

Appendix B

Copy of Asbestos Task Force

White Paper (May 15, 1998)

Findings and Recommendations (March 11, 1999)

Naturally-Occurring Asbestos in El Dorado County

What is naturally-occurring asbestos and where is it found?

Asbestos is a term used for several types of naturally occurring fibrous minerals. The most common and abundant type found in El Dorado County is chrysotile, but tremolite asbestos has also been found. Both types of asbestos occur naturally in serpentine rock, but tremolite may also occur in certain other common rocks, especially near faults. Asbestos is not found in all serpentine rock or fault zones. When it does occur, it is typically present in amounts ranging from less than 1% up to about 25% of the rock volume, and in rare instances, even greater amounts. This variability can occur within the same serpentine rock outcropping.

Serpentine rock is typically grayish-green to bluish-black in color, and may have a greasy or shiny appearance. Serpentine rock is abundant in the Sierra foothills, the Klamath Mountains, and the Coast Ranges, where it is commonly exposed near faults. Faults often appear as zones in which the rocks are fractured, distorted, and displaced and may range from a few feet to a mile or more in width. Knowledge of fault locations is important because asbestos occurs most commonly where serpentine and certain other common rocks are intersected by faults. However, not all fault zones contain asbestos. On regional geologic maps, serpentine rock is often grouped by geologists with other related rocks into areas called "ultramafic rocks." Tremolite asbestos occurs most often at the margins of areas of ultramafic rocks and where serpentine and other common rocks are intersected by faults.

The attached map of western El Dorado County, prepared by the Department of Conservation, Division of Mines and Geology, shows locations of ultramafic rock and fault zones. These are the areas where varying amounts of serpentine rock may occur. This map shows the general locations of the more significant ultramafic rock areas and faults where serpentine rock, chrysotile asbestos, and tremolite asbestos may occur, not the presence or absence of asbestos at specific sites.

How does asbestos from serpentine rocks become airborne?

One of the primary sources of airborne asbestos is from the dust generated from unpaved roads. Cars driving over unpaved roads or driveways made from crushed serpentine rock may further break up the rock and create dust that may contain asbestos fibers. Asbestos is also released when serpentine rock is broken or crushed during activities such as construction, grading, or quarrying operations. Natural weathering and erosion of serpentine rock releases asbestos fibers slowly. For example, rain may wash asbestos fibers from serpentine rock and the fibers may then be blown by the wind when the ground becomes dry. Once asbestos fibers become airborne they may stay in the air for long periods of time. Asbestos-containing dust can be blown into homes and businesses or be tracked indoors on shoes or clothes.

What are the levels of exposure to asbestos in El Dorado County?

Currently, there are only limited data on the levels of asbestos in the air that can be used to determine the exposures of people living and working in El Dorado County. Much of the County likely has little or no airborne asbestos; however, other areas near disturbed serpentine rock such as construction sites, quarry operations, or unpaved roads and driveways surfaced with asbestos-

containing serpentine rock could have elevated levels. As mentioned, activities which disturb or break serpentine rock, such as driving on unpaved roads surfaced with this rock, can cause asbestos to be released. The Air Resources Board (ARB), with the participation of the El Dorado County Air Pollution Control District, has initiated an air monitoring program to determine airborne asbestos levels in the County. During this monitoring program, asbestos levels will be measured at various locations throughout the County to better evaluate public exposures. The monitoring program will continue in the summer months to assure collection of measurements that are representative of a variety of conditions. In addition, others are independently conducting air monitoring for asbestos. All of this information will be gathered and reviewed to help us to better characterize public exposures and prioritize efforts to reduce significant exposures.

What are the health effects from exposure to asbestos?

The principal health effects that have been linked to asbestos exposure are lung cancer, asbestosis, and mesothelioma. Lung cancer is a relatively common form of cancer that has also been linked to smoking and a variety of occupational exposures. Asbestosis is a chronic, degenerative lung disease that has been primarily observed among workers in asbestos-related industries. Mesothelioma is a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity.

Some asbestos fibers can penetrate body tissues and remain in the lungs and the tissue lining the lungs and abdominal cavity. The fibers that remain in the body are thought to be responsible for asbestos-related diseases. These diseases may take decades to occur. There has been some scientific disagreement on whether certain types of asbestos are less hazardous than others. State and federal health professionals consider all types of asbestos to be hazardous.

