted plans.</p> <p>44.42.410(d) DOT cannot approve site-specific plan unless it is economically unreasonable to undertake the project with NOA free material.</p> <p>44.42.410(e) Directs DOT, in consultation with DEC & DHSS to develop monitoring & mitigation plans and incorporate into the site-specific plan.</p> <p>44.42.410(f) Directs DOT to approve or disapprove a site-specific plan. Directs DOT to provide findings to support a determination that a project is economically</p>

			<p>unreasonable.</p> <p>44.42.410(g) Directs DOT to provide monitoring and mitigation plan and other safety info to contractors whose plan has been approved. Requires contractors submit all asbestos-related data to DOT.</p> <p>44.42.410(h) Requires a contractor, after completing a project, record notice in the recording district where the property is located indicating the presence of NOA material.</p> <p>44.42.410(i) Requires contractors to report any monitoring data collected to DOT.</p>
	44.42.420		Directs DOT to establish standards and procedures for testing and use of NOA materials.
	44.42.430		Definitions.
5	Uncodified Law	Adds new section	<p><u>Interim Project Authorization</u> Authorizes certain limited projects to move forward with a site-specific plan approved by interim standards established by DOT&PF with consultation from DEC, DHSS, DLWF</p> <p>Interim Project Authorization ends December 31, 2012</p>
6	Uncodified Law	Adds new section	<p><u>Interim Standards for Bulk Testing</u> Until DOTP&F adopts and prescribes a method of testing the department shall use California Air Resources Board Method 435</p>
7		Effective Date	<u>Immediate</u>

27-LS1219D
Nauman
3/8/12

CS FOR SENATE BILL NO. 180()
IN THE LEGISLATURE OF THE STATE OF ALASKA
TWENTY-SEVENTH LEGISLATURE - SECOND SESSION

BY

Offered:
Referred:

Sponsor(s): SENATOR OLSON

A BILL
FOR AN ACT ENTITLED

1 **"An Act directing the Department of Transportation and Public Facilities to develop**
2 **and implement standards and operating procedures, evaluate site-specific use plans,**
3 **develop and maintain an information database that includes locations of gravel or other**
4 **aggregate material that contains naturally occurring asbestos, gravel or other aggregate**
5 **material free from naturally occurring asbestos, and suggests locations to stockpile**
6 **gravel or other aggregate material free from naturally occurring asbestos, and transmit**
7 **reports related to the use in the construction and maintenance of transportation projects**
8 **and public facilities and in the construction of projects by public and private entities of**
9 **gravel or aggregate material that contains naturally occurring asbestos, and authorizing**
10 **use on an interim basis of that material for certain transportation projects and public**
11 **facilities; providing immunity for the state and for landowners, extractors, suppliers,**
12 **transporters, and contractors for certain actions or claims arising in connection with the**

1 use of gravel or aggregate material containing naturally occurring asbestos; requiring
2 contractors to report certain asbestos-related data to the Department of Transportation
3 and Public Facilities; and providing for an effective date."

4 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

5 * **Section 1.** The uncodified law of the State of Alaska is amended by adding a new section
6 to read:

7 **LEGISLATIVE FINDINGS AND PURPOSE.** (a) The legislature finds that

8 (1) gravel or similar aggregate material is constantly in demand for major
9 construction and maintenance of state and local transportation projects and public facilities
10 and for all types of construction by public and private entities;

11 (2) naturally occurring asbestos may be found in sources of gravel and similar
12 aggregate material throughout the state;

13 (3) while airborne asbestos fibers are a significant threat to workplace safety
14 and public health and are subject to close regulation by federal and state authorities under 42
15 U.S.C. 7401 - 7671q (Clean Air Act) and 15 U.S.C. 2601 - 2692 (Toxic Substances Control
16 Act), use of materials containing naturally occurring asbestos in construction projects may be
17 regulated by states;

18 (4) in communities that do not have sources of gravel or similar aggregate
19 material that is free of naturally occurring asbestos, costs of construction are substantially
20 increased because of the necessity of locating alternative sources of gravel or similar
21 aggregate material and transporting that material to distant construction and maintenance
22 sites; and

23 (5) a recent study suggests that, with careful use and close adherence to
24 appropriate control strategies, state and local transportation projects and public facilities may
25 be safely completed using sources of gravel or similar aggregate material that contains
26 naturally occurring asbestos; the study recommends that the Department of Transportation
27 and Public Facilities establish standards and operating procedures through a statewide process
28 that will apply to the use of gravel and aggregate material that contains asbestos by the
29 department and by any public or private entity.

30 (b) It is the purpose of this Act

1 (1) to authorize and direct the Department of Transportation and Public
2 Facilities to develop, implement, and, as circumstances may require or indicate, modify
3 standards and operating procedures to allow the use in the construction and maintenance of
4 transportation projects and public facilities of gravel or aggregate material that contains
5 naturally occurring asbestos, with the expectation that use of that material in a manner that is
6 consistent with those standards and procedures may avoid significant risk to human health and
7 eliminate significantly higher costs of construction and maintenance of projects and facilities
8 associated with using only construction material that is free of asbestos;

9 (2) to establish that a person that uses gravel that contains naturally occurring
10 asbestos may prepare specific project plans that conform to the requirements of this Act and
11 the department's standards and operating procedures; and

12 (3) to shield persons and the state, including its agencies, officers, and
13 employees, under certain conditions, from liability based on exposure to naturally occurring
14 asbestos.

15 (c) This Act creates a voluntary program and provides civil immunity for the use of
16 gravel or other aggregate material that contains naturally occurring asbestos for contractors
17 meeting the requirements of the program; nothing in this Act mandates a contractor to submit
18 a site-specific plan or to adhere to the requirements of a plan approved by the department.

19 (d) Because neither the state nor the federal government has established a scale
20 assigning a specific risk level to a corresponding amount of naturally occurring asbestos, this
21 Act accepts 0.25 percent by mass, the smallest testable amount of asbestos under the
22 California Air Resources Board Method 435, as the baseline for the presence of naturally
23 occurring asbestos in gravel or other aggregate material.

