U.S. Department of the Interior
Bureau of Land Management

# News Release

For Immediate Release: January 13, 2006 CA – Central – 05 - XX
Contact: George Hill, 831-630-5000

**BLM Releases Clear Creek Management Area Record of Decision**

The Bureau of Land Management is pleased to announce the release of the Record of Decision (ROD) for the Clear Creek Management Area (CCMA) Resource Management Plan Amendment (RMPA). The CCMA RMPA will affect approximately 63,000 acres of public lands in San Benito and Fresno counties.

"This document is the result of over ten years of public input and participation" says Hollister Field Office Manager George Hill. "We greatly appreciate the time people have taken to help us identify management issues and concerns, and to review and comment on the Draft RMPA and Proposed RMPA released last year."

The ROD designates routes and areas for motorized vehicle access in Clear Creek Management Area and identifies boundaries of the expanded San Benito Mountain Research Natural Area (RNA). The document also incorporates acquired lands made through previous land tenure adjustments into the Clear Creek Management Area specifically for route and area designation.

Within the CCMA Limited Use Area, all casual off-highway vehicle (OHV) use will be restricted to designated open or limited routes. Casual OHV travel will only be allowed on designated "Open" and "Limited" routes which are signed for use.

As impacts to human health are not necessarily related to the selection of a specific route network, issues related to human health risks from naturally occurring asbestos are not addressed in the CCMA ROD. Instead, the risk of exposure to naturally occurring asbestos in CCMA will be analyzed in a subsequent planning process that will incorporate the results of a human health risk study that is being conducted by the Environmental Protections Agency and is expected to be released in 2006.

The decision of the Director is the final decision of the Department of the Interior. The BLM California State Director will sign the ROD and RMPA, which becomes effective immediately

The CCMA ROD is available for public review on-line at www.ca.blm.gov/hollister. For additional information contact the Hollister Field Office at 831-630-5000.

-BLM-

**Timothy Moore/CASO/CA/BLM/DOI**
04/03/2006 04:36 PM

To Thomas Meagher/CASO/CA/BLM/DOI@BLM
cc "Parker, Darius D." <Darius.Parker@c-b.com>, David Slibsager/CASO/CA/BLM/DOI@BLM, James Anger/CASO/CA/BLM/DOI@BLM, Paul
bcc Rick Cooper/CASO/CA/BLM/DOI
Subject Re: clear creek

Are you sure you know what you are doing?
Thomas Meagher/CASO/CA/BLM/DOI

**Thomas Meagher/CASO/CA/BLM/DOI**
04/03/2006 04:29 PM

To "Romzick, William M." <William.Romzick@c-b.com>, David Slibsager/CASO/CA/BLM/DOI@BLM
cc "Parker, Darius D." <Darius.Parker@c-b.com>, Paul Fulkerson/CASO/CA/BLM/DOI@BLM, James Anger/CASO/CA/BLM/DOI@BLM, Timothy Moore/CASO/CA/BLM/DOI@BLM
Subject clear creek

**Hi Dave - We are making progress and finally getting a scope together for the next phase of work - we'll set up a conf call for a discussion / review soon. As health, liabilities, regulatory issues are involved , we are planning on having RJLee comment on our decon approach. They seem to be able to review and comment on asbestos related issues with some degree of California experience - see below.**
**Tom Meagher, BLM, Sacramento**

**Foothills asbestos risk doubted**
**But experts scoff at study dismissing danger in El Dorado Hills**
**By Chris Bowman -- Bee Staff Writer**
***Published 3:15 am PDT Sunday, April 2, 2006***

For the past few months, the El Dorado County superintendent of schools has been circulating a mining industry study that contradicts government findings of asbestos on school yards and playgrounds in El Dorado Hills.

From Capitol Hill to the state Legislature to town halls, Vicki Barber has personally delivered the report to dozens of officials with potential influence over the U.S. Environmental Protection Agency and its approach to the region's naturally occurring asbestos.

Barber stops short of endorsing the National Stone, Sand & Gravel Association's critique. But the mining report fuels doubts she and many other local officials harbor over the reliability of EPA air and soil tests that have caused local school districts to spend millions of dollars on dust and erosion controls.

"Doesn't it make sense that someone should be continuing to ask questions?" asked Barber, an El Dorado County Chamber of Commerce board member.

"Has adequate research been done? Is that science reliable? Has it met the test of generally accepted scientific standards?"

The very report Barber showcases, however, runs afoul of generally accepted scientific and regulatory standards for measuring asbestos concentrations in the environment.

Though endorsed by some prominent mineralogists, the industry analysis by **R.J. Lee Group Inc. of Pittsburgh** does not recognize the full range of particle types and sizes that public health agencies deem potentially cancer-causing and count as "asbestos."

