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December 1, 2004

Michael Pool, State Director
Bureau of Land Management
2800 Cottage Way, Suite W-1834
Sacramento, CA 95825-1886

Subject: Draft Resource Management Plan Amendment and Draft Environmental Impact Statement (DEIS) for the Clear Creek Management Area [CEQ # 040322]

Dear Mr. Pool:

The U.S. Environmental Protection Agency (EPA) has reviewed the above referenced document. Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500-1508, and Section 309 of the Clean Air Act. Our detailed comments are enclosed.

This DEIS analyzes specific alternatives to manage the 63,000-acre Clear Creek Management Area (CCMA), a popular off-highway vehicle (OHV) recreation area, in the Bureau of Land Management's (BLM) Hollister Resource Area. The proposed action keeps 246 miles of routes and 466 acres of barren slopes open to use, and expands the existing San Benito Mountain Research Natural Area (RNA) to 3,991 acres. This DEIS is tiered to a programmatic EIS prepared by BLM during the 1990s, which evaluated general management alternatives for the CCMA. In 1999, BLM issued a Record of Decision (ROD) selecting an alternative that would leave 270 miles of routes and 937 acres of barren slopes open to OHV use and include 4,082 acres in the RNA. EPA rated the programmatic DEIS as Environmental Objections-Insufficient Information (EO-2) due to the potential health risks from exposure to naturally occurring asbestos in the CCMA and the technical deficiencies of the1992 health risk assessment. Please see our June 29, 1993, preliminary DEIS comments; February 15, 1994, DEIS comments; and June 3, 1996 Final EIS comments.

EPA has rated this DEIS as 3 - Inadequate Information (see enclosed "Summary of Rating Definitions"). Pursuant to Section 309 of the Clean Air Act, EPA could refer this action to the President's Council on Environmental Quality (CEQ), if we determine that the public health or environmental quality impacts are unsatisfactory after additional information and analyses are provided. However, we believe we have a significant opportunity to collaborate on the development of an asbestos exposure evaluation (currently being conducted by EPA), and incorporate this information in a Revised or Supplemental DEIS. It is consistent with the

missions of both of our agencies to cooperate on the important public health issues associated with recreational use at the CCMA.

The CCMA is underlain by serpentinite, the parent rock for asbestos. BLM has designated 30,128 acres of the CCMA as an Asbestos Hazard Area of Critical Environmental Concern (ACEC). The OHV recreation area includes the ACEC. Exposure to asbestos at the high levels found by EPA in the CCMA can lead to harmful health effects, including lung cancer, mesothelioma, and other non-cancer, life threatening diseases.[1] The DEIS continues to rely on an inadequate 1992 health risk assessment and does not adequately characterize exposure to asbestos in the CCMA for common activities, including OHV use, recreation, camping, and occupational activities; the potential impacts to smokers and young children; or indirect effects from asbestos tracked outside of the CCMA. Based on our review of the DEIS, we have concluded that the information in the DEIS does not adequately assess potentially significant impacts to human health from the proposed action and alternatives.

This fall, EPA initiated a new asbestos exposure evaluation in the CCMA. The purpose of this evaluation is to provide accurate information on asbestos exposure associated with typical activities in the CCMA. Preliminary sampling from a dry period in September, 2004, shows substantially higher exposure values in the CCMA than those used in the BLM's 1992 risk assessment. The additional information that will be gained from EPA's exposure evaluation is critical to an informed decision regarding future CCMA management. Since sampling needs to be conducted in both the dry and wet seasons, we expect validated data to be available in June, 2005. Therefore, we recommend that BLM rely on EPA's completed exposure evaluation to recalculate the health risk, and incorporate this information in a Revised or Supplemental DEIS.

Because of the potential for significant health impacts, the Revised or Supplemental DEIS should also analyze a full array of reasonable alternatives and mitigation measures in order to avoid or reduce these impacts. Other reasonable alternatives that are not evaluated in the current DEIS include: complete closure of the CCMA, complete closure of the CCMA during the dry season, and implementation of mitigation measures to reduce human exposure to asbestos. Mitigation measures that merit further consideration include: requiring permits for CCMA access; requiring permit holders to sign an informed consent waiver; limiting the number of days per year an individual may enter the area; restricting access by young children; prohibiting camping inside the Asbestos Hazard Area; eliminating events that result in extraordinary high OHV use; mandatory decontamination of vehicles prior to leaving the CCMA; and mandatory use of respirators (e.g., during certain exposure periods/activities).

EPA is committed to sharing the data and conclusions from the exposure evaluation as they become available so that your decision for future management of the CCMA is based on the

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[1]Source: EPA's Integrated Risk Information System (IRIS); Agency for Toxic Substances and Disease Registry: Toxicological Profile for Asbestos.

most accurate and updated information. In the interim, we recommend that BLM immediately implement all mitigation and monitoring commitments from the 1999 ROD.

In addition to our primary concern with asbestos exposure and associated health risks, EPA has also identified other environmental issues of concern. EPA has concerns regarding potential impacts to air quality from small particulate matter (PM10) emissions. We commend BLM for reclaiming several abandoned mines in the CCMA and closing them to OHV use in order to reduce mercury loadings in the Clear Creek watershed. OHV activities continue to degrade overall water quality in the CCMA, however, and the DEIS provides insufficient information on existing water quality, and whether the proposed action would improve water quality to acceptable levels. Furthermore, we are requesting additional information regarding impacts to the threatened San Benito Evening Primrose.

We appreciate the opportunity to review this DEIS and request a copy of the Revised or Supplemental DEIS when it is filed with our Washington, D.C. office. We will be sharing our exposure evaluation findings with you as they become available, and are committed to working with you to provide you with the most accurate information with which to make a decision on future CCMA management. If you have any questions, please call me at (415) 947-8702 or Enrique Manzanilla, Director of the Community and Ecosystems Division at (415-972-3843, or have your staff contact Jeanne Geselbracht at (415) 972-3853.

Sincerely,

for

Wayne Nastri
Regional Administrator

004159

Enclosures: EPA Detailed Comments
Summary of Rating Definitions
Comparison of Clear Creek Management Area Air Concentrations
ATSDR Toxicological Profile for Asbestos

cc: Mike Chrisman, California Resources Agency
Jim Branham, California Environmental Protection Agency
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Connie Rutherford, U.S. Fish and Wildlife Service, Ventura
Maria Barcos-Wallace, U.S. Occupational Safety and Health Administration, San Francisco
Anne Miller, EPA Office of Federal Activities, Washington, D.C.

EPA DETAILED COMMENTS ON THE CLEAR CREEK MANAGEMENT AREA RESOURCE MANAGEMENT PLAN AMENDMENT DEIS, NOVEMBER, 2004

Human Health Risk

The proposed alternative, which allows continued recreational use in the Clear Creek Management Area (CCMA), is likely to pose a significant public health risk from exposure to naturally occurring asbestos. Exposure to asbestos at high levels can lead to harmful health effects, including lung cancer, mesothelioma, and other non-cancer, life threatening diseases.[2] As we have indicated in the past, the CCMA's geology makes it an unsuitable location for OHV recreation. In previous comments on the CCMA[3], EPA objected to BLM's risk assessment and recommended the evaluation of alternatives and/or additional mitigation measures that could accomplish BLM's goals for the CCMA while fully protecting public health and environmental resources. This DEIS continues to rely on an inadequate 1992 health risk assessment and does not adequately characterize exposure to asbestos in the CCMA for common activities such as off-highway vehicle (OHV) recreation, camping, and occupational activities.

Preliminary results from recent EPA sampling efforts provide further evidence that the 1992 risk assessment underestimates asbestos exposure at CCMA. EPA is conducting a new exposure evaluation in the CCMA to provide updated and accurate information on asbestos exposure from disturbance of soil containing asbestos. Our preliminary sampling in the dry season has revealed *substantially higher exposure values* in the CCMA than those used in the 1992 risk assessment. For example, EPA data indicate the tail rider in a line of three motorcycles was exposed to 0.955 fibers/cubic centimeter (f/cc), which is nine times the highest concentration reported for a tail motorcycle rider in the 1992 risk assessment, as well as nine times the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) of 0.1 f/cc. (Although the OSHA PEL is not applicable to the general public, per our comments below, it has been used over the years by BLM and the public for comparison purposes). This high exposure concentration, which occurred during dry conditions, may not represent exposure concentrations under all conditions at the CCMA. EPA has conducted additional sampling in the wet season, and will complete dry season sampling in the spring of 2005. We expect validated data to be available in June, 2005.

EPA's preliminary data indicate a potentially higher risk to OHV users than BLM's 1992 risk assessment. EPA's complete evaluation will sample a range of conditions and analyze all samples with transmission electron microscopy (TEM) analysis. TEM analysis is better able to resolve fiber types and dimensions than phase contrast microscopy (PCM), which was used in the

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[2]Source: EPA's Integrated Risk Information System (IRIS); Agency for Toxic Substances and Disease Registry: Toxicological Profile for Asbestos.

[3]See EPA's June 29, 1993 comments on BLM's preliminary DEIS; February 15, 1994 comments on the DEIS; and June 3, 1996 comments on the FEIS.