Any exposure to asbestos involves some risk. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Since the risk is related to the total exposure, exposure to low levels of asbestos for short periods of time poses minimal risk. Most of the information on health effects comes from studies of people who were regularly exposed to high levels of asbestos in the workplace. Occupational exposures are higher and much more likely to cause disease than non-occupational exposures. However, recent information indicates that asbestos-related disease can be caused by non-occupational exposures such as those resulting from the disturbance and release of asbestos into the air. Thus, the most important way to reduce asbestos risk is to reduce exposure to airborne fibers.

What can be done to reduce asbestos from being released into the air?

Unpaved roads, construction projects, quarries, and unpaved driveways are the most likely sources of airborne asbestos in and near serpentine rock areas. There are some widely-accepted control actions that, when properly applied, will reduce the release of asbestos dust. These actions include:

- wetting of surfaces during excavation and building;
- paving or sealing roads and driveways;
- rinsing construction vehicles;
- covering loads of excavated materials;
- covering exposed crushed serpentine soils with clean soils; and
- planting vegetation to reclaim disturbed serpentine rock areas.

These measures will reduce asbestos from being released by keeping the dust bound to the soil with moisture or encased by either an artificial or natural covering.

What precautions can individuals take to reduce their potential asbestos exposures?

The first action that an individual can take is to identify the location of serpentine rock on or near the property. If you are unsure whether the rock on your property is serpentine, you may consider contacting a registered geologist. Once identified, you can generally reduce your exposure by minimizing dust generation in and around your home. Some actions you may want to consider include:

- pave over unpaved walkways or roadways which contain serpentine rock and cover all finely crushed serpentine rock within residential yards with clean soil;
- pre-wet serpentine rock garden areas prior to working the soil;
- use a damp rag when dusting (as opposed to a feather duster); and
- wash vehicles that have been in direct contact with dust from crushed serpentine rock.

What requirements are in place to reduce naturally-occurring asbestos emissions?

Historically, fugitive dust and nuisance regulations have been in place to control dust from construction and quarry activities. In April 1998, the El Dorado County Board of Supervisors adopted an interim ordinance to ensure that construction activities in the County are done in a manner which minimizes the release of asbestos fibers into the air. The ordinance requires builders in serpentine areas to:

- pre-wet work areas;
- limit vehicle access and speed;
- cover areas exposed to vehicle travel with non-asbestos material;
- maintain high moisture conditions or apply a “binder” to seal fibers of disturbed surfaces or stockpiles; and
- provide employee notification of potential exposures and risk.

The El Dorado County Board of Supervisors has directed the Director of Environmental Management to ensure compliance with this ordinance throughout the County.

In addition, if asbestos is suspected in a work area, the federal and California Occupational Safety and Health Administrations have regulations to protect workers. Basically, the regulations require air monitoring to determine if asbestos concentrations exceed certain levels. If the levels are exceeded, steps to eliminate or mitigate the asbestos hazards are required. These rules do not apply to workers in mines or mills, which are regulated under the federal Mine Safety and Health Administration.

Also, the El Dorado County Air Pollution Control District implemented an existing ARB control measure, which became effective in 1991, that prohibits the use of serpentine material for surfacing applications if it contains greater than 5% asbestos. This regulation also includes requirements that quarry operators test for the asbestos content of serpentine rock sold for surfacing purposes.

What other actions are being taken?

A Task Force of public officials and state and local agencies has been set up to address the issue of naturally-occurring asbestos in El Dorado County. This Task Force is currently identifying issues related to asbestos exposure, facilitating testing to determine airborne levels, and developing methods to assess overall potential risk to residents of the County. The information generated will better assist State and local agencies in taking appropriate steps to safeguard public health statewide. Further measures for reducing exposure to asbestos which can be taken by individuals and public agencies will also be examined.

Who can I call for further information?

This document is a brief summary based on generally available information and existing knowledge of the issues related to naturally-occurring asbestos in El Dorado County. As more information becomes available, additional releases may be prepared.

Senator Tim Leslie
District Office
(916) 969-8232

Assemblyman Rico Oller
District Office
(916) 774-4430

Ron Duncan
Director of Environmental Management
El Dorado County
(530) 621-5303

Where can I get more information?