"I would certainly stick with the EPA (tests) as being the appropriate analysis," said Richard Lemen, an expert on asbestos-related diseases who served as assistant surgeon general of the United States and deputy director of the National Institute for Occupational Safety and Health.

"R.J. Lee really has no right to take out the fibers they think are not regulated," Lemen said.

Omitting such particles from asbestos measurements would underestimate the breathing hazard, said Jill Dyken, environmental health scientist with the federal Agency for Toxic Substances and Disease Registry in Atlanta, which plans to translate the playground test results into cancer risks.

"They are setting their own criteria. They are excluding whole ranges of fibers that the risk models were based on. I don't think that's appropriate," Dyken said.

R.J. Lee officials acknowledged in an interview that they evaluated the EPA test data using the company's own, unpublished criteria for identifying and counting asbestos fibers in air and soil samples.

"We have an internal document that lays out for the analysts what they should look at," said Richard Lee, company president, who provided a copy to The Bee.

The company's protocols detour from the national and international laboratory standards the EPA contract labs used to analyze the playground samples under the microscope.

That is not to say the R.J. Lee method is scientifically unsound, stressed Drew R. Van Orden, a senior scientist with the firm.

"All of our methods are based on scientifically accepted principles," Van Orden said.

Dan Meer, the EPA official who supervised the El Dorado Hills testing, called the R.J. Lee evaluation "a ruse."

"It's akin to tobacco industry scientists who will look at you straight in the face and say smoking doesn't cause cancer. They can cite several papers, and they get paid a lot of money to do this," Meer said.

Mining industry experts and many mineralogists long have argued that federal health agencies inflate asbestos concentrations with seemingly identical "fragments" - bits of fibrous minerals that broke off, say, in mining or construction, as opposed to naturally formed, needlelike "fibers."

The gravel association, the world's largest mining organization, maintains such fragments are neither asbestos nor toxic.

Barber, a specialist in school finance and student psychological services, makes no pretense of expertise in the arcane world of asbestos - fibrous minerals that have been used for insulation in thousands of products, from brake pads to ceiling tiles.

But she wants the EPA to fully address the industry criticisms before health officials embark on the cancer-risk study of the playgrounds, an assessment that could drive local school and park districts to spend more on asbestos controls.

"Data that has been seriously questioned by top experts in the field will have far reaching adverse economic consequences," Barber said in a recent letter to the EPA chief, Stephen L. Johnson.

Officials at the EPA and other federal health agencies, however, said they ruled on those industry concerns at least 15 years ago and see no reason to change the position.

The agencies concluded that fragments of similar size to asbestos fibers should be considered no less hazardous, in part because it's practically impossible to distinguish the two forms.

The mining industry nonethless continues to raise the objections, often relying on R.J. Lee, a materials testing firm with 250 employees at five labs nationwide.

In the past 25 years, the company has weighed in on asbestos conflicts on several fronts, from play sand to crayons to talc mines.

Its critique of the EPA's work in El Dorado Hills reframes the debate over asbestos dust from foothills development.

For years, the questions have centered on the level of protection: To what extent must schools, builders and homeowners pave, water and vegetate to keep the breathable fibers grounded? How much asbestos exposure is too much?

The R.J. Lee report, released in January, has Barber and other skeptics asking a more fundamental question: Are the airborne particles that regulators have been calling "asbestos" truly asbestos?

All sides agree that asbestos-bearing rocks and soil occur in portions of the lower foothills, including the campus of El Dorado Hills' Oak Ridge High School.

The dispute centers on the identity of particles the EPA collected October 2004 in air and soil sampling at Community Park - across the street from the high school - and on playgrounds at Silva Valley Elementary, Jackson Elementary and Rolling Hills Middle School.

Technicians wearing air monitors simulated dust-raising games: baseball, soccer, hopscotch and the like. The findings, released last May, were striking: Every activity "significantly elevated" individual exposure to particularly toxic kinds of asbestos called actinolite and tremolite, the EPA reported.

The test results spurred school and park managers to instigate or add dust controls, such as extended irrigation. But Barber wanted a second opinion.

A geologist with Granite Construction Inc. in Sacramento, whose children play on the tested school yards, suggested the mining association, based just outside Washington, D.C. The lobby paid $81,000 for the study.

The report concluded that the "EPA methodically inflated the reported asbestos concentrations" and said the air tests "showed no significant exposure" to particles of health concern. Virtually all the particles the EPA's contract labs recorded as asbestos are fragments from the fibrous rocks or from minerals that do not bear fibers, the report said.

"You ... have an absolute obligation and duty to separate out those things that aren't absolutely (asbestos)," Lee said.

Asked whether any other testing laboratories in the country applied the same criteria, Lee said he knew only of one: the federal Occupational Safety & Health Administration's Technical Center in Salt Lake City.