1992 risk assessment. EPA's complete exposure evaluation will provide important information for BLM in the development of alternatives and mitigation measures at the CCMA.

> **Recommendation:** We strongly recommend that BLM incorporate the results of EPA's completed exposure evaluation in a Revised or Supplemental DEIS to insure the scientific integrity of the discussions and analyses (40 CFR 1502.24) used to inform BLM's decision. EPA is committed to sharing our data and analysis and working with BLM as this information becomes available.

Risks to children and smokers need to be assessed. Our comments on BLM's programmatic EIS identified the need for additional information regarding the potential health risks to children and smokers. Young children exposed to asbestos in the CCMA have a higher risk of developing mesothelioma during their lifetime than older adults because the latency period for developing this cancer can be 30 to 40 years. Even brief exposures to asbestos levels found in the CCMA may cause fibers to remain in the lungs for an extended period of time. Therefore, the exposure does not end when the visitor leaves the CCMA. Furthermore, intense repeated exposures during periods as short as several months can lead to asbestosis.[4] The cancer risk from asbestos exposure is also much greater for smokers than for non-smokers. The current DEIS does not address these important issues.

> **Recommendation:** The Revised or Supplemental DEIS should discuss each alternative's potential direct and indirect impacts to CCMA visitors, including young children and smokers. BLM should base its decision regarding future CCMA management on appropriate risk values for all potential CCMA users for various activities, combinations of activities, and frequency/duration of use.

Risks associated with offsite track-out of asbestos need to be assessed. Our comments on BLM's programmatic EIS also identified the need for additional information regarding the potential health risks associated with the exposure caused by asbestos dust that is carried offsite (track-out) on clothing and vehicles. Track-out is an indirect effect (40 CFR 1508.8(b)) of driving on serpentenite. Without proper washing facilities at CCMA exit points, track-out of asbestos dust from vehicles can result in asbestos exposure in homes and driveways, car washes, and other public places visited by recreationists after leaving the CCMA. Asbestos on CCMA recreationists' clothing can also be carried into homes, restaurants, stores, and other public places where other people may be exposed to it. Regular contact with dust from asbestos-laden clothing can cause asbestos-related respiratory diseases in people who have not had direct contact with the original asbestos source.[5] In addition, asbestos can remain in car vents and interiors as a

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[4]American Thoracic Society, Diagnosis and Initial Management of Nonmalignant Diseases Related to Asbestos, American Journal of Respiratory Critical Care Medicine, v. 170, 641-715, 2004.

[5]Agency for Toxic Substances and Disease Registry: Toxicological Profile for Asbestos, 179.

continuing source of asbestos exposure. Asbestos mud and dust tracked out of the CCMA can be a source of exposure every time it is redisturbed.

> **Recommendation:** The Revised or Supplemental DEIS should describe the potential track-out scenarios to homes, vehicle interiors, car washes, and public places recreationists may visit after leaving the CCMA. The document should describe the potential asbestos exposure to CCMA visitors, their families, and the public outside of the CCMA from track-out of asbestos-containing mud and dust on vehicles, clothing, and equipment. The discussion should include the effects of continuing exposures from track-out, and explain how the risk values were determined. The feasibility of constructing vehicle wash facilities at some or all CCMA exit points should be evaluated.

OSHA standards do not apply to the general public. The DEIS documents BLM's continued use of OSHA's permissible exposure limit (PEL) of 0.1 f/cc of air to determine "safe" levels of asbestos exposure for CCMA visitors. In addition, each month BLM's "Clear Creek Bulletin" posts recently monitored asbestos values in the CCMA and implies that conditions below the OSHA PEL are "low dose" exposures and safe. However, the levels of asbestos observed in the CCMA are high doses for the general public. Furthermore, the "Clear Creek Bulletin" inaccurately states that OSHA recommends wearing a respirator if asbestos values are above the PEL. OSHA regulations require employees working in the regulated area to comply with all relevant asbestos regulations, but they do not include recommendations to the general public. EPA has previously indicated to BLM that the OSHA PEL is inappropriate for determining "safe" asbestos exposure levels for the general public visiting the CCMA. OSHA standards for public health and safety only apply to occupational settings. The PEL is not based on health risk to the general public, including young children. For this reason, use of the PEL as a "safety" standard in BLM public education outreach materials is misleading.

> **Recommendation:** BLM should not use the OSHA PEL as an indicator of safe conditions in the CCMA and discontinue these statements in the "Clear Creek Bulletin" and other public outreach and educational materials. Informational materials should disclose the potential health effects of asbestos exposure to the general public, including young children and smokers. Appropriate, scientifically based information is currently available in the Agency for Toxic Substances and Disease Registry's (ATSDR) "Toxicological Profile for Asbestos" (enclosed). The Revised or Supplemental DEIS should clarify that the OSHA PEL is an inappropriate standard to describe exposure at the CCMA for the general public.

Additional information is needed regarding compliance with OSHA regulations for BLM employees. While the OSHA PEL is inappropriate for determining "safe" asbestos exposure levels for the general public using the CCMA, the OSHA PEL applies to all BLM employees and contractors working in the CCMA. The DEIS (p. 3-14) states that BLM personnel are required to follow the OSHA regulations related to asbestos, including personal air monitoring, personal decontamination, and vehicle and equipment decontamination. BLM

personal monitoring data indicate that BLM staff working in the CCMA are frequently exposed to asbestos in exceedance of OSHA's PEL. Staff are also required to shower and change clothes before leaving the regulated zone. However, the DEIS does not mention BLM employees' requirement to wear respirators in the CCMA at all times and does not indicate whether or how BLM is complying with all OSHA regulations related to asbestos. The shower building and vehicle wash rack are located at an administrative site northwest of the Asbestos Hazard Area, and are not adjacent to the regulated zone in accordance with OSHA regulations.

> **Recommendation:** The Revised or Supplemental DEIS should describe all asbestos-related OSHA regulations that apply to BLM employees working in the CCMA, including requirements regarding respirators, protective clothing, decontamination, waste disposal, and personal air and medical monitoring, and discuss how BLM is currently meeting these requirements. The Revised or Supplemental DEIS should also describe how BLM will ensure compliance with OSHA regulations regarding location of the CCMA decontamination facilities.

The characterization of chrysotile asbestos should be revised. The DEIS describes chrysotile asbestos found at CCMA as short fiber asbestos, which is not supported by the data. The 1992 risk assessment relied on PCM measurements, which only detects long fibers. EPA's current exposure evaluation is examining both long and short fibers and has found significant levels of long fibers (PCME or phase contrast microscopy equivalent). As noted above, EPA is committed to sharing our data and analysis with BLM as this information becomes available.

> **Recommendation:** The Revised or Supplemental DEIS should eliminate any discussion of short fiber asbestos because this does not accurately reflect the data provided.

Alternatives Analysis and Mitigation Measures

The DEIS does not analyze a full range of alternatives and/or mitigation measures that accomplish BLM's goals while fully protecting public health. In accordance with the Council on Environmental Quality's (CEQ) NEPA implementation regulations, the EIS must include appropriate mitigation measures not already included in the proposed action or alternatives (40 CFR 1502.14(f)), and discuss appropriate means to mitigate adverse impacts (1502.16(h)).

With regard to mitigation measures, we are concerned that previous mitigation commitments have not been implemented by BLM and other actions have been taken since the previous ROD that conflict with these same commitments. For example, according to the 1996 FEIS, camping inside the Asbestos Hazard Area of Critical Environmental Concern (ACEC) increases the cancer risk to users. In EPA's 1996 FEIS comments, we recommended that camping within the Asbestos Hazard ACEC be excluded until the health risks were better known. Accordingly, in the 1999 ROD (p. 10), BLM committed to developing a plan, over the subsequent three years, to relocate staging areas outside of the ACEC and discouraging camping within the ACEC. The proposed alternative in the current DEIS allows for primitive camping

inside the Asbestos Hazard ACEC. We understand BLM recently constructed new restrooms in the existing staging areas (inside the Asbestos Hazard ACEC), which encourages both staging and camping in these areas. These actions are inconsistent with BLM's previous commitments.

In BLM's *"Issue Paper, EPA and BLM Clear Creek EIS Protest Resolution"* (p.2), BLM committed to enforcing a dry/high dust seasonal restriction such that "vehicles would be restricted to a series of maintained and possibly dust-suppressed roads." The 1999 ROD (p. 2) stated that seasonal route closures would be implemented during excessively dry periods, and the FEIS estimated that this would reduce OHV visitation by about 20 percent. The ROD (p. 10) also committed to dust suppressing staging areas and approximately 30 miles of main transportation routes "as appropriate" to reduce dust generation and associated asbestos exposure. The FEIS (p. 105) estimated that dust suppression should reduce asbestos emissions by approximately 50 percent.