24 * **Sec. 2.** AS 09.65 is amended by adding a new section to read:

25 **Sec. 09.65.245. Immunity for certain persons supplying or using gravel or**
26 **other aggregate material; limitations on asbestos-related actions against**
27 **defendants.** (a) Notwithstanding AS 09.50.250, a civil action or claim for damages or
28 costs alleging a death, injury, illness, disability, property damage, or any other
29 damages resulting from the use of gravel or other aggregate material that contains
30 naturally occurring asbestos may not be brought against a defendant, including a
31 contractor meeting the requirements of the program or the state and its agencies,

1 officers, and employees,

2 (1) based on the ownership of land from which gravel or other
3 aggregate material is extracted that, when tested using a bulk method prescribed by the
4 Department of Transportation and Public Facilities by regulation, is determined to
5 have a content equal to or greater than 0.25 percent naturally occurring asbestos by
6 mass; or

7 (2) for an act or omission occurring in the course of extracting,
8 supplying, transporting, or using gravel or other aggregate material containing
9 naturally occurring asbestos when the act or omission was in compliance with the
10 requirements of AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a)
11 and (d) and applicable regulations developed under AS 44.42.420.

12 (b) A civil action or claim based on noncompliance with the requirements of
13 AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a) and (e) and
14 applicable regulations developed under AS 44.42.420 for damages or costs alleging an
15 asbestos-related death, injury, illness, or disability or alleging asbestos-related
16 property damage or any other asbestos-related damages may only be brought against a
17 defendant that has direct control over or responsibility for compliance with the
18 requirements of AS 18.31.250 or AS 44.42.410(b), as applicable, and AS 44.42.410(a)
19 and (e) and applicable regulations developed under AS 44.42.420.

20 (c) Notwithstanding AS 09.50.250, a civil action or claim for damages or costs
21 alleging an asbestos-related death, injury, illness, or disability or alleging asbestos-
22 related property damage or any other asbestos-related damages may not be brought
23 against any state agency or officer or employee of the state for an act or omission
24 occurring in the course of approving a site-specific use plan or in the course of
25 developing or approving a monitoring plan or a mitigation plan under AS 44.42.410.

26 (d) In this section,

27 (1) "asbestos" has the meaning given in AS 18.31.500;

28 (2) "naturally occurring asbestos" means asbestos-containing material
29 that has not been processed in an asbestos mill.

30 * **Sec. 3.** AS 18.31 is amended by adding a new section to read:

31 **Article 2A. Use of materials containing naturally occurring asbestos.**

1 **Sec. 18.31.250. Use of materials containing naturally occurring asbestos.**

2 (a) A principal construction contractor or, in the absence of an identified principal
3 construction contractor, person having legal authority for the design and construction
4 of a project may qualify for immunity in a civil action under AS 09.65.245(a)(2) for
5 the use of gravel or other aggregate material that, when tested using a bulk test method
6 prescribed by the Department of Transportation and Public Facilities by regulation, is
7 determined to have a content equal to or greater than 0.25 percent of naturally
8 occurring asbestos by mass.

9 (b) To qualify for the immunity provided under AS 09.65.245, before
10 initiating a construction project not subject to AS 44.42.410(b) that will use gravel or
11 other aggregate material that contains naturally occurring asbestos, the principal
12 construction contractor or, in the absence of an identified principal construction
13 contractor, the person having legal authority for the design and construction of the
14 project, shall prepare and submit to the Department of Transportation and Public
15 Facilities specific project plans demonstrating compliance with the standards adopted
16 by the department under AS 44.42.420 and the requirements of the site-specific use
17 plan under AS 44.42.410. Before extraction of gravel or other aggregate material may
18 begin, the plan must be approved and returned to the contractor by the department.

19 (c) To preserve the immunity provided under AS 09.65.245(a)(2), the
20 principal construction contractor or, in the absence of an identified principal
21 construction contractor, the person having legal authority for the design and
22 construction of the project, shall adhere to the site-specific use plan approved by the
23 department and the monitoring and mitigation plan created by the department.

24 * **Sec. 4.** AS 44.42 is amended by adding new sections to read:

25 **Article 3A. Use of Materials Containing Naturally Occurring Asbestos.**

26 **Sec. 44.42.400. Administration.** The department shall

27 (1) designate a single employee who reports to the commissioner to
28 oversee the duties assigned to the department in AS 44.42.400 - 44.42.430 and to
29 serve as the point of contact for inquiries related to projects using gravel or other
30 aggregate material containing naturally occurring asbestos;

31 (2) establish and maintain a database of

1 (A) sites in the state for which the department has acquired or
2 received information indicating that the sites contain naturally occurring
3 asbestos;

4 (B) sources of gravel or other aggregate material that,
5 according to information available to the department from reasonably reliable
6 sources, are free from naturally occurring asbestos within reasonable proximity
7 to known sites of naturally occurring asbestos;

8 (C) sources of gravel or other aggregate material for all known
9 projects the state or a municipality intends to undertake within 25 miles of a
10 community in the next five years where the state or municipality intends to use
11 gravel or other aggregate material containing naturally occurring asbestos that,
12 according to information available to the department from reasonably reliable
13 sources, are free from naturally occurring asbestos; the database must include
14 all sources of gravel or other aggregate material within 25 miles of the
15 community;

16 (D) communities that have reported to the department that they
17 do not have reasonable access to gravel or other aggregate material free from
18 naturally occurring asbestos; and

19 (E) all data collected under the requirements of
20 AS 44.42.410(g)(1)(B), by project;

21 (3) annually transmit to the commissioner and publish on the
22 department's Internet website a report containing

23 (A) a listing of all current projects for which a plan has been
24 submitted under AS 18.31.250 or AS 44.42.410(b);

25 (B) a listing of all known projects intended to be undertaken by
26 the state or a municipality in the next five years where the state or municipality
27 intends to use gravel or aggregate material containing naturally occurring
28 asbestos;

29 (C) suggestions for potential locations to stockpile gravel or
30 other aggregate material free from naturally occurring asbestos for use in
31 future projects and an estimate of the cost of stockpiling that gravel; and

1 (D) suggestions for potential locations, in coordination with
2 ongoing state and municipal construction projects, to stockpile gravel or other
3 aggregate material free from naturally occurring asbestos for future projects
4 and an estimate of the cost of stockpiling that gravel; and

5 (4) annually provide a report on the monitoring and mitigation data
6 transmitted by contractors to the department under AS 44.42.410(i) and the results of
7 site monitoring performed by the department to the Department of Environmental
8 Conservation, the Department of Health and Social Services, and the Department of
9 Labor and Workforce Development.