But Dan Crane, a senior scientist with the OSHA lab, said his agency's asbestos measuring methods were developed strictly for occupational settings, where the presence of the fibrous minerals is not in question - as, for example, in the demolition of old buildings with asbestos insulation and fireproofing.

In the general environment, asbestos is found in a wider range of sizes, shapes and chemical compositions than the commercially prized fibers regulated by OSHA.

"That doesn't mean these other particles are safe," Crane said.

The R.J. Lee report on El Dorado Hills is much the same as its testimony on behalf of the chemical and manufacturing company W.R. Grace & Co., a defendant in litigation surrounding asbestos contamination in Libby, Mont.

A U.S. District Court judge in Missoula rejected the company's argument that EPA largely misidentified mineral particles as asbestos. The 9th U.S. Circuit Court of Appeals affirmed the decision last December.

**U.S. Department of Interior**

# Bureau of Land Management

## CLOSURE ORDER

Pursuant to 43 CFR 8364.1, notice is hereby given that the BLM is seasonally restricting access to portions of public lands within the Clear Creek Management Area (CCMA) located in the southern portion of San Benito County and western Fresno County, California. Public motorized use is restricted on public lands within the Serpentine ACEC from June 1, 2006 through October 15, 2006. These lands are located in portions of T.17 S., R. 11 E.; T. 17 S., R. 12 E.; T. 18 S., R 11 E.; T. 18 S., R. 12 E.; T. 18 S., R. 13 E.; T. 19 S., R. 13 E.

The seasonal restrictions are necessary to ensure visitor safety and protect public land users from potential health risks associated with naturally occurring asbestos found within the restricted area. Dry soil conditions and high dust-generating potential from public use activities during this time period create the greatest hazard and risk associated with exposure to asbestos.

Motorized travel is only allowed only on the following roads: San Benito County roads, R2 from its west terminus to the T 107 junction, T153 from its west terminus to San Carlos Peak, R16, and R11 from the Fresno county line to the Wright Mountain gate. Limited non-motorized use is allowed adjacent to the routes identified above, or by written authorization from the Hollister Field Manager. Maps of these routes are available at the Hollister Field Office and posted on-site. All other motorized vehicle travel will only be allowed with written authorization from the Hollister Field Manager.

**Except for that described above, all public access and motorized vehicle travel will be allowed only by written authorization of the Hollister Field Manager.** The following persons are exempt from the identified restrictions:

1) Federal, State, or local law enforcement officers, while engaged in the execution of their official duties.
2) BLM personnel or their representatives while engaged in the execution of their official duties.
3) Any member of an organized rescue, fire-fighting force, or emergency medical services organization while in the performance of their official duties.
4) Any member of a federal, state, or local public works department while in the performance of an official duty.
5) Any person in receipt of a written authorization of exemption obtained from the authorized officer from the Hollister Field Office.
6) Private landowners with in-holdings within the restricted area who have a responsibility or need to access their property, and persons with valid existing rights-of-way or lease operations, or representatives thereof.

During the restriction period, the area will be clearly posted. Informational signs will be posted at main entry points to all locations affected by this Notice. Maps of the area will be posted with this notice at key locations that provide access into the closure areas, and may also be obtained with further information at the Hollister Field Office, 20 Hamilton Court, Hollister, California 95023.

Seasonal closure orders may be implemented as provided in 43 CFR, subpart 8364.1. Violations of this closure are punishable by a fine not to exceed $1,000 and/or imprisonment not to exceed 12 months.

**BLM**
**Hollister Field Office, 20 Hamilton Court, Hollister CA. 95023, 831 630-5000**

**Approved By:** _____ **Date:** _____

Rick Cooper
Field Manager, Hollister Field Office, BLM

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CA-190-06-1220-PN]

Notice of Seasonal Closure of Public Lands

AGENCY: Bureau of Land Management, Department of the Interior.

ACTION: Notice of seasonal closure of certain public lands referred to as the Serpentine Area of Critical Environmental Concern (ACEC), located in the southern portion of San Benito County and western Fresno County, Central Coast region of California, to motorized and non-motorized recreation use.

SUMMARY: Pursuant to 43 Code of Federal Regulations (CFR) subpart 8364, notice is hereby given that the Bureau of Land Management (BLM), Hollister Field Office will seasonally restrict public access to certain BLM-administered public lands during the period of June 1, 2006 through October 15, 2006. This seasonal closure is needed to ensure visitor safety and protect public land users from potential health risks associated with naturally occurring asbestos found within the closure area.