Since the ROD was signed, we understand that BLM has never closed the CCMA due to dry conditions. This was also a key element in the U.S. Fish and Wildlife Service's 1997 Biological Opinion. We also understand that only a few miles of roads have been dust suppressed with water a few times in the last several years because water has not been available and road watering has not been very effective (pers. comm. between George Hill, BLM, and Jeanne Geselbracht, EPA, 9/9/04). Therefore, dust suppression measures have not been implemented effectively or consistently, and asbestos emissions have not been reduced. BLM also committed to constructing a vehicle wash rack to reduce track-out of asbestos and other particulates. This has not been constructed. The current DEIS proposes many of the same mitigation measures, but it is unclear whether resources would be available to implement them. For example, dust suppression with water trucks and a vehicle wash rack require water availability. However, the Implementation Plan (Appendix C) does not list developing a water source as an action item or give it a priority rating. Furthermore, Appendix C lists researching and implementation of dust controls as a midterm action, which would first occur in three to four years. Dust control should be a high priority and included as an Immediate Action.

> **Recommendation:** BLM should consider other reasonable alternatives and mitigation measures to reduce human exposure to asbestos in the CCMA. Additional alternatives should be evaluated including complete closure of the CCMA and full dry season closure of the CCMA. The Revised or Supplemental DEIS should also evaluate mitigation measures to reduce human exposure to asbestos. Mitigation measures that merit further consideration include: requiring permits for CCMA access; requiring permit holders to sign an informed consent waiver; limiting the number of days per year an individual may enter the area; restricting access to young children; prohibiting camping inside the Asbestos Hazard ACEC; eliminating events that result in extraordinary high OHV use; mandatory decontamination of vehicles prior to leaving the CCMA; and mandatory use of respirators.

The Revised or Supplemental DEIS should discuss how each of these measures, individually or in combination, could help to reduce asbestos exposure and potential health risks in the CCMA. The discussion should incorporate EPA's exposure evaluation and describe how the new exposure values were used to determine the risk reduction associated with these measures. The discussion should also identify the construction, operation, and maintenance costs, staffing needs, and feasibility of each measure, and indicate implementation and enforcement feasibility.

BLM should address the availability of water for dust suppression and vehicle decontamination; and discuss whether chemical stabilization of the main routes (R001-R019) or smaller routes are feasible and cost effective.

The effectiveness of each measure should also be evaluated (e.g., 10 percent reduction of particulate emissions where measure is applied). BLM should commit to implementation, effectiveness, and validation monitoring for each measure, and the Revised or Supplemental DEIS should address how monitoring results will be used to adaptively manage the CCMA.

The Revised or Supplemental DEIS should describe the risks associated with camping in the Asbestos Hazard ACEC based on EPA's exposure evaluation, and identify alternatives to staging and camping in the ACEC.

Dry season closures need to be clarified. Under the proposed action, all routes except R001 through R019 would be closed during "dry" conditions based on air monitoring if the OSHA PEL is reached in two consecutive weeks. The OSHA PEL is not an appropriate criterion to determine dry conditions. Furthermore, the projected benefits of partial route closure, especially with respect to asbestos exposure to individuals using the remaining open routes, is not described.

Recommendation: BLM should discontinue using the OSHA PEL for determining dry season closures, and the Revised or Supplemental DEIS should specify that it will not be used. The Revised or Supplemental DEIS should describe the estimated air pollutant emissions reductions and any benefit from reduced asbestos exposures that would result from partial route closure during "dry" conditions.

Dust suppression triggers need to be identified. The DEIS (p. 4-3) states that BLM would dust suppress main routes during high use periods in dry dusty conditions but does not define the specific criteria that would be used to determine these conditions. Would they be the same as those that would close all routes except R001 through R019?

Recommendation: In evaluating alternatives or mitigation measures that involve closure and/or road watering during dry conditions, BLM should develop appropriate criteria based on soil moisture and associated health risk. The Revised or Supplemental DEIS

should identify and discuss the new criteria. Furthermore, in determining closures, the variability of soil moisture from place to place across the CCMA should be considered. BLM should also commit to watering roads during all high use periods in dry conditions.

Other Air Resources

Additional information on particulate matter emissions and vehicle miles traveled is needed. The DEIS (p. 4-2,3 and Appendix I) states that the proposed action would reduce particulate emissions and asbestos dust generation and improve air quality. The DEIS (p. 4-13) also states, "[a]n overall reduction in the area available for vehicle access may have little effect to reduce airborne asbestos emissions." The DEIS indicates that the No Action Alternative would result in direct impacts to air quality, associated asbestos emissions, and human health from unrestricted vehicle use (p. 4-4 and Appendix I) and that mobile sources operating within the CCMA may be causing exceedences of the State and Federal standards for PM10 (particulate matter smaller than ten microns) (p. 3-3). Appendix G indicates that PM10, PM2.5 (particulate matter smaller than 2.5 microns), and total suspended particulate emissions would be virtually the same, in tons per year, under the proposed action as under No Action. This is because the vehicle miles traveled (VMT) would be the same for each alternative. However, particulate concentrations (expressed in terms of mass of pollutant per volume of air, consistent with the National Ambient Air Quality Standards (NAAQS)) could potentially increase under the proposed action if the VMT would be concentrated on significantly fewer miles of routes and fewer acres of barren slopes than under the No Action Alternative. Therefore, the concentrations of particulate, including asbestos, to which OHV recreationists may be exposed could be higher under the proposed action than under the no action alternative.

The 24-hour and annual NAAQS for PM10 are 150 micrograms per cubic meter (ug/m^3) and 50 ug/m^3, respectively. In BLM's *"Issue Paper, EPA and BLM Clear Creek EIS Protest Resolution,"* BLM committed to conducting additional modeling, in cooperation with local air boards, to determine more clearly whether PM10 standards would be met under the proposed action. However, modeling to determine consistency with air quality standards has not been done, and the DEIS provides only emissions estimates, which cannot be compared with the NAAQS or State ambient air quality standards. In addition, the DEIS (p. 3-32) indicates that visitor use is increasing at a rate of about five percent per year. Although Appendix G projects particulate emissions for each alternative, it is unclear which year's VMT were used to calculate these emissions.

Recommendation: The Revised or Supplemental DEIS should provide current VMT and PM10 and PM2.5 emissions in the CCMA. The BLM should conduct air quality dispersion modeling based on projected PM10 and PM2.5 emissions for each alternative for 2005 and subsequent years of this management plan. These projections, which should include special events such as OHV rallies, should be provided in the Revised or Supplemental DEIS and compared with the NAAQS. The Revised or Supplemental DEIS should discuss how BLM would ensure compliance with appropriate standards and

identify and describe mitigation measures that would be applied to further reduce emissions.

Road surface moisture should be reassessed in the particulate matter estimates. EPA has reviewed BLM's "Spreadsheet Estimate of Total Particulate Matter Emissions by Alternative." The estimates and underlying assumptions are well documented and well presented. However, the assumption for surface material moisture content is based on national soil moisture maps prepared by the National Oceanic and Atmospheric Administration, from which BLM derived a value of 40 percent for winter and 28 percent for summer for the project area. These values seem extraordinarily high considering that EPA's AP-42, Section 13.2.2 Unpaved Roads, which provides the equations used in developing the emission factors for the analysis, cites a default moisture content value of 0.5 percent. While AP-42 discourages use of that default value, the ranges of source conditions (for surface material moisture content) that were tested in developing the equations are 0.03 to13 percent (see AP-42, Section 13.2.2, Table 13.2.2-3). Therefore, we believe that the assumed values of 28 percent and 40 percent may be too high. For comparison purposes, if the default value were used instead, the emissions estimates for PM-2.5 and PM-10 would be approximately 2.4 times higher and the total suspended particulates (TSP) estimate would be approximately 3.5 times higher than those presented in the DEIS.

Recommendation: BLM should clarify the use of the high road surface material moisture content values, or recalculate the particulate matter emissions from unpaved road use under each of the alternatives based on a site-specific determination of representative road surface moisture content (percent), using the field sampling and laboratory analysis procedures contained in AP-42, Appendices C.1 and C.2. Otherwise, BLM should use the default value in AP-42. The Revised or Supplemental DEIS should provide the revised emissions estimates and revise the conclusions of the air quality evaluation accordingly.

Water Quality and Watershed Resources

The Clean Water Act requires that existing instream water uses and water quality necessary to protect the existing beneficial uses shall be maintained and protected. However, it is unclear from the information provided in the DEIS whether BLM's proposal will adequately protect water quality. BLM should incorporate appropriate best management practices (BMPs) and other necessary measures to enable full protection of beneficial uses of waters, attainment of surface water quality standards, and compliance with the Clean Water Act (40 CFR 131.12).

Pursuant to the Clean Water Act, especially Section 313, BLM has an obligation to assure that all water quality standards, both narrative and numeric, are met in all waters of the CCMA and downstream waters for all water quality parameters at all times. BLM's monitoring and mitigation program must be adequate to demonstrate that the CCMA complies with or is progressing toward compliance with the Clean Water Act (and implementing regulations) within a reasonable period of time.