10 **Sec. 44.42.410. Site-specific use plan.** (a) To qualify for the immunity
11 provided under AS 09.65.245(a)(2), a contractor intending to use gravel or other
12 aggregate material that, when tested using a bulk test method prescribed by the
13 department in regulation, is determined to have a content equal to or greater than 0.25
14 percent of naturally occurring asbestos by mass shall, after consulting with the owner
15 of the land on which the gravel containing naturally occurring asbestos will be placed,
16 shall submit a site-specific use plan to the department that

17 (1) describes the manner in which the proposed use of gravel or other
18 aggregate material that contains naturally occurring asbestos conforms to the standards
19 adopted under AS 44.42.420(b);

20 (2) demonstrates how the proposed construction operation and
21 maintenance practices comply with those that are required and those that are
22 minimally acceptable, as described in AS 44.42.420(b)(5), and otherwise meet
23 requirements of law applicable to the handling of compounds that contain asbestos;

24 (3) outlines the efforts that will be made, as a component of long-term
25 maintenance on the completed project or facility, to ensure that human health and air
26 quality are not compromised by the use of the gravel or other aggregate material that
27 contains naturally occurring asbestos;

28 (4) describes how the gravel or other aggregate material to be used can
29 be contained underneath the project or buried so that asbestos fibers cannot become
30 airborne or otherwise transferred outside of the project area, except as provided in (5)
31 and (6) of this subsection;

1 (5) if the requirements in (4) of this subsection are economically
2 unreasonable, describes how the gravel or other aggregate material to be used will be
3 sealed, including chip sealing or mixing with asphalt, in order to prevent asbestos
4 fibers from becoming airborne or otherwise transferred outside of the project area,
5 except as provided in (6) of this subsection; and

6 (6) if the requirements under (4) and (5) of this subsection are
7 economically unreasonable, describes how the gravel or other aggregate material will
8 be used in order to prevent asbestos from becoming airborne or otherwise transferred
9 outside of the project area.

10 (b) To qualify for and preserve the immunity provided under
11 AS 09.65.245(a)(2), the department, in its operating procedures applicable to a project
12 that is a transportation facility, including a public highway, airport, or pipeline or
13 railroad track bed, or a public work, as that term is defined in AS 35.95.100, and for
14 which the contractor intends to use gravel or other aggregate material that, when tested
15 using a bulk testing method prescribed by the department in regulation, is determined
16 to have a content equal to or greater than 0.25 percent of naturally occurring asbestos
17 by mass, shall require that

18 (1) the contractor submit a plan that details the use of gravel or other
19 aggregate material in the construction or maintenance of the transportation project or
20 public facility in accordance with the requirements of (a) of this section and
21 regulations developed under AS 44.42.420;

22 (2) before the extraction of the gravel or aggregate material containing
23 naturally occurring asbestos may begin, the plan be approved and returned to the
24 contractor by the department;

25 (3) the contractor adhere to the monitoring, mitigation, and site-
26 specific use plans.

27 (c) The department shall review each submitted site-specific use plan and shall
28 work toward approving or disapproving the plan, taking into consideration the
29 construction season in the project location.

30 (d) The department may not approve a plan for construction with gravel or
31 other aggregate material determined to have a content equal to or greater than 0.25

1 percent of naturally occurring asbestos by mass unless the department determines that
2 it is economically unreasonable to undertake the construction project with gravel or
3 other aggregate material free from naturally occurring asbestos.

4 (e) On receiving a plan that meets the requirements of (a) and (d) of this
5 section and the regulations adopted under AS 44.42.420, the department, in
6 consultation with the Department of Environmental Conservation, the Department of
7 Health and Social Services, and the Department of Labor and Workforce
8 Development, shall develop a monitoring and mitigation plan for the project. If the
9 site-specific use plan is approved, the monitoring and mitigation plan developed by the
10 department shall be attached to the site-specific use plan. To qualify for the immunity
11 provided in AS 09.65.245(a)(2), the party that has direct control over or responsibility
12 for the monitoring or mitigation shall comply with the monitoring or mitigation plan
13 developed by the department.

14 (f) The department shall approve or disapprove a site-specific plan. The
15 department may require a contractor submitting a site-specific plan to provide
16 additional information or test results before the department approves or disapproves a
17 site-specific plan. If the department determines that it is economically unreasonable to
18 undertake a construction project with gravel or aggregate material free from naturally
19 occurring asbestos under (d) of this section or if the department determines that it is
20 economically unreasonable to bury or seal the gravel or other aggregate material that
21 contains naturally occurring asbestos under (a)(4) or (a)(5) of this section, the
22 department shall make findings to support the determination.

23 (g) On approval of a site-specific use plan, the department

24 (1) shall provide to the contractor a copy of the approved site-specific
25 use plan that includes

26 (A) the monitoring and mitigation plan developed under (e) of
27 this section;

28 (B) a requirement that all asbestos-related data collected by the
29 contractor during or after construction be submitted to the department;

30 (C) recommended methods for reducing exposure to airborne
31 asbestos fibers; and

1 (2) shall provide a copy of the site-specific use plan, including the
2 monitoring and mitigation plan, to the mayor or manager of a municipality affected by
3 the use of gravel or other aggregate material containing asbestos.

4 (h) Within 60 days after completing a project in accordance with a site-
5 specific plan approved by the department, the contractor shall record in the recording
6 district where the property is located a document that includes a description of the
7 affected property, a reference to the most recent recorded conveyance of that property,
8 and a notice indicating the presence of naturally occurring asbestos, and stating that
9 subsequent interest holders may have legal obligations with respect to preventing the
10 naturally occurring asbestos from becoming airborne or otherwise transferred. The
11 contractor shall provide written notification to the department and the landowner that
12 the document has been recorded.

13 (i) The contractor shall submit to the department the results of any monitoring
14 or testing performed in accordance with the site-specific use plan and any mitigation
15 measures undertaken.

16 **Sec. 44.42.420. Regulations.** (a) The department, after consultation with the
17 Department of Environmental Conservation, Department of Health and Social
18 Services, and Department of Labor and Workforce Development, shall prescribe in
19 regulation a bulk testing method for gravel or other aggregate material containing
20 naturally occurring asbestos.