This seasonal closure affects public lands located within the 30,000-acre Serpentine Area of Critical Environmental Concern (ACEC) situated within the Clear Creek Management Area (CCMA). Public access within this area will only be allowed on county roads and the following route segments: R011 to Wright Mountain Gate, R016, T153 from the junction of R011 to San Carlos peak, and R02 to the junction of T107. Limited non-motorized use will be allowed adjacent to the routes identified above, or by written authorization from the Hollister Field Manager. Personnel of the BLM, California Department of Fish and Game, U.S. Fish & Wildlife Service, and law

enforcement, fire, and emergency personnel are exempt from this closure only when performing official duties. Operators of communication facilities may perform maintenance activities; livestock operators may perform permitted activities, and private in-holders may access their private property, as approved.

DATES: This seasonal closure will be effective from June 1, 2006 through October 15, 2006.

FOR FURTHER INFORMATION CONTACT: Rick Cooper, Field Office Manager, BLM, Hollister Field Office, 20 Hamilton Court, Hollister, California, 95023. Telephone: 831-630-5010 Fax: 831-630-5055, during regular business hours, 7:30 a.m. to 4:00 p.m., Monday through Friday, except holidays.

SUPPLEMENTARY INFORMATION: The CCMA is a popular location for off-highway vehicle (OHV) recreation. A variety of other recreation activities also occur within the CCMA, including hunting, rock-hounding, wildlife watching, and hiking. This is a unique geological area with serpentine soils and a suite of rare plants and animals. The type and level of OHV use also must be carefully managed to create an environment that promotes the health and safety of visitors.

BLM will be restricting public access during the dry season within the CCMA, in response to studies being conducted by the U.S. Environmental Protection Agency (EPA), which are analyzing the levels of exposure to naturally occurring asbestos for various recreation activities at the CCMA. Studies conducted by EPA in September and November of 2004 found elevated levels of airborne asbestos fibers present during various recreation activities. This action is also in accordance with the 1995 Final

Environmental Impact Statement (FEIS) and Resource Management Plan Amendment for the CCMA.

The soil moisture during the time period of June through October is at the lowest point and therefore the dust generating potential and release of naturally occurring airborne asbestos is greatest. Analysis of airborne asbestos exposure reflected in EPA's Technical Memorandum issued February 5, 2005, titled "Human Health Risk Assessment – Asbestos Air Sampling Clear Creek Management Area, California," based on samples collected September 15, 2004, indicate a higher risk from airborne asbestos exposure in CCMA than EPA and BLM previously thought. Based on preliminary EPA results, use restrictions in CCMA may be needed to reduce risk to the public from asbestos exposure, particularly during the dry season.

CLOSURE ORDER:

Pursuant to 43 CFR 8364.1, notice is hereby given that the BLM is seasonally restricting access to portions of public lands within the Clear Creek Management Area (CCMA) located in the southern portion of San Benito County and western Fresno County, California. Public access, including motorized and non-motorized recreation use is restricted on public lands within the Serpentine ACEC from June 1, 2006 through October 15, 2006. Limited non-motorized use will be allowed adjacent to the routes identified in this Closure Order. These lands are located in the Mount Diablo Meridian in portions of T.17 S., R. 11 E.; T. 17 S., R. 12 E.; T. 18 S., R 11 E.; T. 18 S., R. 12 E.; T. 18 S., R. 13 E.; T. 19 S., R. 13 E.

This seasonal closure is necessary to ensure visitor safety and protect public land users from potential health risks associated with naturally occurring asbestos found

within the restricted area. Dry soil conditions and high dust generating potential from public use activities during this time period create the greatest hazard and risk associated with exposure to asbestos.

Except for travel on San Benito County roads and the following route segments: R011 to Wright Mountain Gate, R016, T153 from the junction of R011 to San Carlos Peak, and R02 to the junction of T107, all public access and motorized vehicle travel within the Serpentine ACEC will be allowed only by written authorization of the Hollister Field Manager. The following persons are exempt from the identified restrictions:

1) Federal, State, or local law enforcement officers, while engaged in the execution of their official duties.
2) BLM personnel or their representatives while engaged in the execution of their official duties.
3) Any member of an organized rescue, fire-fighting force, or emergency medical services organization while in the performance of their official duties.
4) Any member of a federal, state, or local public works department while in the performance of an official duty.
5) Any person in receipt of a written authorization of exemption obtained from the authorized officer from the Hollister Field Office.
6) Private landowners with in-holdings within the restricted area who have a responsibility or need to access their property, and persons with valid

existing rights-of-way, mining claims, or lease operations, or representatives thereof.

During the closure period, the area will be clearly posted. Closure signs will be posted at main entry points to all locations affected by this Notice. Maps of the area will be posted with this notice at key locations that provide access into the closure areas, and may be obtained with further information at the Hollister Field Office, 20 Hamilton Court, Hollister, California 95023.