This paper, as well as additional links to asbestos related sites, can be accessed electronically at:
www.arb.ca.gov/toxics/asbestos.htm

Additional information will soon be available on the California Environmental Protection Agency Hotline at: 1-800-CLEANUP (253-2687)

This information was developed with participation by:

*Senator Tim Leslie's Office
El Dorado County Board of Supervisors
El Dorado County Air Pollution Control District
California Department of Conservation
California Environmental Protection Agency
Air Resources Board
Office of Environmental Health Hazard Assessment
Department of Toxic Substances Control*

*Assemblyman Rico Oller's Office
United States Geological Survey
California Department of Health Services
University of California at Davis, Geology Dept.
Aeolus Environmental Services*

LOCATIONS OF ULTRAMAFIC ROCKS AND FAULTS IN EL DORADO COUNTY WHERE SERPENTINE ROCK AND ASBESTOS MAY OCCUR

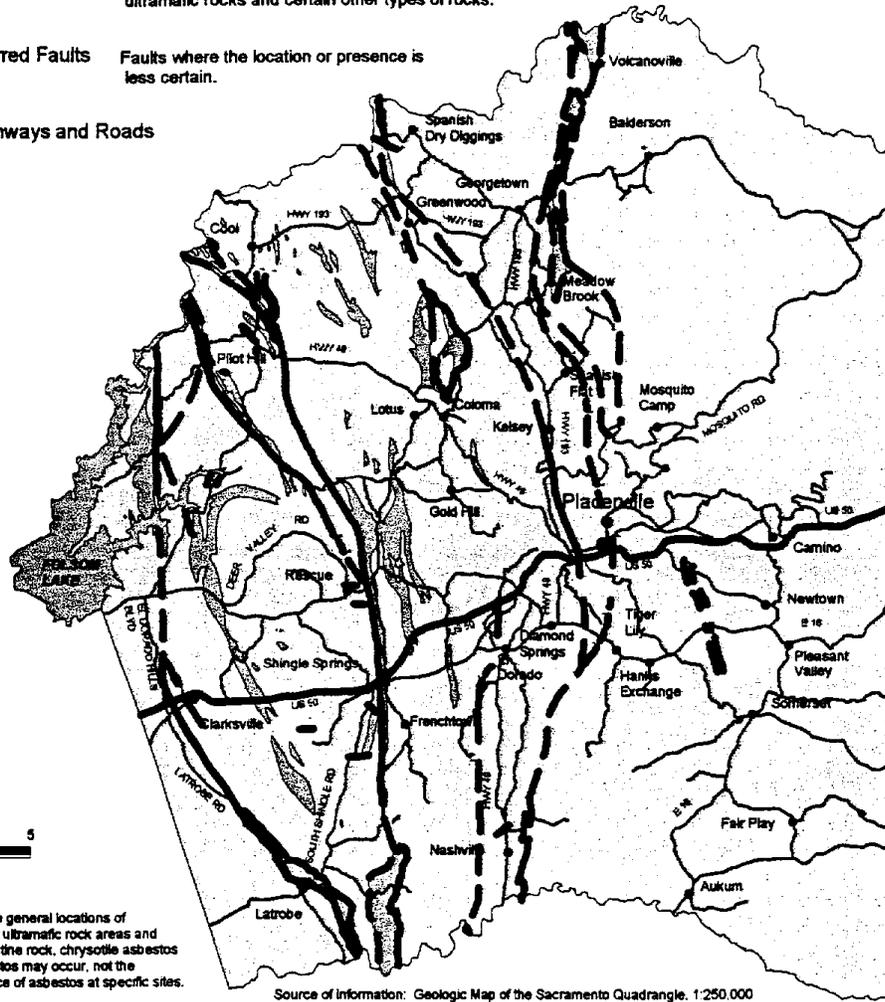
- Ultramafic Rocks** Areas containing serpentine rock and related rock types; chrysotile and tremolite asbestos may be present, particularly near faults.

- Non-Ultramafic Rocks** May contain areas of ultramafic rocks too small to show on this map or not included on the source map.

- Known Faults** Zones of rock fracturing and displacement, from a few feet to a mile or more wide in some locations. Tremolite asbestos is most likely to occur where faults intersect ultramafic rocks and certain other types of rocks.