21 (b) The department, after consultation with the Department of Environmental
22 Conservation, Department of Health and Social Services, and Department of Labor
23 and Workforce Development, shall develop, implement, and revise statewide
24 standards on the use in the construction and maintenance of transportation projects and
25 public facilities of gravel or aggregate material that, when tested using a bulk test
26 method prescribed by the department by regulation, is determined to have a content
27 equal to or greater than 0.25 percent of naturally occurring asbestos by mass. The
28 standards adopted under this subsection must include procedures for

29 (1) completing site investigations and characterizations of proposed
30 projects, including the development and description of appropriate laboratory
31 practices;

1 (2) reviewing design alternatives and preparing and evaluating
2 appropriate comparative cost analyses that consider the use of gravel or other
3 aggregate material that does not contain naturally occurring asbestos;

4 (3) evaluating human health concerns arising out of gravel or other
5 aggregate material that contains naturally occurring asbestos and documentation of
6 methods and means to be used during periods of handling of the gravel or other
7 aggregate material to ensure compliance with appropriate workplace safety and air
8 quality standards relating to the project;

9 (4) preparing designs and design specifications for facilities involving
10 use of gravel or other aggregate material that contains naturally occurring asbestos;

11 (5) outlining construction operation and maintenance practices that are
12 required and those that are minimally acceptable to meet requirements of law
13 applicable to the handling of compounds that contain asbestos.

14 **Sec. 44.42.430. Definitions.** In AS 44.42.400 - 44.42.430,

15 (1) "asbestos" has the meaning given in AS 18.31.500;

16 (2) "contractor" means the principal construction contractor, or in
17 absence of an identified principal construction contractor, the person having legal
18 authority for the design and construction of the project;

19 (3) "naturally occurring asbestos" means asbestos-containing material
20 that has not been processed in an asbestos mill.

21 * **Sec. 5.** The uncodified law of the State of Alaska is amended by adding a new section to
22 read:

23 INTERIM PROJECT AUTHORIZATION. (a) Notwithstanding AS 18.31.250, added
24 by sec. 3 of this Act, to ensure early application of the policy described in sec. 1 of this Act to
25 a limited number of appropriate construction projects until the development and
26 implementation of initial standards under AS 44.42.420 and the administrative requirements
27 of AS 44.42.400, added by sec. 4 of this Act, for projects not subject to AS 44.42.410(b), if,
28 under (b) of this section, the Department of Transportation and Public Facilities prepares and
29 adopts interim standards and requires its contractors to prepare site-specific plans for the use
30 of gravel or other aggregate material that, when tested using the bulk method prescribed in
31 sec. 6 of this Act, is determined to have a content equal to or greater than 0.25 percent

1 naturally occurring asbestos by mass in transportation projects and public facilities, the
2 department shall apply those standards to a person described in AS 18.31.250 for a project
3 that is not subject to AS 44.42.410(b).

4 (b) Notwithstanding AS 44.42.410(b), added by sec. 4 of this Act, to ensure early
5 application of the policy described in sec. 1 of this Act to a limited number of appropriate
6 transportation projects and public facilities until the development and implementation of
7 initial standards under AS 44.42.420 and the administrative requirements of AS 44.42.400,
8 after consultation with the Department of Environmental Conservation, Department of Health
9 and Social Services, Department of Labor and Workforce Development, and appropriate
10 federal agencies, the Department of Transportation and Public Facilities may prepare and
11 adopt interim standards and operating procedures and may require of its contractors the
12 preparation of site-specific plans for the use of gravel or other aggregate material that when
13 tested using the bulk method prescribed in sec. 6 of this Act, is determined to have a content
14 equal to or greater than 0.25 percent naturally occurring asbestos by mass.

15 (c) The authority granted by (a) and (b) of this section expires December 31, 2012.

16 * Sec. 6. The uncodified law of the State of Alaska is amended by adding a new section to
17 read:

18 INTERIM STANDARDS FOR APPLICATION OF ASBESTOS BULK TESTING.

19 Until the Department of Transportation and Public Facilities adopts and prescribes a method
20 of bulk testing under AS 44.42.420(a), added by sec. 4 of this Act, the department shall use
21 California Air Resources Board Method 435, Determination of Asbestos Content of
22 Serpentine Aggregate, adopted on June 6, 1991, as that standard has effect on the effective
23 date of this Act, as the basis for determining the asbestos content of a bulk sample or for
24 interim use as authorized by sec. 5 of this Act.

25 * Sec. 7. This Act takes effect immediately under AS 01.10.070(c).

ALASKA STATE LEGISLATURE
HOUSE TRANSPORTATION STANDING COMMITTEE

March 30, 2010

1:05 p.m.

MEMBERS PRESENT

Representative Peggy Wilson, Chair
Representative Craig Johnson, Vice Chair
Representative Kyle Johansen
Representative Cathy Engstrom Munoz
Representative Tammie Wilson
Representative Max Gruenberg
Representative Pete Petersen

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

HOUSE BILL NO. 333

"An Act directing the Department of Transportation and Public Facilities to develop and implement standards and operating procedures allowing for the use in the construction and maintenance of transportation projects and public facilities and in the construction of projects by public and private entities of gravel or aggregate materials that contain naturally occurring asbestos, and authorizing use on an interim basis of those materials for certain transportation projects and public facilities; and relating to certain claims arising out of or in connection with the use of gravel or aggregate materials."

- MOVED CSHB 333 (TRA) OUT OF COMMITTEE

HOUSE BILL NO. 313

"An Act relating to the maintenance and repair of railroad crossings and rights-of-way within railroad crossings."

- BILL HEARING RESCHEDULED TO 4/01/10

PREVIOUS COMMITTEE ACTION

BILL: HB 333

SHORT TITLE: NATURALLY OCCURRING ASBESTOS IN GRAVEL

SPONSOR(s): REPRESENTATIVE(s) JOULE

02/10/10 (H) READ THE FIRST TIME - REFERRALS
02/10/10 (H) TRA, FIN
03/30/10 (H) TRA AT 1:00 PM CAPITOL 17

WITNESS REGISTER

REPRESENTATIVE REGGIE JOULE
Alaska State Legislature
Juneau, Alaska

POSITION STATEMENT: Testified as prime sponsor of HB 333.

DEWEY HOFFMAN, Staff
Representative Reggie Joule
Alaska State Legislature
Juneau, Alaska.

POSITION STATEMENT: Testified on behalf of Representative Reggie Joule, the prime sponsor of HB 333.

CHRISTINE HESS, Staff
Representative Reggie Joule
Alaska State Legislature
Juneau, Alaska

POSITION STATEMENT: Testified on behalf of Representative Reggie Joule, the prime sponsor of HB 333.

LANCE MILLER, Vice-President, Resources
NANA Regional Corporation
Anchorage, Alaska

POSITION STATEMENT: Testified in support of HB 333.