Seasonal closure orders may be implemented as provided in 43 CFR, subpart 8364.1. Violations of this closure are punishable by a fine not to exceed $1,000 and/or imprisonment not to exceed 12 months.

Dated: April 21, 2006

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Rick Cooper, Hollister Field Office Manager

Billing Code 4310-40-P

RJ Lee*Group*, Inc.
350 Hochberg Road, Monroeville, PA 15146
Tel: (724) 325-1776 | Fax: (724) 733-1799

Asbestos health hazards are related to inhalation of the asbestos fibers, not to ingestion or dermal contact. As such, the mere presence of asbestos in soils, rocks or other surface materials does not constitute a hazard, but represents a potential hazard if the asbestos in these materials becomes airborne and is inhaled.

**Documentation of Airborne Asbestos Exposures**

A number of studies have shown that various activities can generate airborne asbestos concentrations. Summarized below, these studies represent those conducted in a variety of geological settings ranging from serpentine rock (such as at Clear Creek) to amphibole-rich soil and rock (such as in Libby, MT), including a wide-range of human activities. While there has been criticism of these studies (related to sample analyses), the data implies that particulate becomes airborne. The interpretation of that data is still at issue. The studies, discussed in chronological order, do not represent an all-encompassing list. They are, however, indicative of the range of studies that have been conducted.

As early as 1977, studies have shown that using serpentine aggregate as a road paving material results in elevated airborne asbestos concentrations. The EPA[1] summarized a series of studies that showed when serpentine aggregate was used as road material vehicular traffic caused an increase in airborne chrysotile asbestos concentrations. Included in this study were reports of air sampling at the Clear Creek Recreation Area. These samples (from 1979) showed asbestos concentrations in a campground ranging from 1.3 to 6.4 f/ml. Roadside samples ranged from 0.95 to over 200 f/ml, depending on vehicular traffic. Though the samples were analyzed using an inappropriate preparation procedure and transmission electron microscopy (TEM), the data indicates vehicular traffic increases airborne concentrations above ambient levels.

Lim et al reported on particulate sampling along a road near a crushed stone quarry in Rockville, MD.[2] The quarry produced a crushed serpentine stone and had been the site for several other studies. The reported ambient asbestos concentrations, measured using TEM, were <0.001 f/cc. Mendelsohn[3] detailed the effectiveness of truck cleaning and road wetting on overall airborne suspended particulate, indicating that though the suspended particulate levels

[1] R. K .Serra and M. A. Connor, Jr. (1981). "Assessment and Control of Chrysotile Asbestos Emissions from Unpaved Roads", US Environmental Protection Agency, EPA-450/3-81-006.
[2] B. Lim, R. Spando, and P. Ashley (1991). "Cancer Risk Assessment of Ambient Airborne Asbestos Levels Measured in the Vicinity of the Rockville Crushed Stone Quarry", Maryland Department of the Environment, February 1991.
[3] E. S. Mendelsohn (1991). "A Report on Travilah Road Particulate Sampling: July – September 1989", Montgomery County Department of Environmental Protection.

were below regulatory levels, the traffic along the road elevated the general particulate levels. The trucks washing operations was only "partially effective in removing all the rock mud from the vehicles exiting the quarry".

California Air Resources Board (CARB)[4] discussed the issues related to airborne asbestos derived from serpentine road materials that contained 3 – 5 percent chrysotile. They reported that airborne asbestos downwind of the road was 10 to 20 times higher than concentrations upwind of the road, as a result of simulated vehicular traffic.

A study[5] conducted in Fairfax County, MD showed that common construction activities (drilling, bulldozing, trench digging, etc) increased airborne fiber levels. Fairfax County, located near Washington, DC, is an area underlain by depositions of amphibole asbestos and is an area where significant growth and construction has taken place. The study showed that airborne fibers levels exceeded OSHA regulatory levels of 0.1 f/cc (for and 8-hour exposure), despite attempts to control dust. The airborne asbestos levels occurred even when the construction vehicles were "successfully decontaminated using fire hoses" prior to driving off the construction sites.

El Dorado County, CA, has been the site of numerous studies of airborne asbestos concentrations due to veins of asbestos-bearing rock throughout the county and also to the large population growth of the county over the last several decades. A study conducted by the Volpe Center[6] showed that driving on a road covered with serpentine gravel had elevated asbestos levels above ambient background concentrations. After the road was repaved using gravel that did not contain asbestos, the airborne asbestos levels were reduced at 94%. The data did indicate that most of the reported asbestos particles were shorter than 5 μm (the lower limit of fiber lengths associated with asbestos epidemiology studies). The data also showed airborne asbestos concentrations were reduced by up to 70% about 10 feet from the road and then another 40% for every additional 20 feet from the road.