- Inferred Faults** Faults where the location or presence is less certain.

- Highways and Roads**



This map shows the general locations of the more significant ultramafic rock areas and faults where serpentine rock, chrysotile asbestos and tremolite asbestos may occur, not the presence or absence of asbestos at specific sites.

Source of information: Geologic Map of the Sacramento Quadrangle, 1:250,000 scale, Department of Conservation, Division of Mines and Geology, 1981.

The Department of Conservation, Division of Mines and Geology, May 12, 1998.

Asbestos Task Force

**Findings and Recommendations on
Naturally-Occurring Asbestos
To
El Dorado County**

March 11, 1999

ASBESTOS TASK FORCE PARTICIPANTS

Senator Tim Leslie's Office

Robert Dugan
Michelle Rochon

Assemblyman Rico Oller's Office

Dana Jorgensen

El Dorado County Board of Supervisor

Supervisor Sam Bradley
Supervisor Penny Humphreys

United States Geological Survey

Roger Ashley
Victor Mossotti

El Dorado County Air Pollution Control District

Ron Duncan

California Department of Health Services

Rick Kreutzer, Ph.D.

California Department of Conservation

Ron Churchill

University of California at Davis Geology Department

Professor Howard Day

California Environmental Protection Agency

Ken Selover

Air Resources Board

Don Ames
Jerry Martin
George Lew
Todd Wong
Carolyn Suer
Victor Douglas

Office of Environmental Health Hazard Assessment

George Alexeeff, Ph.D.
Melanie Marty, Ph.D.
Michael Lipsett, Ph.D.

Department of Toxic Substances Control

Fran Anderson
Dan Ziarkowski

Findings and Recommendations of the Task Force on Naturally-Occurring Asbestos

Beginning in late March 1998, the Sacramento Bee ran a series of articles raising issues related to the risks from naturally-occurring asbestos in El Dorado County (the County). To address those issues, a Task Force (a list of participants is included at the end of this paper) was formed in response to a request from Senator Tim Leslie, Assemblyman Rico Oller, and El Dorado County officials to the California Environmental Protection Agency (Cal/EPA). Cal/EPA responded to this request by offering the technical assistance of its staff and enlisting the help of other State and federal agencies. The Task Force is a volunteer group consisting of public officials and representatives of federal, State, and local agencies formed to provide advice to local officials in El Dorado County regarding asbestos. The Task Force is not an official State-appointed entity that can make policy and enforce regulations.

The Task Force reviewed the issues raised, distributed a White Paper, which contained pertinent information for County residents, held a public forum to respond to the public's questions, and helped to facilitate testing to determine ambient airborne levels of asbestos and assess the potential risks associated with those levels. This document contains a chronology of the major actions taken by the Task Force, an overview of the air monitoring data gathered in El Dorado County, and the findings and recommendations of the Task Force with regard to the information gathered through this process for consideration by El Dorado County officials.

Chronology of Task Force Actions

A chronology of actions taken by the Task Force is shown below:

April 3, 1998	Cal/EPA offer of assistance to El Dorado County
April 14, 1998	Organizational meeting of the Task Force
April 21, 1998	Air Resources Board begins air monitoring
Ongoing since April 1998	Ambient monitoring in El Dorado County
April 24, 1998	Task Force meeting
May 8, 1998	Task Force meeting
May 15, 1998	Publication of the White Paper
May 22, 1998	Task Force meeting
June 1998	Publication of six Fact Sheets on asbestos
June 5, 1998	Task Force meeting
June 8, 1998	Public forum at Oak Ridge High School
June 10, 1998	Press and Task Force tour of monitoring sites
June 19, 1998	Task Force meeting
October 16, 1998	Task Force meeting
February 11, 1999	Task Force meeting
March 11, 1999	Release of final report on findings and recommendations

In addition to these actions, a technical subcommittee on monitoring held several meetings and Task Force members have met with individuals upon request.