MARY SIROKY, Legislative Liaison
Office of the Commissioner
Department of Transportation & Public Facilities (DOT&PF)
Juneau, Alaska

POSITION STATEMENT: Answered questions during the discussion of HB 333.

LORI VERBRUGGE, Toxicologist
Department of Health and Social Services
Anchorage, Alaska

POSITION STATEMENT: Answered questions during the discussion of HB 333.

WILDA LAUGHLIN
Special Assistant
Department of Health and Social Services (DH&SS)

Juneau, Alaska

POSITION STATEMENT: Answered questions during the discussion of HB 333.

MARIT CARLSON-VAN DORT, Legislative Liaison
Office of the Commissioner
Department of Environmental Conservation (DEC)
Anchorage, Alaska

POSITION STATEMENT: Answered questions during the discussion of HB 333.

ACTION NARRATIVE

1:05:02 PM

CHAIR PEGGY WILSON called the House Transportation Standing Committee meeting to order at 1:05 p.m. Representatives P. Wilson, Gruenberg, Petersen, and T. Wilson were present at the call to order. Representatives Munoz, Johnson, and Johansen arrived as the meeting was in progress.

HB 333-NATURALLY OCCURRING ASBESTOS IN GRAVEL

1:05:06 PM

CHAIR P. WILSON announced that the only order of business would be HOUSE BILL NO. 333, "An Act directing the Department of Transportation and Public Facilities to develop and implement standards and operating procedures allowing for the use in the construction and maintenance of transportation projects and public facilities and in the construction of projects by public and private entities of gravel or aggregate materials that contain naturally occurring asbestos, and authorizing use on an interim basis of those materials for certain transportation projects and public facilities; and relating to certain claims arising out of or in connection with the use of gravel or aggregate materials." [Before the committee was Version E.]

1:06:13 PM

REPRESENTATIVE T. WILSON moved to adopt the proposed committee substitute (CS) for HB 333, labeled 26-LS1248\S, Chenoweth, 3/16/10, as the work draft. There being no objection, Version S was before the committee.

1:06:50 PM

REPRESENTATIVE REGGIE JOULE, Alaska State Legislature, explained that HB 333 would authorize and regulate use of naturally occurring asbestos (NOA), which is due to minerals present in the soil and rocks. This has become problematic in Ambler since there are many projects that need aggregate material, such as the airport or sewage lagoon. He offered that he is working towards resolution of the issue. He introduced his staff, Dewey Hoffman, who is working on the issue of NOA, and asked him to provide more details on HB 333.

DEWEY HOFFMAN, Staff, Representative Reggie Joule, Alaska State Legislature, on behalf of the sponsor, Representative Reggie Joule provided an overview on the bill. He stated that HB 333 would put policies in place to mitigate the difficulties associated with construction in areas of the state with naturally occurring asbestos (NOA). He stated that NOA occurs in mineral deposits throughout Alaska and our state has large known deposits of ultramafic and serpentine mineral ore. These deposits often contain NOA, which is similar to the asbestos we are familiar with and that is known to cause fibrosis or malignancies of the lungs and other major organs. Asbestos is defined in the bill as gravel, rock, sand and similar materials that are determined to have a content of at least 0.25 percent asbestos by mass, setting the threshold for NOA at 0.25 percent.

MR. HOFFMAN said the Department of Transportation & Public Facilities (DOT&PF) hired Nortech, Inc. and the Institute of Northern Engineering, University of Alaska, Fairbanks, to research the issues and recommend solutions. He referred to a series of maps in members' packets which show mineral occurrences in Alaska that likely contain NOA. He also referred to pages 29-32 of the full report titled, Naturally Occurring Asbestos in Alaska and Experiences and Policy of Other States Regarding its Use. This report concludes that NOA can be used in most circumstances without harmful side effects so long as proper procedures are implemented and followed, he stated.

MR. HOFFMAN explained that there are documented cases of NOA being found in several areas of the state, including at a rock quarry in Juneau, along the Dalton Highway at material site 105, and in local gravel pits in Ambler. The NOA was discovered during routine soil testing and has delayed or halted, as in Ambler's case, construction projects for years. Current projects in Ambler that are affected include the Ambler Airport Runway Extension Project, construction of a new sewer lagoon and access road, and housing construction. Some experts believe

that over time more NOA will be documented, particularly in the very areas that are rich in minerals and likely to be developed. Some localities do not have gravel materials nearby that are free of NOA, yet several large projects will require the use of large amounts of gravel. How to handle NOA should be resolved before it becomes an issue during the actual preconstruction or construction process of one of these projects. He referred members to page 27 of the Nortech, Inc. report for more detailed information. He stated that the use of NOA is not currently regulated by the federal government and only a few states, such as Virginia and California have addressed it.

1:12:05 PM

MR. HOFFMAN reported that Virginia and California have been regulating NOA for many years and several other states are in the process of addressing the issue. California uses a threshold for asbestos concentration, below which the material is not considered NOA. Regulation controls are put into place for safety reasons if the material is above the established threshold. This bill has adopted a similar approach. He summarized that the purpose of the bill is to define the measures that must be developed and established in order to safely use gravel or materials containing NOA. After procedures and standards are adopted and a site-specific plan is approved for a construction project, HB 333 would protect the suppliers and users from liability so long as the plan is appropriately followed. The bill would remove the doubt and fear of liability associated with use of NOA, which would encourage suppliers and landowners to offer gravel for sale. This would ensure that work could safely proceed in Alaska while using gravel that has some NOA. This would also help keep construction costs down, he stated.

1:13:54 PM

CHAIR P. WILSON related her understanding that health problems are caused by direct contact with asbestos. She asked what causes the concern if the NOA is contained within the rock.

1:14:48 PM

CHRISTINE HESS, Staff, Representative Reggie Joule, Alaska State Legislature, explained that the biggest concern comes from all-terrain vehicles (ATVs) use, which substantially raises dust levels during the summer months. She explained that the Department of Environmental Conservation (DEC) and the

Department of Health and Social Services (DHSS) have conducted tests in Ambler to identify health issues. The DHSS chest X-ray monitoring only found several people with an indication in their lungs, but the health problems could be attributed to other factors such as smoking. The departments are discussing dust control measures to mitigate health risks.