Sediment reduction targets. The existing average sediment yields from undisturbed soil, barren hillclimbs, and the road network in the CCMA are 3.2 tons/acre/year, 4.9 to 16 tons/acre/year, and 80.2 tons/acre/year, respectively (DEIS, p. 3-11). In our comments on the previous DEIS and FEIS, we recommended that BLM specify objectives for erosion reduction (e.g., a given percent of reduction in all areas) based on the needs of watershed restoration and BLM's responsibilities to protect soil resources and comply with water quality standards and objectives, rather than identifying a range of road miles without specific erosion reduction targets. We recommended that BLM use these goals to determine the acceptable mileage and categories of routes that could remain open. The DEIS does not set or assess specific erosion reduction targets for each watershed, or provide estimates of sediment yield reductions as a result of best management practices implemented since the 1999 ROD.

According to the DEIS (p. 4-9), the current overall sediment yield from roads in the CCMA is estimated to be 24,969 tons/year. The proposed action would reduce this to 16,680 tons/year. This appears to be an improvement, but it is unclear how this projected yield would be spread out over the CCMA. The significance of this projected reduction is unknown with respect to each watershed and other resources such as the San Benito Evening Primrose, which is listed as threatened under the Endangered Species Act. Therefore, it remains unclear whether the proposed action would result in continued extreme sediment yields for specific watersheds. With no watershed targets or action levels, the DEIS is unclear how monitoring results will be used to adaptively manage the CCMA and what conditions would trigger specific mitigation measures.

> **Recommendation:** The Revised or Supplemental DEIS should project sediment yields (in tons/acre/year) for each watershed, and identify sediment reduction targets for each watershed based on watershed restoration and water quality needs. The discussion should address how mitigation measures are expected to ensure that sediment reduction targets are met and the feasibility of implemention. The discussion should address the construction, operation, and maintenance costs of each measure, as well as staffing needs, practicability issues, and the likelihood of implementation. The effectiveness of each measure should also be described and assessed (e.g., percent reduction of sediment yield where measure is applied). BLM should commit to implementation, effectiveness, and validation monitoring for each measure, and the Revised or Supplemental DEIS should thoroughly describe and discuss how monitoring results would be used to adaptively manage the CCMA.

Asbestos contamination of surface waters. Review of water quality data indicate that asbestos concentrations in Hernandez Reservoir likely exceed the Federal water quality standard to protect drinking water. Furthermore, in a September 4, 1996, meeting with EPA, BLM indicated that only one water sample was collected for asbestos analysis in Clear Creek, and that sample exceeded the water quality standard. The water quality standard for asbestos is 7,000,000 fibers/liter. Data also indicate that several water bodies on the east side of the CCMA are adversely affected by the transport of sediment and asbestos from the CCMA. Such impacts appear to constitute violations of State numeric and narrative water quality standards for the

protection of several designated beneficial uses (objectives pursuant to California's Porter-Cologne Act).

In BLM's February 19, 1998, response to EPA's FEIS protest letter, BLM committed to conducting more studies to determine the causes of elevated asbestos and mercury levels in CCMA watersheds. In addition, the 1999 ROD (p.7) stated that, because heavy metals and asbestos were concerns in this area, BLM had contracted a water quality study in 1997 to determine the magnitude of heavy metals being deposited into streams from 15 abandoned mines.

Although BLM has acknowledged asbestos contamination of surface waters as a problem, it appears that neither the 1997 study nor any subsequent monitoring addressed asbestos. The current DEIS does not provide adequate information regarding either existing conditions or potential impacts of the alternatives from asbestos contamination to demonstrate current or future compliance with the applicable standard.

> **Recommendation:** BLM should conduct additional water quality sampling of asbestos in the water column to assess whether asbestos water quality standards for the protection of municipal water supply (MUN) are being met. The sampling plan should be designed to assess water in Clear Creek and Hernandez Reservoir. A minimum of 15 samples would provide sufficient information regarding water quality for this parameter. Sites where the asbestos standard is exceeded may indicate areas vulnerable to soil erosion. These areas would need special protection from OHVs and additional erosion control management practices.

Control of mercury loads. We wish to acknowledge BLM's efforts in reducing mercury loads to Clear Creek. Earlier this year, a total maximum daily load (TMDL) for mercury in Clear Creek was finalized by the California Regional Water Quality Control Board (RWQCB), Central Coast Region, and approved by EPA. The total mercury objective for Clear Creek is 0.050 micrograms per liter (*ug*/L). Mercury in Clear Creek continues to exceed this objective. However, according to the RWQCB[6], data suggest the BLM has properly identified the source of mercury runoff entering Clear Creek and has taken proper steps to reduce or eliminate this load. The RWQCB has also indicated that high-use OHV areas are not a significant source of mercury loading; and abandoned mine lands may no longer be contributing appreciable loads of mercury to Clear Creek, possibly because of BLM's recent efforts to remediate those mine areas. Recent erosion control and mercury load control efforts at abandoned mines in the CCMA have included removal and/or entombment of mining wastes, capping of residual material with clean, native soil, revegetation of disturbed areas, and monitoring.

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[6]Central Coast Regional Water Quality Control Board, Total Maximum Daily Load Technical Support Analysis for Mercury Impairment of Clear Creek and Hernandez Reservoir, 2/25/04.

Other pollutants in CCMA watersheds. Although it appears that reclamation of abandoned mines has reduced mercury loads in Clear Creek, it is unclear from the information in the DEIS how effectively other pollutants will be reduced in the CCMA watersheds. In previous correspondence (July 8, 1994 and June 3, 1996), EPA specifically noted the lack of information on existing water quality, and potential impacts of the proposal on beneficial uses and water quality standards, especially in east side streams. We provided some information to BLM and recommended that additional information be obtained in order to make informed decisions about the existing and potential environmental impacts from CCMA management. The information provided by EPA included the following:

- Lead and chromium concentrations in Panoche/Silver Creek have exceeded state objectives for drinking water during large runoff events;

- Detection levels for cadmium, lead, and mercury are too high on Los Gatos/Arroyo Pasajero to detect threats to aquatic life;

- Selenium concentrations have exceeded Federal standards and State objectives for aquatic habitat protection and drinking water in Panoche/Silver Creek;

- Selenium concentration violations may occur in Cantua and San Benito Creeks;

- Boron concentrations in Panoche/Silver, Cantua, and Los Gatos Creeks exceed Federal recommended standard (.55 mg/l) for protection of aquatic habitat; and

- Mercury impairment is documented in San Carlos and Panoche Creeks.

The DEIS provides little additional information regarding water quality in these east side watersheds. It is unclear whether BLM has a plan for obtaining water quality data for the east side streams and adaptively managing them.

Recommendation: For the east side streams in the CCMA, the Revised or Supplemental DEIS should provide readily available water quality information; identify specific reduction targets for soil erosion, sediment yield, and metals; and discuss BLM plans for watershed monitoring and adaptive management.

Management alternatives and effects on water quality. The DEIS indicates that if a route is difficult to manage and too costly to maintain, the route's management objective could be changed to reduce the level/cost of necessary maintenance. However, changing the route management objective to reduce the level of required maintenance could result in negative impacts to soils, vegetation, and water quality.

Recommendation: We recommend that prior to changing route management objectives to reduce maintenance requirements, BLM should evaluate whether this would result in

increased soil erosion, adverse impacts to vegetation or water quality, or other impacts. BLM should consider route closure as an adaptive management alternative if routes become too difficult or costly to properly maintain.

Biological Resources

The San Benito Evening Primrose (*Camissonia benitensis*) is a threatened plant species endemic to the CCMA. In its 1997 Biological Opinion pursuant to Section 7 of the Endangered Species Act, the U.S. Fish and Wildlife Service stated that minimizing surface disturbance from anthropogenic causes and minimizing alteration of hydrologic processes are key to protecting this species. Management actions to minimize habitat disturbance by vehicles included route closures, fences, barriers, signing, visitor education, and law enforcement; however, anthropogenic disturbance of *Camissonia benitensis* habitat continues (pers. comm. J. Delgado, BLM, to J. Geselbracht, EPA). We understand that BLM will be consulting with the U.S. Fish and Wildlife Service on this current DEIS, and a new Biological Opinion will be issued.

Recommendation: The Revised or Supplemental DEIS should discuss how BLM intends to meet its responsibilities pursuant to the Endangered Species Act to protect *Camissonia benitensis* and its habitat from further destruction, including additional area closures if appropriate. The document should identify the costs and staffing needed to fully comply with the new Biological Opinion.

The 1997 Biological Opinion assumed that approximately 30 miles of main transportation routes would be dust-suppressed. The Biological Opinion determined that, because the bulk of sediment entering Clear Creek results from erosion of unpaved roads, successful dust suppression adjacent to Clear Creek would benefit *Camissonia benitensis* and promote proper functioning of its stream terrace habitat by reducing the transport and delivery of sediment into its habitat.

Recommendation: The Revised or Supplemental DEIS should discuss how the lack of dust suppression on unpaved roads in the CCMA has affected and would continue to affect *Camissonia* populations.

Other Comments

Several mistakes and/or missing information in the DEIS should be rectified or added in the Revised or Supplemental DEIS, including:

- The DEIS does not include a bibliography.
- The DEIS does not include a section on consultation.

- It appears that there is a typo in Appendix B. To be consistent with the map for Alternative A, Barren 6x should be designated as closed rather than open.