Overview of Air Monitoring Efforts

The Air Resources Board (ARB) conducted ambient air monitoring at 30 different locations in the County. The locations were selected based, in part, on suggestions by the public. Most of the ARB monitoring was generally intended to provide information on the levels of asbestos that most residents of the County would be exposed to over an extended period of time. Other locations were chosen to provide data on the asbestos concentrations in the vicinity of a particular site of interest, such as a school or residential neighborhood. A listing of the locations is available from the ARB website (www.arb.ca.gov/toxics/asbestos.htm).

On November 3, 1998, the ARB staff released the results of 226 samples that had been collected and analyzed (Phase 1 Monitoring). The focus of this monitoring effort was to determine if there is a widespread and constant pattern of elevated asbestos exposures in the County. Of the 226 air samples analyzed, asbestos was detected in 40 samples. About half of these samples were at the minimum detection level, where only one asbestos fiber was detected. The presence of one asbestos fiber on a filter may be caused by contamination and may not represent a true positive result. Samples with only one fiber detected on the filters are not as strong of an indicator as samples with multiple fibers due to potential contamination during the handling and transportation of the filters. Further testing of those sites with the potential for elevated asbestos concentrations will be considered for future monitoring.

On January 15, 1999, the ARB staff released monitoring results of 139 samples collected at 8 monitoring locations near a serpentine quarry in El Dorado County (Phase 2 Monitoring). Asbestos was detected on 107 of these samples, with many having more than one asbestos fiber detected on the filter. The detailed results of the monitoring data for Phase 1 and Phase 2 monitoring are available on the ARB website address shown above. The estimated risks based on the results of the Phase I and 2 monitoring are discussed in the findings below.

Findings and Recommendations of the Task Force

- 1. The Task Force finds that the ARB monitoring data indicate: (1) there is not widespread exposure to elevated levels of asbestos in the ambient air of El Dorado County; (2) the general population does not appear to be exposed to significant risks from naturally-occurring asbestos; and (3) potential exposure to elevated asbestos concentrations and corresponding increased health risks may occur near certain sources such as unpaved roads and quarries.*

From the Phase 1 monitoring program, 40 of 226 samples had positive results. About half of the 40 positive results had an associated lung cancer or mesothelioma risk of between 10 to 50 chances per million assuming that a person would be continuously breathing those levels for 24 hours a day for 70 years. The other half of the positive results were at the minimum detection level of one asbestos fiber per sample. The potential risk for lung cancer or mesothelioma associated with a positive sampling result at the minimum detection level, is between 5 to 10 chances per million people exposed. Based on these monitoring results, it appears unlikely that the general population of

El Dorado County is exposed to widespread, elevated asbestos levels from undisturbed, naturally-occurring asbestos.

To put these risk numbers into perspective, in California approximately 200,000 cases of cancer are expected in a population of one million during a 70 year lifetime. In this report, a probability or risk estimate of one in one million means that, on average, one additional case of cancer due to exposure to asbestos might be expected in that population of one million. All risk estimates presented here are based on health-protective assumptions, including that a person is continuously exposed for 24 hours a day for 70 years. These risk estimates are considered to be upper limits and the number of cancer cases associated with specific levels would not be expected to be exceeded.

The Phase 2 monitoring program detected some higher asbestos concentrations near a serpentine quarry. From the sampling results, it was estimated that the potential risk, when averaged at each site, ranged from about 20 to 300 chances per million people exposed. These estimated risk numbers are based on very limited air monitoring data, and should not be used to characterize the potential risk near the quarry until additional information is gathered.

Recommendation: The Task Force recommends that focused sampling be conducted near potential sources such as quarries, construction sites, and unpaved roads to further define a likely range of public exposures and health risks. The Task Force further endorses the ARB effort to develop a risk management guidance document for use by local air districts to provide additional information on ways to control emissions for construction activities, quarry operations, and unpaved roads.

2. *The Task Force acknowledges that there is no agreed-upon "safe" level of asbestos exposures.*

Asbestos is a known human carcinogen and exposure to any cancer-causing agent involves some level of risk. There is not sufficient scientific information to support the identification of an exposure level at which there would be zero risk of cancer. Therefore, the Task Force cannot determine a "safe" level for asbestos exposure, but offers risk estimates as a tool to help guide risk management decisions which are protective of public health. The Task Force cautions the reader to use all the risk numbers presented in this document as estimates only and not as absolute values. Absolute risks from environmental exposures to asbestos are not firmly established; however, risk estimates are a useful tool when comparing one environmental risk with another.