1:16:30 PM

LANCE MILLER, Vice-President, Resources, NANA Regional Corporation testified in support of HB 333. He stated that currently there is and will continue to be a critical need for gravel for projects throughout Alaska and some gravel may contain asbestos. He recalled that Mr. Hoffman previously mentioned the issues that arose in the 70s on the Dalton Highway project and in 2005 with a Juneau gravel project. He mentioned a chronology of projects exist, but without some protocols in place for gravel containing trace amounts of NOA, many projects will come to a standstill with all the notoriety that asbestos has received nationwide. Asbestos comes from magnesium silicate minerals associated with ultramafic rocks. Interestingly, a lot of the mineral deposits that have formed are located near geologically dynamic area, where the ultramafic rocks have been brought up along the sea floor. Thus, it is not a random coincidence that mineral deposits contain magnesium-rich rocks that contain NOA minerals. In fact, many parts of the state from Juneau to the Arctic region contain mineral deposits and asbestos, but not necessarily at a level to cause any alarm. He referred specifically to the mountains behind Ambler, to Jade Mountain, which is comprised of serpentine. He remarked that the state gem is jade, which also comes from ultramafic rock. California's geology has similar problems to the ones encountered in Alaska's geology. The state rock of California is serpentine, which is the main asbestos bearing rock. California adopted regulations to address NOA, which are similar to the process reflected in HB 333. He commented that California has a record of being protective of health and the environment.

1:20:14 PM

MR. MILLER related that within the Ambler region about \$10 million in projects are currently on hold. He offered his belief that not moving forward with projects, such as the planned sewer lagoon and water projects, would affect the health and safety of the residents of Ambler. Using the California standards, some sites in the Ambler area are asbestos free.

Adopting the standards in HB 333, which are basically the California standards, would allow projects to move forward and would provide protection so long as the standard operating procedures are adhered to by landowners and contractors.

1:21:14 PM

REPRESENTATIVE MUNOZ asked for examples of how California is mitigating their asbestos issues.

MR. MILLER offered his understanding that much of the mitigation has occurred by adopting methods of handling material, such as wearing respirators when crushing rock that contains NOA or wetting down the material. The mineral is fibrous and when dry will float in the air, but NOA has water-absorbing properties will not float in the air when wet. California has addressed NOA by developing specific procedures quarries or gravel pits to protect workers. In Alaska, such as at Stabler Point in Juneau, the material is contained within rock so crushing the rock can liberate the NOA. In other locations, such as in Ambler, the natural forces have crushed the rock and released the NOA into streams. Thus, the NOA is contained in gravel.

1:22:59 PM

REPRESENTATIVE PETERSEN referred to HB 333 and asked for the reference to any language that mandates masks be used to protect workers who may be exposed to NOA.

MR. MILLER explained the process for handling NOA would be developed as part of the standard operating procedures (SOP) that would be developed under the bill.

REPRESENTATIVE P. WILSON suggested that the procedures would likely be developed in regulation.

1:23:42 PM

REPRESENTATIVE MUNOZ asked whether "fear of asbestos in the air" would generally cause agencies to "shut down" a project and if such action would be undertaken by the Environmental Protection Agency (EPA).

MR. MILLER responded that usually a project would be shut down by the landowner since SOPs are not currently in place to protect the landowner from risk.

REPRESENTATIVE MUNOZ related her understanding that if the SOPs were in place the landowner would be afforded some legal protection.

MR. MILLER agreed that the SOPs would provide some immunity.

1:24:44 PM

MARY SIROKY, Legislative Liaison, Office of the Commissioner, Department of Transportation & Public Facilities (DOT&PF), explained that three agencies have been working to resolve the issues surrounding NOA in Ambler. The agencies have arrived at some short-term solutions. Thus, HB 333 will not be needed since the three agencies have agreed to develop the SOP for operations on state land. The three agencies, the Department of Transportation & Public Facilities (DOT&PF), Department of Health and Social Services (DH&SS), and Department of Environmental Conservation (DEC) have committed to work with Representative Joule to formulate an agreed upon plan for the projects in Ambler by June 1. The departments have committed to work during the legislative interim to develop the standard operating procedure (SOP) for other sites. She restated that by June 1, 2010, the DOT&PF will develop a plan, in conjunction with DH&SS and DEC, to address the Ambler project sites and during the rest of the year plans to develop the SOP for other state-owned sites. She stated that the departments will also develop recommendations for third-party sites. In response to Chair P. Wilson, she restated the department's goals to address NOA.

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1:28:13 PM

REPRESENTATIVE P. WILSON asked for the DOT&PF to report to the committee next legislature.

MS. SIROKY agreed to do so.

1:28:34 PM

REPRESENTATIVE T. WILSON asked whether the departments' plans would also address the issue for private properties.

MS. SIROKY answered that she was unaware of any projects with delays due to NOA that are not state projects.

1:29:09 PM

REPRESENTATIVE JOHNSON asked for an indication of the past success rate for cooperation between the DOT&PF, DH&SS, and DEC.

MS. SIROKY related that most of the difficulties have surrounded procedures for third-party aspects of NOA. She related that the three departments have agreed that solutions can be found for state-owned properties.

1:30:07 PM

REPRESENTATIVE JOHNSON related he has not observed much inter-agency cooperation to give him optimism that June 1, 2010 is a realistic date. He said he is not certain that HB 333 is not needed.

MS. SIROKY, in response to Representative Johansen, stated that the Ambler issue has been "on the radar screen for about a year." She recalled the DOT&PF previously worked on NOA issues on the Dalton Highway in the 70s. This is the first issue in recent history that she could remember. In further response to Representative Johansen, she related that the interagency agreement between the three departments was reached yesterday.

1:31:21 PM

REPRESENTATIVE JOHANSEN asked to hear from the sponsor at some point.

MS. SIROKY, in response to Chair P. Wilson, with respect to NOA, offered her belief that the DEC has been involved for some time on the issues of NOA.

1:31:58 PM

REPRESENTATIVE T. WILSON asked whether the DOT&PF will be able to solve the issue without the \$355,000 shown in the fiscal note

MS. SIROKY answered that since the departments have agreed they can resolve the issues without the bill, that the DOT&PF will not need the funding. She explained that the fiscal note assumed that certain accounting and regulation's projects would be needed. Under the current plan, the DOT&PF will not develop databases and regulations for third-party ownership. In further response to Representative T. Wilson, she explained that the state does not need to develop regulations to address methods the state will follow. The process that will be used is the

three commissioners will set mandates for their respective departments to implement.

1:33:31 PM

REPRESENTATIVE T. WILSON asked whether the DOT&PF will develop regulations for private parties.