- The maps for alternatives A through D should depict the Wilderness Study Area, staging areas, designated campgrounds, and other areas proposed to be open to camping.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

Comparison of Clear Creek Management Area
Air Concentrations (f/cc),
1992 BLM Risk Assessment vs. 2004 EPA Sampling Event

1992 BLM Risk Assessment (Phase Contrast Microscopy (PCM))	EPA 9/15/04 Sampling Event (Transmission Electron Microscopy, expressed as PCM Equivalents)
Motorcyle Riding	**Motorcycle Riding**
Lead Rider Mean = .018 Range = .01 - .035	Lead Rider (25% riding) 0.044
Mid Rider Mean = .042 Range = .01 - .08	Mid Rider 0.659
Tail Rider Mean = .039 Range = 0.01 - 0.1	Tail Rider 0.955
SUV Riding - open vehicle	**SUV Riding - open vehicle**
SUV riding Mean = .035 Range <0.01 - .097	Lead SUV Driver 0.100 Trailing SUV Driver 0.229 Trailing SUV Passenger 0.523
Ambient	**Ambient**
Non-hazardous Area	**Non-hazardous Area**
No data	Human Visitor - Oak Flat Campground 0.0252 Stationary Sampler - Oak Flat Campground 0.00649
Hazardous Area	**Hazardous Area**
Human Visitor (no vehicle activity) Mean = < 0.01 Range = < 0.01 - 0.01	Human Visitor (no vehicle activity) <0.0976 Stationary Sampler <0.00110

Toxicological Profile for

ASBESTOS

(Update)

DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry

1. PUBLIC HEALTH STATEMENT

This public health statement tells you about asbestos and the effects of exposure.

The Environmental Protection Agency (EPA) identifies the most serious hazardous waste sites in the nation. These sites make up the National Priorities List (NPL) and are the sites targeted for long-term federal cleanup activities. Asbestos has been found in at least 83 of the 1,585 current or former NPL sites. However, the total number of NPL sites evaluated for this substance is not known. As more sites are evaluated, the sites at which asbestos is found may increase. This information is important because exposure to this substance may harm you and because these sites may be sources of exposure.

When a substance is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment. This release does not always lead to exposure. You are exposed to a substance only when you come in contact with it. You may be exposed by breathing, eating, or drinking the substance, or by skin contact.

If you are exposed to asbestos, many factors determine whether you'll be harmed. These factors include the dose (how much), the duration (how long), the fiber type (mineral form and size distribution), and how you come in contact with it. You must also consider the other chemicals you're exposed to and your age, sex, diet, family traits, lifestyle (including whether you smoke tobacco), and state of health.

1.1 WHAT IS ASBESTOS?

Asbestos is the name given to a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite) that occur naturally in the environment. One of these, namely chrysotile, belongs to the serpentine family of minerals, while all of the others belong to the amphibole family. All forms of asbestos are hazardous, and all can cause cancer, but amphibole forms of asbestos are considered to be somewhat more hazardous to health than chrysotile. Asbestos minerals consist of thin, separable

fibers that have a parallel arrangement. Nonfibrous forms of tremolite, actinolite, and anthophyllite also are found naturally. However, because they are not fibrous, they are not classified as asbestos minerals. Amphibole asbestos fibers are generally brittle and often have a rod- or needle-like shape, whereas chrysotile asbestos fibers are flexible and curved. Chrysotile, also known as white asbestos, is the predominant commercial form of asbestos; amphiboles are of minor commercial importance. Asbestos fibers do not have any detectable odor or taste. They do not dissolve in water or evaporate and are resistant to heat, fire, chemical and biological degradation. Because of these properties, asbestos has been mined for use in a wide range of manufactured products, mostly in building materials, friction products, and heat-resistant fabrics. Since asbestos fibers may cause harmful health effects in people who are exposed, all new uses of asbestos have been banned in the United States by the EPA.

See Chapters 4 and 5 for more information on the properties and uses of asbestos.

1.2 WHAT HAPPENS TO ASBESTOS WHEN IT ENTERS THE ENVIRONMENT?

Asbestos fibers do not evaporate into air or dissolve in water. However, pieces of fibers can enter the air and water from the weathering of natural deposits and the wearing down of manufactured asbestos products. Small diameter fibers and fiber-containing particles may remain suspended in the air for a long time and be carried long distances by wind or water currents before settling. Larger diameter fibers and particles tend to settle more quickly. Asbestos fibers are not able to move through soil. They are generally not broken down to other compounds in the environment and will remain virtually unchanged over long periods. However, the most common form of asbestos, chrysotile, may have some minor mineral loss in acidic environments. Asbestos fibers may break into shorter pieces or separate into a larger number of individual fibers as a result of physical processes. When asbestos fibers are breathed in, they may get trapped in the lungs. Levels of fibers in lung tissue build up over time, but some fibers, particularly chrysotile fibers, can be removed from or degraded in the lung with time.

See Chapters 5 and 6 for more information on the behavior of asbestos in the environment.

1.3 HOW MIGHT I BE EXPOSED TO ASBESTOS?

Asbestos minerals are widespread in the environment. They may occur in large natural deposits, or as contaminants in other minerals. For example, tremolite asbestos may occur in deposits of chrysotile, vermiculite, and talc. Asbestos may be found in soil that is formed from the erosion of asbestos-bearing rock. You are most likely to be exposed to asbestos by breathing in asbestos fibers that are suspended in air. These fibers can come from naturally-occurring sources of asbestos or from the wearing down or disturbance of manufactured products including insulation, automotive brakes and clutches, ceiling and floor tiles, dry wall, roof shingles, and cement. However, these products do not always contain asbestos. Low levels of asbestos that present little, if any, risk to your health can be detected in almost any air sample. For example, 10 fibers are typically present in a cubic meter (fibers/m^3) of outdoor air in rural areas. (A cubic meter is about the amount of air that you breathe in 1 hour.) Health professionals often report the number of fibers in a milliliter (mL) (equivalent to a cubic centimeter [cm^3]) of air rather than in a cubic meter of air. Since there are one million cm^3 (or one million mL) in a cubic meter, there typically would be 0.00001 fibers/mL of asbestos in air in rural areas. Typical levels found in cities are about 10-fold higher.

Close to an asbestos mine or factory, levels may reach 10,000 fibers/m^3 (0.01 fibers/mL) or higher. Levels could also be above average near a building that contains asbestos products and is being torn down or renovated or near a waste site where asbestos is not properly covered up or stored to protect it from wind erosion.

In indoor air, the concentration of asbestos depends on whether asbestos was used for insulation, ceiling or floor tiles, or other purposes, and whether these asbestos-containing materials are in good condition or are deteriorated and easily crumbled. Concentrations measured in homes, schools, and other buildings that contain asbestos range from about 30 to 6,000 fibers/m^3 (0.00003–0.006 fibers/mL). People who work with asbestos or asbestos-containing products (for example, miners, insulation workers, asbestos abatement workers, and automobile brake mechanics) without proper protection are likely to be exposed to much higher levels of asbestos fibers in air. In addition, custodial and maintenance workers who are making repairs or

installations in buildings with asbestos-containing materials may be exposed to higher levels of asbestos. Since vermiculite and talc may contain asbestos, occupational workers and the general population may be exposed to asbestos when using these products.

You can also be exposed to asbestos by drinking asbestos fibers that are present in water. Even though asbestos does not dissolve in water, fibers can enter water by being eroded from natural deposits or piles of waste asbestos, from asbestos-containing cement pipes used to carry drinking water, or from filtering through asbestos-containing filters. Most drinking water supplies in the United States have concentrations of less than 1 million fibers per liter (MFL), even in areas with asbestos deposits or with asbestos-cement water supply pipes. However, in some locations, water samples may contain 10–300 million fibers per liter or even higher. The average person drinks about 2 liters of water per day.

See Chapters 3 and 6 for more information on how you could be exposed to asbestos.

1.4 HOW CAN ASBESTOS ENTER AND LEAVE MY BODY?

If you breathe asbestos fibers into your lungs, some of the fibers will be deposited in the air passages and on the cells that make up your lungs. Most fibers are removed from your lungs by being carried away or coughed up in a layer of mucus to the throat, where they are swallowed into the stomach. This usually takes place within a few hours. Fibers that are deposited in the deepest parts of the lung are removed more slowly. In fact, some fibers may move through your lungs and can remain in place for many years and may never be removed from your body. Amphibole asbestos fibers are retained in the lung longer than chrysotile asbestos fibers.

If you swallow asbestos fibers (either those present in water or those that are moved to your throat from your lungs), nearly all of the fibers pass along your intestines within a few days and are excreted in the feces. A small number of fibers may penetrate into cells that line your stomach or intestines, and a few penetrate all the way through and get into your blood. Some of these become trapped in other tissues, and some are removed in your urine.

If you get asbestos fibers on your skin, very few of these fibers, if any, pass through the skin into your body.

See Chapter 3 for more information on how asbestos enters and leaves your body.

1.5 HOW CAN ASBESTOS AFFECT MY HEALTH?

To protect the public from the harmful effects of toxic chemicals and to find ways to treat people who have been harmed, scientists use many tests.