The estimated risk numbers presented in this document are based on long term exposures to provide maximum health protection. The risk from short-term exposures to elevated concentrations of asbestos, such as those which may occur near excavation or construction activities, is difficult to accurately estimate due to the lack of basic scientific understanding. After years of scientific study, the risks of short-term exposures remain unclear. Consequently, State health officials take the most health-protective approach when estimating risk and assume a person would be exposed for 24 hours a day over a

period of 70 years. Calculations based on these assumptions overestimate the true risk of a short-term exposure that may last for only a few weeks or months.

Recommendation: The Task Force recommends that the health-protective approach recommended by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) continue to be used to calculate risk estimates from long term exposures in order to assure the protection of potentially sensitive groups, particularly children, living in El Dorado County.

3. *The Task Force finds that the risk assessment methods recommended by the OEHHA adequately account for the potentially higher potency of tremolite and other amphibole forms of asbestos.*

The Task Force acknowledges the concern of residents in El Dorado County about potential exposures to both chrysotile and tremolite asbestos. Tremolite is a member of the amphibole class of asbestos, which has a different crystalline structure and chemical composition than the more common chrysotile. For purposes of health risk assessment, the ARB, on the advice of its Scientific Review Panel, the Department of Health Services, and the OEHHA, has considered all forms of asbestos to be equally hazardous. In practice, this means taking a health-protective approach consistent with that adopted by federal regulatory agencies, in which exposure to chrysotile is considered to carry the same degree of risk as exposure to amphibole fibers, including tremolite. In fact, the unit risk value developed by OEHHA, which is used to estimate the risk from asbestos exposures, was based largely on epidemiological studies of workers exposed to amphibole fibers. Therefore, the risk estimates presented for exposures to asbestos in El Dorado County, which is typically chrysotile, are based on a unit risk value which treats the risk from chrysotile fibers the same as that of amphibole fibers (tremolite).

Recommendation: The Task Force recommends the continued use of the OEHHA's current health-protective unit risk value for all asbestos forms.

4. *The Task Force finds that improved modeling approaches would be useful to estimate exposures from various activities which may emit asbestos and that ambient monitoring offers the best information for estimating ranges of exposures at this time.*

Current modeling approaches to estimate asbestos emissions and exposures are based on models used to estimate dust (particulate matter) emissions. These models use the assumption that the asbestos content of the rock or aggregate mixture is in the same proportion as the asbestos content in the air sample. While these models are sometimes used, they have a high degree of uncertainty. The Task Force discussed the use of improved models to estimate the public's exposure to asbestos. The Task Force believes that such an effort may someday be useful for estimating asbestos concentrations from various exposure routes. However, long-term research into developing these types of exposure models was well beyond the scope of this volunteer Task Force.

Recommendation: The Task Force recommends that the appropriate State agencies and the United States Environmental Protection Agency (U.S. EPA) be encouraged to develop improved asbestos exposure models for all possible exposure routes through established

research programs. Until such validated models become available, the Task Force recommends that existing emissions estimation techniques and ambient monitoring results be used to estimate exposures.

5. *The Task Force finds that public education is very important to ensure that prudent health protective precautions can be taken by property owners.*

The Task Force commends the efforts of the California Resources Agency's Department of Conservation (DOC) to provide a map of the areas in El Dorado County where asbestos-containing rock and faults may be found. Combined with the information listed below, such data can help residents of the County evaluate actions to minimize the potential for asbestos exposure. There are also reference documents available at the public library on asbestos and many Internet sites with relevant information, including those maintained by the U. S. EPA.

The Task Force has made several informational items available to the public regarding asbestos. These items include:

- a White Paper entitled "Naturally-Occurring Asbestos in El Dorado County"
- a series of Fact Sheets
 - Naturally-Occurring Asbestos: General Information
 - Health Information on Asbestos
 - School Advisory for Naturally-Occurring Asbestos
 - Ways to Control Naturally-Occurring Asbestos Dust
 - Naturally-Occurring Asbestos Around Your Home
 - Monitoring for Asbestos
- a Health Provider Education Fact Sheet
- an Internet site: www.arb.ca.gov/toxics/asbestos.htm
- a Hot Line: 1-800-CLEANUP (253-2687).