MS. SIROKY related that under the agreement the departments reached, the DOT&PF will address the state-owned sites in Ambler. Secondly, the DOT&PF will develop policies and procedures for other state-owned sites, and finally, the DOT&PF will develop recommendations for other parties to proceed. In further response to Representative T. Wilson, she gave an example of third parties, such as a tribal organization who may wish to use naturally occurring asbestos (NOA) to build a road on tribal property. Additionally, she anticipated some municipalities may encounter similar issues. She pointed out that her expertise is not in asbestos and the EPA does not currently regulate NOA. The current federal regulations for asbestos are limited to worker safety. Thus, NOA, which becomes a fiber in the natural environment and poses a serious health threat poses a different situation than the normal issues encountered, such as during removal of asbestos insulation. She explained some difficulties in Alaska that are not present in California. In California, their roads connect so paving may be a solution to eliminate NOA issues. The problem is more complex in Alaska, with its remote areas and gravel roads or runways in villages.

1:35:38 PM

REPRESENTATIVE PETERSEN referred to the fiscal note analysis which estimated it would take a year and a half to complete the SOP. He asked how the departments would be able to accomplish the work by June 1, 2010.

MS. SIROKY answered that the fiscal note anticipated the development of regulations to address third parties would take time, as well as time necessary to identify the scope of institutional controls. The issue is very complicated, but when the NOA oversight is limited to state sites, the state can better monitor and track the management of NOA. In further response to Representative Petersen, she agreed that the departments believe they can find solutions to the issues at the Ambler airport. In response to Chair P. Wilson, she affirmed

DOT&PF is not aware of any sites other than state-owned entities in which projects have been halted.

CHAIR P. WILSON restated that the DOT&PF will work with the other agencies to develop policies and will come back to the legislature with suggestions for procedures when the NOA involves third parties.

MS. SIROKY agreed.

1:37:51 PM

REPRESENTATIVE JOHNSON asked whether the fiscal note could be zeroed out if the public portion was removed from HB 333 and the bill only applied to the state.

MS. SIROKY stated that she did not know for certain. However, she offered her belief that is the argument she is currently making on this issue. In further response to Representative Johnson, she said she thought that the fiscal note could be a zero fiscal note, but would need to re-read the bill to see if any other implications were in the bill that would necessitate additional funding.

1:39:39 PM

REPRESENTATIVE JOHNSON asked for the reason that the DOT&PF has not already addressed this issue if it is so easy to fix.

MS. SIROKY related that the DOT&PF has held "pointed conversations" on this topic with the other agencies. The departments found that when third parties were removed that they could reach agreement. The departments experienced the most difficulty over determining the "final regulator" for third parties. The main stumbling block surrounded who would ultimately regulate the NOA. Since the NOA issues at Ambler are limited to the state, the departments felt they could reach an agreement for the standard and the SOP. She offered her belief that once the SOP is in place, the departments can work through the issues to regulate third parties. In further response to Representative Johnson, she clarified that the "pointed conversations" were held with the "sister agencies."

1:41:57 PM

MS. SIROKY, in response to Representative Johnson, reiterated that the DOT&PF believes it can develop the methodology for

addressing the issue at Ambler and can develop SOPs for other state-owned sites.

MARIT CARLSON-VAN DORT, Legislative Liaison, Office of the Commissioner, on behalf of the Department of Environmental Conservation (DEC), agreed the department has held conversations with the bill sponsor, the DOT&PF, and the DH&SS. The three departments agreed to find interim solutions for the issues at Ambler. She further agreed that "it did get a little bit stickier" when the agencies discussed regulating third parties and where the authority would ultimately lie. She explained that DEC does not have authority over asbestos, although it does have authority over ambient air quality. The EPA does not regulate ambient air asbestos, but regulates asbestos in Title V, which is the asbestos related to demolition and the related human health issues. Thus, the problem surrounded who would develop the standards, whether the standards should be in statute or in regulation, and the role of the DH&SS in developing health standards for NOA. The DOT&PF responsibility would determine the material specifications and usage. During the legislative interim, the DEC, in conjunction with the other departments will review asbestos product usage, whether it can be used as fill or if a cap of clean material would be required. She maintained her belief that a solution for Ambler can be found and solutions could be arrived at during the legislative interim, which may also result in suggestions for statute changes to present to the legislature.

1:45:12 PM

MS. CARLSON-VAN DORT, in response to Representative T. Wilson, answered that the DEC wants to ensure that Ambler can complete its current project. Any additional project not currently slated will become part of the discussion during the legislature interim with respect to use of NOA materials. In further response to Representative T. Wilson, she responded that removing third parties from HB 333 does not resolve other issues, such as determining and setting the standard in regulation. Additionally, the DEC will review the 0.25 threshold identified in the bill to determine whether it is the appropriate standard.

1:46:38 PM

REPRESENTATIVE PETERSEN asked whether the DEC believes the standard is too high or too low or if the DEC has had time to consider the standard.

MS. CARLSON-VAN DORT stated that she did do not know at this time. The standard in HB 333 was modeled after the California standard. California caps and paves most of their roads, which removes the ambient air and dust issue. While communities in rural Alaska also have ambient NOA air and dust issues, paving is very expensive so other solutions must be found.

1:47:30 PM

LORI VERBRUGGE, Toxicologist, Department of Health and Social Services, stated she has been involved in Ambler issue since 2004 or 2005. She offered that the DH&SS is enthusiastic to work on these issues with the other departments.

1:48:42 PM

WILDA LAUGHLIN, Special Assistant, Department of Health and Social Services (DH&SS), offered her belief that the three departments can work together as Ms. Siroky outlined. In response to Representative T. Wilson, she related her understanding that this has primarily been an issue between the DOT&PF and the DEC. She stated that the DH&SS may need to weigh in on the health aspects and is willing to do so. She offered that the Division of Public Health is working to define the DH&SS's role with respect to NOA.

1:50:34 PM

CHAIR P. WILSON recalled some testing has been conducted in Ambler to find out if residents are experiencing health issues, primarily associated with their lungs.

MS. LAUGHLIN stated that Ms. Verbrugge is better able to assess that question. In response to Representative Johnson, she related that the commissioners are discussing the NOA issues.

REPRESENTATIVE JOHNSON stated he wanted to hear that the commitment is coming from the top level.

MS. LAUGHLIN stated she has briefed Commissioner Hogan.

MS. SIROKY related that Deputy Commissioner Frank Richards is supportive of the plan, as is Roger Healy, the Director of Statewide Design & Engineering Standards. In further response to Representative Johnson, she indicated that the NOA issue

falls under the responsibility of Mr. Richards. She offered to call Commissioner von Scheben for his approval.