One way to see if a chemical will hurt people is to learn how the chemical is absorbed, used, and released by the body; for some chemicals, animal testing may be necessary. Animal testing may also be used to identify health effects such as cancer or birth defects. Without laboratory animals, scientists would lose a basic method to get information needed to make wise decisions to protect public health. Scientists have the responsibility to treat research animals with care and compassion. Laws today protect the welfare of research animals, and scientists must comply with strict animal care guidelines.

Information on the health effects of asbestos in people comes mostly from studies of people who were exposed in the past to levels of asbestos fibers (greater than or equal to 5 μm in length) in workplace air that were as high as 5 million fibers/m^3 (5 fibers/mL). Workers who repeatedly breathe in asbestos fibers with lengths greater than or equal to 5 μm may develop a slow buildup of scar-like tissue in the lungs and in the membrane that surrounds the lungs. This scar-like tissue does not expand and contract like normal lung tissue and so breathing becomes difficult. Blood flow to the lung may also be decreased, and this causes the heart to enlarge. This disease is called asbestosis. People with asbestosis have shortness of breath, often accompanied by a cough. This is a serious disease and can eventually lead to disability or death in people exposed to high amounts of asbestos over a long period of time. However, asbestosis is not usually of concern to people exposed to low levels of asbestos. Changes in the membrane surrounding the lung, called pleural plaques, are quite common in people occupationally exposed to asbestos and are sometimes found in people living in areas with high environmental levels of asbestos.

Effects on breathing from pleural plaques alone are usually not serious. There is conflicting evidence as to whether their presence in a person accurately predicts more serious disease development in the future.

Asbestos workers have increased chances of getting two principal types of cancer: cancer of the lung tissue itself and mesothelioma, a cancer of the thin membrane that surrounds the lung and other internal organs. These diseases do not develop immediately following exposure to asbestos, but appear only after a number of years. There is also some evidence from studies of workers that breathing asbestos can increase the chances of getting cancer in other locations (for example, the stomach, intestines, esophagus, pancreas, and kidneys), but this is less certain. Members of the public who are exposed to lower levels of asbestos may also have increased chances of getting cancer, but the risks are usually small and are difficult to measure directly. Lung cancer is usually fatal, while mesothelioma is almost always fatal, often within a few months of diagnosis. Some scientists believe that early identification and intervention of mesothelioma may increase survival.

The levels of asbestos in air that lead to lung disease depend on several factors. The most important of these are (1) how long you were exposed, (2) how long it has been since your exposure started, and (3) whether you smoked cigarettes. Cigarette smoking and asbestos exposure increase your chances of getting lung cancer. Also, there is a scientific debate concerning the differences in the extent of disease caused by different fiber types and sizes. Some of these differences may be due to the physical and chemical properties of the different fiber types. For example, several studies suggest that amphibole asbestos types (tremolite, amosite, and especially crocidolite) may be more harmful than chrysotile, particularly for mesothelioma. Other data indicate that fiber size dimensions (length and diameter) are important factors for cancer-causing potential. Some data indicate that fibers with lengths greater than 5.0 μm are more likely to cause injury than fibers with lengths less than 2.5 μm. (1 μm is about 1/25,000 of an inch.) Additional data indicate that short fibers can contribute to injury. This appears to be true for mesothelioma, lung cancer, and asbestosis. However, fibers thicker than 3.0 μm are of lesser concern, because they have little chance of penetrating to the lower regions of the lung.

The health effects from swallowing asbestos are unclear. Some groups of people who have been exposed to asbestos fibers in their drinking water have higher-than-average death rates from cancer of the esophagus, stomach, and intestines. However, it is very difficult to tell whether this is caused by asbestos or by something else. Animals that were given very high doses of asbestos in food did not get more fatal cancers than usual, although some extra nonfatal tumors did occur in the intestines of rats in one study.

Several government offices and regulatory agencies have considered all of the evidence regarding the carcinogenicity of asbestos. The Department of Health and Human Services (DHHS) has determined that asbestos is known to be a human carcinogen. The EPA has determined that asbestos is a human carcinogen. The International Agency for Research on Cancer (IARC) has determined that asbestos is carcinogenic to humans.

See Chapters 2 and 3 for more information on how asbestos can affect your health.

1.6 HOW CAN ASBESTOS AFFECT CHILDREN?

This section discusses potential health effects from exposures during the period from conception to maturity at 18 years of age in humans. Potential effects on children resulting from exposures of the parents are also considered.

Asbestos exposure in both children and adults may occur while breathing air in or near buildings (public or private) containing asbestos building materials or near asbestos-related industrial operations. Children breathe differently and have different lung structures than adults. It is not known if these differences may cause a greater amount of asbestos fibers to stay in the lungs of a child when they are breathed in than in the lungs of an adult. Children drink more fluids per kilogram of body weight than adults and can also be exposed through asbestos-contaminated drinking water. Eating asbestos-contaminated soil and dust is another source of exposure for children. Certain children intentionally eat soil, and all young children eat more soil than adults through hand-to-mouth activities. Historically, family members have also been exposed to asbestos that was carried home on the clothing of other family members who worked in asbestos

mesothelioma (another form of cancer associated with asbestos exposure). These diseases usually appear many years following the first exposure to asbestos and are therefore not likely to be seen in children. But since it may take up to 40 or more years for the effects of exposure to be seen, people who have been exposed to asbestos at a young age may be more likely to contract these diseases than those who are first exposed later in life. In the small number of studies that have specifically looked at asbestos exposure in children, there is no indication that younger people might develop asbestos-related diseases more quickly than older people. Developing fetuses and infants are not likely to be exposed to asbestos through the placenta or breast milk of the mother. Results of animal studies do not indicate that exposure to asbestos is likely to result in birth defects.

1.7 HOW CAN FAMILIES REDUCE THE RISK OF EXPOSURE TO ASBESTOS?

If your doctor finds that you have been exposed to significant amounts of asbestos, ask whether your children might also be exposed. Your doctor might need to ask your state health department to investigate.

The most important way that families can lower their exposures to asbestos is to be aware of the sources of asbestos in their homes and avoid exposure to these sources. The most important source of asbestos in a home is from damaged or deteriorating asbestos-containing insulation, ceiling, or floor tiles. Should you suspect that your house may contain asbestos, contact your state or local health department or the regional offices of EPA to find out how to test your home for asbestos and how to locate a company that is trained to remove or contain the fibers. Federal law requires schools to identify asbestos-containing material in school buildings and take appropriate action to control release of asbestos fibers.

If you live close to where asbestos and certain other ores are mined or processed, where a building that contains asbestos products is being torn down or renovated, or a waste site where asbestos is not properly covered, then the levels of asbestos in dust and wind-blown soil may be higher. Pets can also bring asbestos into the home by carrying dust or dirt on their fur or feet if they spend time in places that have high levels of asbestos in the soil. Swallowing of asbestos in

house dust or soil is a potential exposure pathway for children. This problem can be reduced in many ways. Regular hand and face washing to remove asbestos-containing dusts and soil, especially before meals, can lower the possibility of asbestos fibers on the skin being accidentally swallowed while eating. Families can lower exposures to asbestos by regularly cleaning the home of dust and tracked in soil. Door mats can help lower the amount of soil that is tracked into the home; removing your shoes before entering will also help. Planting grass and shrubs over bare soil areas in the yard can lower the contact that children and pets may have with soil and reduce the tracking of soil into the home.

You can bring asbestos home in the dust on your hands or clothes if you work in the mining or processing of minerals that contain asbestos, in asbestos removal, or in buildings with damaged or deteriorating asbestos. Federal law regulates work practices to limit the possibility of asbestos being brought home in this way. Your occupational health and safety officer at work can and should tell you whether chemicals you work with are dangerous and likely to be carried home on your clothes, body, or tools, and whether you should be showering and changing clothes before you leave work, storing your street clothes in a separate area of the workplace, or laundering your work clothes at home separately from other clothes. Your employer should have Material Safety Data Sheets (MSDSs) for many of the chemicals used at your place of work, as required by the Occupational Safety and Health Administration (OSHA). Information on these sheets should include chemical names and hazardous ingredients, important properties (such as fire and explosion data), potential health effects, how you get the chemical(s) in your body, how to handle the materials properly, and what to do in an emergency. Your employer is legally responsible for providing a safe workplace and should freely answer your questions about hazardous chemicals. Either OSHA or your OSHA-approved state occupational safety and health program can answer any further questions and help your employer identify and correct problems with hazardous substances. OSHA and/or your OSHA-approved state occupational safety and health program will listen to your formal complaints about workplace health hazards and inspect your workplace when necessary. Employees have a right to seek safety and health on the job without fear of punishment.

1.8 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO ASBESTOS?

The most common test used to determine if you have received sustained exposure to asbestos is a chest x-ray. A chest x-ray is recommended for detecting exposure to asbestos only in persons who have sustained relatively heavy exposure. A chest x-ray is of no value for detecting evidence of asbestos exposure in a person whose exposure to asbestos has been only brief or transient. The x-ray cannot detect the asbestos fibers themselves, but it can detect early signs of lung disease caused by asbestos. While other substances besides asbestos can sometimes produce similar changes in the lungs, this test is usually reliable for detecting asbestos-related effects produced by long-term exposures at relatively high concentrations of asbestos fibers. Other tests, such as gallium-67 lung scanning and high-resolution computed tomography, are also useful in detecting changes in the lungs. However, there are currently no means of detecting exposure-related effects from commonly encountered environmental exposures.