Various sites have been used as locations for activity based sampling. The EPA[7] conducted various simulations in Libby, MT, the site of a former vermiculite mine. The vermiculite has

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[4] V. Douglas, J. Gomez, and L. Negrete (1991). "Control Measure for Asbestos-Containing Serpentine Rock in Surfacing Applications", presented at 84th Annual Meeting of the Air & Waste Management Association, Vancouver, British Columbia, June 16-21, 1991.

[5] C. J. Dusek and J. M. Yetman (1991). "Potential Community Exposure Associated with Construction in Naturally Occurring Asbestos Deposits", presented at 84th Annual Meeting of the Air & Waste Management Association, Vancouver, British Columbia, June 16-21, 1991.

[6] Volpe Center (2004). "Sampling and Analysis Report: Roadside Airborne Asbestos Monitoring Along an El Dorado County Serpentine Roadway (Initial Study and Post Resurfacing Study)", John A. Volpe National Transportation Systems Center, Volpe Center IAG VP262, December 2004.

[7] C. P. Weis (2001). "Amphibole Mineral Fibers in Source Materials in Residential and Commercial Areas of Libby Pose and Imminent and Substantial Endangerment to Public Health", US Environmental Protection Agency memorandum, December 20, 2001.

been reported to contain some amphibole asbestos, most of which is not a regulated variety of the minerals. One of the reported simulations involved rototilling soils. Phase contrast microscopy (PCM) concentrations averaged 0.23 f/cc for the rototiller operator. [PCM measures all fibers and does not differentiate asbestos fibers from other fibers.] Significant problems have been identified relative to the analyses of these samples. However, the data indicate that particles became airborne as a result of the rototilling. Still, there is much disagreement over the actual mineralogy of the particles.

North Ridge Estates, in Klamath Falls, OR, was the location for one such study.[8] Debris from asbestos-containing materials was reportedly disposed on the site of the testing. Three simulations were performed: playing in the dirt, weed trimming using a nylon string trimmer and rototilling. The results indicated these activities generated low concentrations of airborne chrysotile asbestos, < 0.01 f/cc. Ambient background concentration reported no airborne chrysotile asbestos.

More recently, the EPA reported on simulations conducted in imported fill materials at various fields and playgrounds in El Dorado Hills, CA.[9] Whether playing softball on a dirt infield, walking/biking on a hiking trail, or playing on a grass covered soccer field, the EPA reported increased airborne particle concentrations due to the activity when compared with ambient (upwind) concentrations. Criticism[10] of the reported data indicates that much of the reported amphibole particles are not asbestos fibers, but are a non-asbestos form of the amphibole minerals. The EPA study, while correctly indicating that some particles become airborne when disturbed, illustrates the difficult analytical issues related to the issue of in-ground asbestos: a significant number of laboratories are properly trained to analyze commercially produced asbestos fibers, but lack the necessary training and skill to analyze common rock-forming minerals.

The California Department of Toxic Substances Control (DTSC)[11] summarized a number of driving simulations that have been conducted in California. The report concluded that driving on these roads increases airborne asbestos concentrations enough that potential human health risks increased up to 10 times higher than background risks.

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[8] D. W. Berman (2005). Draft: Preliminary Evaluation of the Implications of Airborne Asbestos Exposure Concentrations Observed During Simulation of a Selected Set of Common, Outdoor Residential Activities Conducted at the North Ridge Estates Site, Klamath Falls, Oregon", Aeolus, Inc, February 18, 2005.
[9] K. Ladd (2005). "El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California: Preliminary Assessment and Site Inspection Report; Interim Final", Ecology and Environment, Inc., Contract 68-W-01-012.
[10] RJ Lee Group, Inc. (2005). "Evaluation of EPA's Analytical Data from the El Dorado Hills Asbestos Evaluation Project", project LSH306975.
[11] Department of Toxic Substances Control (2005). "Study of Airborne Asbestos from a Serpentine Road in Garden Valley, California", April 2005.

At a meeting of the Cordilleran Section of the Geological Society of America, three papers were presented that discussed issues related to in-ground asbestos. The EPA[12] reported on simulations conducted at the Clear Creek site. These tests (biking, off-road vehicles, or motorcycles) were conducted on soils that contained several percent chrysotile asbestos. Airborne concentrations up to 1 f/cc were reported on some samples, significantly elevated above background concentrations.

Hernandez[13] reported that air samples collected during surface grading operations showed a 50% increase in airborne fiber concentrations. Beall[14] discussed air sample concentrations observed on athletic fields or courts during routine maintenance activities. Concentrations up to 0.1 s/cc were reported. These concentrations can be compared to ambient levels monitored by the California Air Resources Board (CARB)[15] who report concentrations at various locations in El Dorado County, with a maximum reported concentration of 0.006 f/cc.