MS. CARLSON-VAN DORT related recent conversations she held with Deputy Commissioner Dan Easton and Acting Director of the Division of Air Quality Alice Edwards. She further reported she held discussions last week with Commissioner Hartig and all three are supportive of the NOA agreement.

1:53:40 PM

CHAIR P. WILSON asked Ms. Verbrugge to report on investigations and decisions made with respect to NOA in Ambler.

MS. VERBRUGGE explained during the 2004-2005 period, some reports were made to the community. A medical epidemiologist reviewed charts and X-Rays to determine the extent of asbestos diseases, but the outcome was inconclusive. The epidemiologist did not find direct cause and effect for Mesothelioma, which is a type of lung disease directly linked to asbestos. The epidemiologist found some evidence of lung diseases was consistent with asbestos lung disease, but the final results were not definitive. Thus, the question is still open as to whether health effects in Ambler were due to contact with NOA. In 2005, the federal Agency for Toxic Substances and Disease Registry (ATSDR) collected samples and determined that the exposure by simply walking across the side of the road or along the street would constitute a health hazard for residents of Ambler. The DH&SS has not eliminated the potential for concerns in Ambler, she stated.

CHAIR P. WILSON, after first determining no one else wished to testify, closed public testimony on HB 333.

1:57:15 PM

REPRESENTATIVE JOULE stated that the people in the community of Ambler have pushed for a change. Mayor Morgan Johnson of Ambler has observed the capital projects languish in the community and has worked hard to find solutions to the project delays. In addition to the efforts taken by the DOT&PF, and DEC, the tribal health personnel in NANA, Manilaq, and the Alaska Native Tribal Health Consortium (ANTHC) have all worked together to attempt to move this issue forward.

REPRESENTATIVE JOULE remarked the tendency to "shoot the messengers," but this issue predates today's testifiers. He

said he thought that "we can get there." The appropriate department commitments have been made on the record and to him personally. First and foremost, this issue is about the health and safety of the citizens of Ambler. Further, this issue is about economic development in an area that would benefit from it. In 2003, this issue was initiated, but if a road to Nome is ever undertaken NOA regulations will need to be adopted. He offered his belief the agencies understand and recognize the issue and if this can be accomplished it will happen. He stated he would also appreciate it if the committee could move the bill forward.

REPRESENTATIVE JOULE, in response to Representative Johnson, answered that any liability to the state would be considered as part of the bill and be addressed in the SOP.

2:02:19 PM

REPRESENTATIVE MUNOZ moved to report the proposed committee substitute (CS) for HB 333 labeled, 26-LS1248\S, Chenoweth, 3/16/10, out of committee with individual recommendations and the accompanying fiscal notes. There being no objection, CSHB 333(TRA) was reported from the House Transportation Standing Committee.

2:03:19 PM

ADJOURNMENT

There being no further business before the committee, the House Transportation Standing Committee meeting was adjourned at 2:03 p.m.

CHRIS KENNEDY , Assistant Attorney General, testified on Sections 1 and 14 of SB 39. Those sections are identical to an amendment offered to similar legislation last year and were proposed by the Department of Education as part of the Administration's response to problems discovered by the Toksook Bay law suit. The law suit was filed against the state by 500 plaintiffs after an oil spill occurred on a former BIA school site. A permanent fuel pipe, installed by the BIA, gave way shortly after the school was transferred from BIA to state ownership. Historically, the state and REAAs have strict and joint liability for 100 percent of any damages from a spill of this kind, regardless of fault. Section 1 eliminates strict and joint liability for damages; however, the state and REAAs would continue to be liable under common law for negligence. Section 1 is aimed at the unique circumstance when the state inherits schools with potential latent problems. Section 14 defines the applicability of Section 1, and establishes that it only applies to future claims.

CHAIRMAN TAYLOR asked Mr. Kennedy if he supported those two provisions. MR. KENNEDY replied that he did.

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SENATOR PARNELL asked representatives of the Department of Law to describe the scope of the state's liability under SB 39. MR. KENNEDY explained the state will remain liable for its own negligence under common law, but only for the percent of damage it is responsible for. MS. SANSONE agreed and noted AS 46.03.822 (page 1, line 10) is the strict liability statute. She added a negligence action is more difficult to prove because one must establish the state's responsibilities and it would be subject to state discretionary immunity.

SENATOR PARNELL asked if the sovereign immunity principles would still apply. MS. SANSONE replied affirmatively.

CHAIRMAN TAYLOR asked for details about the Toksook Bay oil spill. MR. KENNEDY replied the fuel line that broke was about 30 years old. The state took ownership of the property about one year before the fuel line corroded. CHAIRMAN TAYLOR commented under most proposals currently before the Legislature, the statute of limitations would run out in 15 years so no one could be sued anyway.

MR. KENNEDY explained the title transfer process also complicated the lawsuit. The state settled and received some financial concessions from the federal government.

Cindy Smith

From: Sen. Hollis French
Sent: Saturday, March 24, 2012 3:59 PM
To: Cindy Smith
Subject: Re: asbestos thoughts

Very good thinking. We can call E Hensley Monday.

Sent from my iPhone

On Mar 24, 2012, at 1:38 PM, "Cindy Smith" <Cindy_Smith@legis.state.ak.us> wrote:

What about this:

A bill that sets the statewide default as "you can't use it".

To that default we make an exception:

Local communities can apply for an exemption if

1. There is no non-NOA gravel available in the immediate area (say, w/in 50 miles or whatever..)
2. OR have no economically reasonable alternative

NOA in material cannot exceed some upper level amount (.50? 1.0?)

NOA in exposed materials cannot exceed .25

DOT must cap or seal any NOA over .25 and should cap or seal all NOA material when possible

DOT sets standards (all the stuff currently in the bill: site specific plans, mitigation, monitoring, and maintenance etc etc)

DHSS/Public Health Director has to sign off on plans

Contractors and suppliers who follow state guidelines get immunity

No immunity for the state since this is the state's policy call to allow it at all.

Note: the newer health report for Ambler is very depressing. The PLAY AREA for kids' soil was showing between .009 and .7 – and they had some trouble doing airborne tests because the dust was so bad that it constituted a major health problem. So, you know, if we made DOT go out and cover some of this stuff with .25 it'd represent a net gain for the community....

c.

Cindy Smith
Office of Senator Hollis French
(907) 465-3892
www.senate.org