In addition, several other informational documents are available from the ARB's Public Information Office to residents of El Dorado County to assist them in asbestos-related decisions regarding their homes, property, and jobs. These documents include:

- Disclosures in Real Property Transactions by the California Business, Transportation and Housing Agency, Department of Real Estate
- CAL-OSHA requirements, California Code of Regulations, Title 8, Subchapter 4, Article 4, Section 1529.

It is important for prospective home or property buyers to be aware of naturally-occurring asbestos. The Task Force encourages the real estate community to disseminate appropriate information.

Recommendation: The Task Force recommends that public education materials continue to be made available. A display of serpentine rock and various asbestos forms, specifically chrysotile and tremolite, is suggested for public buildings where residents of the County can view the material. The County may also consider a visual inspection

around all schools and public facilities to determine if possible sources of asbestos, such as serpentine-covered unpaved roads or parking lots, are present. The Task Force also supports the efforts of the DOC to provide maps of potential areas of naturally-occurring asbestos for other areas of the State, pending the identification of adequate funding resources for this effort.

6. *The Task Force finds that construction activities in areas of serpentine or ultramafic rocks are a potential source of short-term, elevated asbestos exposures.*

To address construction activities, the El Dorado County Board of Supervisors adopted a temporary construction ordinance on April 20, 1998, which requires specific actions prior to and during construction activities in specified serpentine rock soils. The ordinance was adopted as an emergency ordinance and has been extended until October 1999. Briefly, this ordinance may require a builder in serpentine areas to develop a dust mitigation plan and in all cases to:

- pre-wet work areas and follow with a fine spray to eliminate visible dust;
- limit vehicle access and speed;
- cover areas exposed to vehicle travel with non-asbestos materials;
- maintain a high moisture condition of disturbed surfaces or apply chemical binder;
- cover or wet material transfers or stockpiles;
- provide employee notification of potential risk; and
- consider worker safety precautions and exposure monitoring.

In addition, the ARB has formed a workgroup with representatives of the California Air Pollution Control Officers Association to develop a risk management document for use by local air districts which may have naturally-occurring asbestos in their jurisdictions. This risk management document will also address construction activities in asbestos outcroppings and is planned for release in 1999.

Recommendation: The Task Force recommends that the El Dorado County Board of Supervisors consider a permanent construction ordinance, including a dust mitigation plan in areas where there is a likelihood of naturally-occurring asbestos and the use of a registered geologist to visually determine if ultramafic rock and asbestos are present or absent. The current ordinance could remain in place until such time that the ARB provides a guidance document that addresses construction activities in areas of naturally-occurring asbestos.

7. *The Task Force finds that unpaved roads or driveways that contain serpentine rock may result in asbestos emissions in concentrations that present a significant potential risk to the public.*

In 1990, the ARB adopted an airborne toxic control measure (ATCM) to limit the asbestos content of serpentine rock to less than 5% when used for surfacing applications, including unpaved roads and driveways. At the time the ATCM was adopted, limited testing of the asbestos content of some unpaved roads and air monitoring near these roads was conducted. The results of those tests showed the content of some serpentine rock to be up to 20% asbestos, with substantial short-term exposures and estimated lifetime risks

of potential cancer cases near unpaved roads ranging from about 1,000 to 65,000 per million people exposed. (This range assumes that a person would be continuously breathing those levels for 24 hours a day for 70 years.) Some unpaved roads are in remote locations and do not present a health risk because there are no people regularly exposed. However, if unpaved roads with serpentine rock have people residing near by, the resulting risk from possible asbestos emissions may be significant.

Homeowners also want to know the exposures and risk from unpaved driveways. Due to insufficient information, the Task Force did not estimate the potential risk from unpaved driveways; however, health officials indicate that any exposure to asbestos involves some risk. Asbestos in driveway materials can become airborne when disturbed and remain in the air for long periods of time, contributing to higher exposures. Other situations like playing on the unpaved driveways or being downwind of a heavily traveled unpaved road, may also result in higher exposures. Public education materials discussed previously can help homeowners determine if they have a potential problem and make decisions regarding the need to resurface with non-asbestos materials or pave their driveways.