The most reliable test to determine if you have been exposed to asbestos is the detection of microscopic asbestos fibers in pieces of lung tissue removed by surgery, but this is a very invasive test. A test can also be run to determine the presence of asbestos fibers in material rinsed out of the lung. However, this test can cause some discomfort. Asbestos fibers can also be detected in mucus (sputum), urine, or feces, but these tests are not reliable for determining how much asbestos may be in your lungs. Low levels of asbestos fibers are found in these materials for nearly all people. Higher-than-average levels can show that you have been exposed to asbestos, but it is not yet possible to use the results of this test to estimate how much asbestos you have been exposed to, or to predict whether you are likely to suffer any health effects.

See Chapters 3 and 7 for more information about how asbestos can be measured in people and in the environment.

Department of Toxic Substances Control

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Arnold Schwarzenegger
Governor

November 12, 2004

United States Department of Interior
Bureau of Land Management
Attn: Mr. George Hill
Hollister Field Manager
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Hollister, California 95203-2535

DRAFT RESOURCE MANAGEMENT PLAN AMENDMENT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE CLEAR CREEK MANAGEMENT AREA, CALIFORNIA

Dear Mr. Hill:

Thank you for requesting that the Department of Toxic Substances Control (DTSC) review the May 2004 Draft Environmental Impact Statement (DEIS) for the Clear Creek Management Area (CCMA) covering 75,000 acres of public land surrounding the Atlas Asbestos Mine Superfund site. The U.S. Department of Interior, Bureau of Land Management (BLM) intends to consider comments received during the 90 day comment period which ends on November 15, 2004 in preparing a Proposed Plan Amendment and Final Environmental Impact Statement. The focus of our review is ensuring that human health and the environment are protected from adverse exposure to naturally occurring asbestos (NOA). The following are comments regarding the environmental assessment.

As expressed in our June 20, 2003 letter to Mr. Robert Beehler, Field Manager at BLM, recent information regarding the potential human health effects of NOA exposure has been reported. Recent work regarding asbestos exposure in Libby, Montana indicates brief exposures to high concentrations can lead to various asbestos related diseases. The values recorded by air monitoring at the CCMA are also short term infrequent high exposures of asbestos. The procedure normally used in risk assessments of adjusting over a lifetime dose is contradicted by the Libby data. Past human health risk assessments prepared for the CCMA likely underestimate risk since the exposure scenario for children with their higher risk potential is ignored. In addition, the Phase Contrast Microscopy (PCM) analytical method that was used to determine the concentrations of fibers used in past risk assessments is not an accurate technique as PCM misses a number of asbestos fibers in certain situations. Transmission Electron

Microscopy is the preferred method to measure concentrations of fibers for risk assessment. These issues and recent developments regarding health risk of NOA render the 1992 risk assessment for CCMA inaccurate and invalid.

The DEIS does not provide an analysis of the risk posed to human health from NOA for activities within CCMA. Without a proper risk assessment there is no basis for selecting activities that can be safely conducted in CCMA. The United States Environmental Protection Agency (U.S. EPA) is conducting exposure assessment testing this fall and in the summer of 2005 that can be the basis of a human health risk assessment for activities within CCMA.

After review of the DEIS, DTSC recommends that BLM not make a decision regarding route designations and acceptable activities at CCMA until EPA completes its activity based exposure assessment next summer under a worst case exposure scenario. Also, DTSC recommends that BLM map the concentrations of soil asbestos so that it can consider activities in relationship to the risks associated with these asbestos concentrations. Based on the exposure assessment and knowledge at the distribution of NOA concentrations within CCMA, BLM should complete a risk assessment to determine the risks of representative activities and locations within CCMA. Based on an appropriate risk assessment, BLM should evaluate human activities within a revised draft environmental impact statement.

If you have any questions, please contact Mr. Steven Ross at (916) 255-3694.

Sincerely,

James L. Tjosvold, P.E., Chief
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To: Interested Parties

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Subject: Asbestos Exposure and Human Health Risk Assessment, Asbestos Air Sampling, Conducted November 2nd and 3rd, 2004, Clear Creek Management Area, California – Part 1: Adult Individual Activities

The subject technical memorandum, prepared by CH2MHILL for the U.S. Environmental Protection Agency, has been reviewed and approved for public release.

Asbestos Exposure and Human Health Risk Assessment, Asbestos Air Sampling, Conducted November 2nd and 3rd, 2004, Clear Creek Management Area, California – Part 1: Adult Individual Activities

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DATE:	November 4, 2005

Executive Summary

This memorandum evaluates the asbestos exposure levels and potential human health cancer risks caused by inhaling asbestos, generated by recreational activities at the Clear Creek Management Area (CCMA), based on November 2 and 3, 2004 sampling results. Asbestos exposure concentrations, expressed as Phase Contrast Microscope equivalent fibers per cubic centimeter (PCMe fibers/cc) are presented for adult receptors. In addition, potential Excess Lifetime Cancer Risks (ELCR), based on U.S. EPA's asbestos inhalation unit risk factor for carcinogenic effects, are estimated. Potential ELCRs for combined recreational activities and for child receptors, based on this sampling event, will be presented in a future technical memorandum (Part 2: Child Receptors and Combined Adult Activities).

Asbestos air samples were collected, using activity-based sampling techniques, for the following adult recreation scenarios (Table 1):

- Motorcyclists and trailing riders
- ATV (4-wheel all terrain vehicle) riders and trailing riders
- SUV (sport utility vehicle) riders and trailing vehicle riders
- Hiker
- Camper
- Sleeping Camper
- Vehicle Washer
- Vehicle Vacuumer.

Ambient air samples were also collected using high volume, stationary pumps at 4 locations. Two ambient air sampling locations were outside of the Hazardous Asbestos Area (HAA) at the CCMA, and two were inside the hazardous zone. The HAA at the

CCMA is a 30,000 acre area that is designated as hazardous by the Bureau of Land Management (BLM) due to elevated soil concentrations of naturally occurring asbestos.

Since BLM employees engage in OHV (off highway vehicle), hiking, and vehicle cleaning activities while working within the hazardous zone, exposure concentrations based on activity-based samples, are compared with airborne asbestos standards established by OSHA (Table 2A). These standards include the Permissible Exposure Limit (PEL) and the 30-minute Maximum Excursion Limit. Ambient airborne asbestos concentrations, based on stationary sampling, are reported in Table 2B.

Excess Lifetime Cancer Risk (ELCR) values are also estimated (Table 3A and 3B), using exposure assumptions appropriate for recreational users at this site. These ELCR values are compared to the risk management range of 1E-06 to 1E-04, which is used by EPA's Superfund Program to define an acceptable risk, if managed appropriately. Estimated ELCR values exceeding this range are considered unacceptable, requiring a more aggressive approach to mitigate risk.

Sample results show that hiking and camping activities created the least asbestos exposure, while OHV riding (motorcycle, ATV, and SUV) and vehicle cleaning activities created the greatest asbestos exposures. Exposures for trailing OHV riders and vehicle cleaning activities frequently exceeded OSHA's PEL (0.1 fiber/cc) and, in one case, exceeded the 30-minute excursion limit (1 fiber/cc) (Table 2A).

The estimated ELCRs for trailing motorcycle, ATV, and SUV riding frequently exceeded 1E-04 (100 in a million), when the user is assumed to ride 2-3 days/year (Table 3A and 3B). The ELCRs for lead vehicle riders were often ten times less than for trailing riders and sometimes less than 1E-06. Asbestos cancer risks for most other recreational scenarios fell between 1E-04 and 1E-06.

These data show that BLM workers engaged in OHV riding or vehicle cleaning activities within the hazardous zone at the CCMA may be frequently exposed to airborne asbestos concentrations that exceed standards established by OSHA. ELCRs for recreational users, calculated from these same concentrations, indicate unacceptable cancer risks for OHV riders, especially those in trailing positions, using EPA's Superfund risk assessment guidance as a standard. However, hiking, camping, and vehicle cleaning activities were within EPA's risk management range, indicating that these risks could, potentially, be mitigated through appropriate management decisions.

Ambient samples collected from stationary samplers showed no discernible difference in airborne asbestos concentrations from inside and outside the hazardous asbestos zone. The ambient concentrations were generally at least 10 times less than OSHA standards. Clearly, ambient sampling with stationary samplers does not provide a representative measure of exposure concentrations in the breathing zones of recreational users or workers at the CCMA.

Background

The CCMA, located in San Benito County, California, is an approximately 76,000 acre area that contains the New Idria Serpentine Formation. This 30,000 acre geological area, which has been designed a Hazardous Asbestos Area (HAA) by the Bureau of Land Management (BLM), has soils with large amounts of naturally occurring asbestos. The CCMA is one of four geographically distinct areas of the Atlas Asbestos Mine Superfund Site. It is managed by the BLM, Hollister, California. The naturally barren slopes, bald ridges, network of bulldozed mining trails, and isolated location make the CCMA a popular location for recreational use by OHV users, hunters, hikers, and campers, including many families with children.