In summary, while there may be significant disagreement of the manner in which the airborne fibers are analyzed (and certainly in the actual identification of the mineral particles), the concept that human activities are responsible for causing mineral particles that in soils or loose rock to become airborne is not in dispute. Some of these airborne particles are asbestos fibers that are of the sizes most closely linked to human health risks. Issues related to the duration of these exposures have not been addressed, but have been assumed to occur with enough frequency and for enough time to cause concern among health scientists.

**Control Measures**

In areas where in-ground asbestos is known (or believed) to occur, regulations have been developed to control the potential exposures to both workers and nearby residents. The focus of these regulations is both to protect the worker, and to inform authorities of potential release of asbestos fibers. Thus, many of the regulations contain provisions that are similar to those for an asbestos abatement operation.

Fairfax County, VA requires that a comprehensive plan be developed when working in soils that potentially contain amphibole asbestos.[16] Prior to working in these soils, the county

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[12] L. Suer, et al (2005). "Assessment of Human Exposure to Naturally Occurring (Unprocessed) Asbestos at the Clear Creek Management Area, California", presented at the April 29, 2005 meeting of the Cordilleran Section of the Geological Society of America.
[13] D. W. Hernandez (2005). "Risk Estimation and Air Sampling at NOA Sites", presented at the April 29, 2005 meeting of the Cordilleran Section of the Geological Society of America.
[14] R. Beall (2005). "Asbestos Aor Sampling on Naturally Occurring Asbestos Projects", presented at the April 29, 2005 meeting of the Cordilleran Section of the Geological Society of America.
[15] CARB (1999). Measured Ambient Asbestos Concentrations in El Dorado County, CA", www.arb/gov/toxics/asbestos/table1p1.htm.
[16] Fairfax County Health Department. Directive 1: Standards of Performance for Actinolite/Tremolite Soil Sources.

requires that the owner/operator develop a comprehensive compliance plan and have that plan filed and approved by the Health Department prior to performing any work on the site. The plan must discuss procedures for minimizing dust generation, personal protection equipment (PPE) for workers (including any training), air monitoring during the job and safe disposal of any mitigated soils contaminated with asbestos fibers.[17]

California has issued similar regulations[18] for construction or quarrying activities, where there is a potential for disturbing soil/rock that contains asbestos fibers. Prior to conducting any operation, a geological survey of the area is required to determine if suspect rock types are present on the property. Depending on the particular operation, prior notice of all work is required and dust mitigation plans are to be approved by the local air quality district. Dust mitigation requirements are suggested for different aspects of the operations, including wetting road surfaces, minimizing the speed of traffic, erecting wind barriers and/or installing truck washes.

Water has long been used to reduce the dustiness of roads in construction sites. Several studies, previously summarized (references 3 and 5), indicate that truck cleaning was a necessary step in reducing airborne asbestos exposures. These cleaning procedures have been used extensively in Libby,MT, Figure 1, and at construction sites around the country. The intent of such operations is to remove easily dislodged materials from the vehicles, not to certify the vehicles are clean. There are no readily available studies that show vehicle washes completely remove all asbestos fibers from the truck.

Truck washing has been used at a variety of job sites around the world[19] as a method to reduce dust exposure to the local population.



[17] Fairfax County Health Department. Basic Elements for a Naturally Occurring Asbestos Compliance Plan. Available at http://www.fairfaxcounty.gov/hd/hdpdf/asb50.pdf.
[18] California Code of Regulations. Title 17, Section 93105: Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations.
[19] J. Addison (2006). Personal communication.


*Figure 1. Decontamination site at the former Libby vermiculite mine, Libby, MT. Two operators are power washing excess dirt and debris from the haulage truck.*

In addition to washing trucks, water is used to wet stockpiles or ground to be graded or disturbed as a procedure to minimize dust generation. The EPA has extensively used water to control dust at Libby, as shown in Figure 2.

Fairfax County[20] requires that effective dust control be used at all times where there is a possibility that in-ground asbestos may be disturbed. Airborne asbestos levels are to be monitored and reported to the county in a timely manner.[21] Airborne fibers levels, monitored using phase contrast microscopy, are not to exceed OSHA levels or a 0.02 f/cc level for public exposure (calculated on a 24-hour basis using a procedure described in Directive 2[22]). One unusual aspect of the dust monitoring requirement in Fairfax County is the assumption that any sample that is considered to have too many captured particles for laboratory analyses (i.e., the

[20] Fairfax County. http://s70ntgc31.co.fairfax.va.us/hd/crd1.htm.
[21] C. J. Dusek and J. M. Yetman (undated). "Control and Prevention of Asbestos Exposure from Construction in Naturally Occurring Asbestos", Fairfax County Health Department, Air Pollution Control Division.
[22] Fairfax County. http://s70ntgc31.co.fairfax.va.us/hd/crd2.htm.

laboratory reports the samples as "overloaded") represents an excessive dust emission from the property.