Recommendation: To minimize future exposures to asbestos from unpaved roads, driveways, and other surfaces the El Dorado County Air Pollution Control District may wish to consider lowering the limit on the asbestos content of serpentine rock for use in surfacing applications from 5% to minimize future exposures to asbestos from unpaved roads, quarries, and other surfaces. There are currently two local air districts in the State, covering four counties, that have adopted lower limits of 1%. Any reduction in asbestos emissions will likewise result in a reduction of risk. The County is also encouraged to give priority to the identification and testing of heavily-traveled unpaved County and private roads that contain serpentine rock.

8. *The Task Force recognizes that quarries are a potential source of airborne asbestos emissions due to the nature of their operations. Quarries should be carefully inspected to ensure that they are in full compliance with all fugitive dust control regulations and any additional regulatory requirements.*

Accounts from several County residents allude to large dust clouds near some operating quarries and questions have been raised whether the fugitive dust regulations are being strictly enforced by the County. Frequent, unannounced inspections by the El Dorado County Air Pollution Control District are encouraged until there is high public confidence of ongoing compliance with dust regulations.

Additional regulatory requirements apply to quarries in California that emit asbestos when serpentine rock is excavated. State law (Health and Safety Code (H&S) sections 44340 et. seq) requires facilities to prepare and submit an inventory plan for specified toxic substances, including asbestos, under the Air Toxics "Hot Spots" Program. This law further directs the local air district to determine if a health risk assessment is required of the facility based on the inventory. If the results of the risk assessment show the potential for significant risk, the local air district must require the facility to notify the public of the potential risks and, in some cases, to prepare an audit and plan to reduce exposures and risks.

The public has also raised concerns about inactive and abandoned mines and quarries. As development encroaches on previously undeveloped areas near potential sources of asbestos, it becomes critical to consider the public health impacts. Proper land use planning decisions are necessary to ensure that inactive or abandoned quarries do not become a public health risk if operations should be reactivated or if abandoned serpentine material is disturbed. Concerns from these sites include storm water run-off, as well, as the potential for air emissions.

Recommendation: If applicable, the El Dorado County Air Pollution Control District should require quarries to report their asbestos emissions under the inventory requirements of the Air Toxics "Hot Spots" Program. These quarries should then be held to any further requirements of the law if the inventory indicates additional actions are needed. In addition, the District may wish to further evaluate the potential for asbestos emissions from quarries to determine if additional actions may be necessary. Some suggested requirements include:

- the evaluation of additional applied dust suppression techniques;
- rinsing of vehicles as they leave the property;
- covering and/or wetting load; and
- routine fence line or downwind residential monitoring for asbestos exposures.

What are the future plans of the Task Force?

The Task Force was formed to respond to the immediate issues and questions raised concerning naturally-occurring asbestos. The Task Force is not a policy making body, but served exclusively to gather information to assist El Dorado County in responding to the issues raised. As those immediate issues and concerns have been addressed, there is no longer a need for the Task Force to continue. However, members of the Task Force, such as the State's ARB, Office of Environmental Health Hazard Assessment, Department of Health Services, Department of Toxic Substances Control, and Department of Conservation will continue to address any asbestos-related questions that may arise. The ARB, in conjunction with California Air Pollution Control Officers Association, is in the process of developing risk management guidance for use by local air districts in addressing the risks from naturally-occurring asbestos. The ARB also plans to continue monitoring next summer in El Dorado County and in other locations in the State. The Task Force supports the ARB in its continuing efforts to better characterize public exposures and risks from asbestos and to provide guidance to local authorities on the various ways available to minimize public exposures.

Where do I get more information?

Ron Duncan
Director of Environmental Management
El Dorado County
(530) 621-5303

Jerry Martin
Public Information Officer
Air Resources Board
(916) 322-2990

This paper, as well as additional links to asbestos related sites, can be accessed electronically at:
www.arb.ca.gov/toxics/asbestos.htm

This information was developed with participation by:

*Senator Tim Leslie's Office
El Dorado County Board of Supervisors
El Dorado County Air Pollution Control District
California Department of Conservation
California Environmental Protection Agency
Air Resources Board
Office of Environmental Health Hazard Assessment
Department of Toxic Substances Control*

*Assemblyman Rico Oller's Office
United States Geological Survey
California Department of Health Services
University of California at Davis, Geology Dept.*