California DTSC[23] has also specified ambient air levels that are not to be exceeded at school sites. Worker protection samples are not to exceed OSHA levels for asbestos fibers. Air samples collected along the property fence line are not to exceed 0.005 f/cc for asbestos (they indicate the USEPA action value is 0.01 f/cc as measured by PCM). DTSC also requires that the total dust concentration be measured and controlled.

*Figure 2. EPA contractors spray water onto equipment and soil piles to reduce the amount of dust that can be generated from the movement of these materials.*

As is evidenced in the photographs, the personnel are wearing personal protective equipment (disposable suits, boots, and respirators). Health and safety plans are required for most

[23] Department of Toxic Substance Control (2004). Interim Guidance: Naturally Occurring Asbestos (NOA) at School Sites. Revised 9/24/04.

operations that disturb asbestos soils.[24] These plans should specify the use of PPE, including the presence of on-site showers, change rooms, and replacement clothing.

Workers (and possibly bystanders) must be trained in asbestos hazards and in the use of PPE. As noted in California regulations[25], persons who may be exposed to airborne asbestos at concentrations exceeding OSHA standards (0.1 f/cc for 8-hours) must attend an asbestos awareness training course and then must attend an annual refresher course. The course must cover the topics of asbestos recognition, health effects of asbestos and general locations of asbestos in the site specific workplace. The worker must be trained in practices such as avoiding disturbing the asbestos soils, proper use of PPE and the relationship between smoking, asbestos, and cancer.

Visitors to the Clear Creek site should be warned of the potential for exposure to asbestos while on the site and should be provided with training modules consistent with an asbestos awareness course. This training could be accommodated with an on-site location where training videos can be made available or by posting these videos on the internet.



[24] Department of Toxic Substance Control (2005). Operations and Maintenance (O&M) Plan Template: Naturally Occurring Asbestos Response Actions at Schools. Revised 10/11/05.
[25] California Code of Regulations. Title 8, Subchapter 4, Construction Safety Orders, §1529(k)(9)(g).

Timothy
Moore/CASO/CA/BLM/DOI
12/06/2006 08:15 AM

To tim_radke@ios.doi.gov, Sandy Guches/WO/BLM/DOI@BLM
cc Rick Cooper/CASO/CA/BLM/DOI@BLM
bcc
Subject Asbestos air monitoring scope of work

History: This message has been replied to.

It was nice to have talked with you both yesterday at the OSHA/EPA meeting regarding the BLM's issues with public and employee health risks from asbestos on public lands.

I have attached a brief Scope of Work, that was sent out to three consultants for bid.

If you have any questions on this work please let me know.

I will also send out today, via snail mail, a copy of BLM's 1992 "Human Health Risk Assessment for the Clear Creek Management Area".

airsamplingScope of Work.doc

**Timothy Moore/CASO/CA/BLM/DOI**
12/06/2006 10:05 AM

To Gerald Tuma/CASO/CA/BLM/DOI@BLM, Graig Butler/CASO/CA/BLM/DOI@BLM, Alexander Lomvardias/CASO/CA/BLM/DOI@BLM
cc Rick Cooper/CASO/CA/BLM/DOI@BLM, George Hill/CASO/CA/BLM/DOI@BLM
bcc
Subject Mandatory OSHA Hazwoper training next week

We are scheduling for all new employees who had not attended the October 30, 2006 OSHA's HAZWOPER training, at get fully certified to work in the Clear Creek hazardous asbestos are, next week.

This training in one of three OSHA conditions of working in a area where you can be exposed to asbestos (a known human carcinogen) above the OSHA allowable limits.

Please let me know who and when you are available, right now we are looking at Monday Dec 11, 2006 for a training day, the training will be 8 hours with a field excursion to the Decontamination Facility on a consecutive day.

Timothy
Moore/CASO/CA/BLM/DOI
12/06/2006 10:19 AM

To Rick Cooper/CASO/CA/BLM/DOI@BLM
cc George Hill/CASO/CA/BLM/DOI@BLM
bcc
Subject Re: Asbestos air monitoring scope of work

History: This message has been replied to.

As discussed in the car ride home, I wrote the scope of work for a certified industrial hygienist (CIH) to be "directly" involved with the air sampling, NES will not have a CIH on site for this work. Also NES is not on the IDIQ contract.

We also spoke about having a consultant "train some pump jockeys" this is not part of the scope of work, so we may want to modify the SOW with whomever we select for this work. I also suggest if it is possible to get Tim Radtke out for a day, but I realize this may not be possible.

If I can be of any more help on this project, let me know.