Since the 1970's investigators have studied asbestos dust exposures of recreational users and BLM employees within the HAA (Cooper et al., 1979, Popendorf and Wenk, 1983). The "Human Health Risk Assessment for the Clear Creek Management Area" was developed for the BLM by PTI Environmental Services (1992) to assess the potential hazards and risks posed to public health associated with the inhalation of airborne asbestos generated during OHV use, as well as other uses that generate less dust. The current work is part of the task to update BLM's 1992 Human Health Risk Assessment (HHRA). This study differs from the BLM study in using transmission electron microscopy, rather than phase contrast microscopy, to analyze air samples for asbestos. In addition, this study specifically evaluates asbestos exposures to children (Part 2 of this report).

Introduction

Asbestos air sampling was conducted at the CCMA on November 2 and 3, 2004. The asbestos air sampling and analysis approach and methodology are presented in the "Sampling and Analysis Plan for Asbestos Air Sampling, Clear Creek Management Area" (CH2M HILL, 2004).

Breathing zone air samples were collected by adult study participants while performing recreational activities (i.e. activity-based samples), listed in Table 1. Using standard asbestos sampling techniques, air was sampled from the personal breathing space of the participants. This was done using a calibrated air pump attached to a plastic cassette, which contained an asbestos fiber-sampling filter.

The collected samples were sent to an analytical laboratory, EMSL Analytical, Inc., which analyzed the filters for asbestos type and concentrations in air by Transmission Electron Microscopy (TEM), using ISO 10312 methodology. The analytical results were compiled and reported as PCMe (Phase Contrast Microscope equivalent) fibers by Lockheed Martin REAC (Table A1). The number of samples counted, and both minimum and maximum asbestos exposure point concentrations in units of PCMe fibers/cc (which are equivalent to fibers/ml), are presented for adult receptors and ambient air (Table 2A and 2B).

For this human health risk assessment, exposures and risks were calculated using EPA based approaches and methodology as presented in the PTI Environmental Services HRA (1992), as described in the following sections.

Asbestos Dose-Response:

The EPA weight of evidence classification for asbestos is known human carcinogen (Table 4). The basis of the classification, the observation of increased mortality and incidence of lung cancer, mesothelioma, and gastrointestinal cancer in occupationally exposed workers, are consistent across investigators and study populations (U.S. EPA, 2005).

The inhalation unit risk for asbestos is 2.3E-01 $(f/ml)^{-1}$ [fibers/milliliter] $^{-1}$. The unit risk should not be used if the air concentration exceeds 4E-02 fibers/ml, since above this concentration the slope factor may differ from that stated (U.S. EPA 2005). In this risk assessment the calculated chronic exposure concentrations were compared to 4E-02 fibers/ml and none of the values were found to exceed that value. The unit risk is based on fiber counts made by phase contrast microscopy (PCM). In this study PCM equivalent (PCMe) fibers are measured using transmission electron microscopy (TEM) and are defined as asbestos fibers > 5 microns long, $\geq$ 0.25 microns and $\leq$3 microns in width, with an aspect ratio $\geq$ 3:1. These dimensions are used because they are equivalent to the range of fiber dimensions that can be detected with a PCM.

The quantitative unit risk estimate is limited by uncertainty in the exposure estimates, which results from a lack of data on early exposure in occupational studies and the uncertainty of conversions between various analytical measurements for asbestos.

Exposure Estimate:

The following airborne asbestos inhalation exposure algorithm is based on the 1992 PTI HRA:

$$EC = \frac{C_a \times ET \times EF \times ED}{AT}$$

Where,

EC = Chronic Exposure Concentration (averaged over a 70-year lifetime) [f/ml]
C_a = Asbestos Concentration in fibers per cubic centimeter (f/ml)
ET = Exposure Time in hours/day
EF = Exposure Frequency in days/year
ED = Exposure Duration in years
AT = Averaging Time of 24 hours/day x 365 days/year x 70 years (lifetime).

Exposure assumptions appropriate for adult recreational users are presented in Table 5. All Chronic Exposure Concentrations estimated in this study (Tables 6 to 12) were less than 4E-02 fibers/ml.

Risk Calculation:

The upper-bound excess lifetime cancer risks were calculated using the following equation described in EPA risk assessment guidance documents (EPA 1989) and is presented in the 1992 PTI HRA:

ELCR = EC x URF

Where,

ELCR = Excess Lifetime Cancer Risk
EC = Chronic Daily Exposure Concentration (averaged over a 70-year lifetime) [f/ml]
URF = Unit Risk Factor for inhalation of asbestos [0.23 $(f/ml)^{-1}$].

Estimated potential future cancer risks for individual adult scenarios are presented in Tables 6 to 12 and summarized in Table 3.

Results

Activity-based asbestos air sampling, conducted on November 2-3, included off highway vehicle riding (OHVs included motorcycles, ATVs and SUVs), hiking, camping, and vehicle cleaning (Table 1). OHV riders in trailing positions were exposed to airborne asbestos concentrations, in their breathing zones, that frequently exceeded the OSHA PEL of 0.1 fiber/cc (Table 2A). However, most exposures for lead OHV riders did not exceed the PEL. One trailing ATV rider was exposed to a concentration (2.0 PCMe fibers/cc) two times OSHA's 30-minute "not to exceed" excursion level of 1.0 fiber/cc. The maximum concentrations observed during washing and vacuuming vehicles also exceeded OSHA's PEL. Hiking and camping exposures did not exceed OSHA's PEL.

Excess Lifetime Cancer Risks (ELCR) were calculated from exposure parameters for 1-day per year, 5-day per year (Reasonable Maximum Exposure [RME]) and 12-days per year (high use) exposure frequencies (Table 5). Calculations for individual adult activities are shown in Tables 6 - 12, and the ranges of ELCR values are presented in Table 3A and 3B. These values indicate that trailing OHV riders frequently exceeded the upper limit (1E-04) of EPA Superfund Program's risk management range (1E-06 to 1E-04), when 2-3 riding days are assumed (Table 3A and 3B). The risks posed by riding for only one day per year in a trailing position usually fell within the risk management range. Cancer risks for lead OHV riders were often about ten times less than for trailing riders, with the maximum risks usually falling within the risk management range. Some hiker, camper, sleeping camper, and vehicle cleaning exposures exceeded an ELCR of 1E-06 for minimum air concentrations, but none exceeded the upper limit of the risk management range of 1E-04.

Ambient asbestos concentrations (Table 2B), collected from stationary samplers, were 100 to 1,000 times less than activity-based asbestos concentrations. Further, the concentrations reported for samples taken within the hazardous zone at the CCMA did not differ from concentrations reported for samples taken outside the hazardous zone.

Uncertainty Analysis:

This risk assessment presents quantitative estimates of some potential current and future cancer risks for recreational users of the CCMA. However, it is important to note that these numbers do not predict individual exposures, nor actual health outcomes. Specific

uncertainties should be considered when interpreting the results for this risk assessment, as follows:

- SAMPLING UNCERTAINTY

  - Seasonal Variability

Data presented herein represent results from a two-day sampling event in November, 2004, initiated within one week of a two day rainfall event that produced about one inch of precipitation in the Clear Creek area (recorded by California Department of Water Resources gauging stations at Hernandez Reservoir and Santa Rita Peak). During this sampling event, low-lying areas at the CCMA contained standing water, while elevated areas were nearly dry. Soil moisture is likely to affect dust generation and asbestos exposure during recreational activities, such that dry season samples are likely to over-estimate exposure during the wet season and wet season samples are likely to underestimate exposure during other times of the year. This uncertainty is addressed in this study by sampling during different seasons, ranging from very dry to very wet. Thus far, samples have been collected in September and November 2004, and February and September, 2005. In addition, soil samples were collected along all routes traveled during activity-based sampling, and analyzed for soil moisture (soil data will be presented and interpreted in a future report).

  - Within Season Variability

    - Time of Day, Style of Riding, Vehicle Type, Other Non-seasonal Factors. Exposure concentrations may vary due to time of day, style of riding, vehicle type, distance from preceding rider, height of rider, etc. These sources of variation could result in exposure concentrations greater or less than those observed during this sampling event. This uncertainty was addressed by performing each sampling scenario (e.g., ATV riding at the tail of three riders) more than once per day and on consecutive sampling days, to obtain a range of exposure concentrations for each scenario within a sampling event. Due to logistic and cost considerations, sample sizes were limited. Therefore, it is likely that the observed range in exposure concentrations is narrower than would be observed if more samples had been taken with a variety of riders and riding styles.

    - Child vs. Adult Exposures. Children may experience different exposures than adults for three reasons: 1) they are shorter, so their distance from the asbestos source (ground) is less than for adults engaged in the same activity; 2) they tend to be trailing, rather than lead motorcycle or ATV riders. In the case of SUVs, children will often ride in the back, rather than front seat. To address this source of uncertainty, asbestos filter cassettes were placed on adult study participants at heights to simulate a child's breathing zone. In the SUV scenario, filter cassettes were placed on the backrest of the back seat to simulate a child's breathing zone. The exposure data and cancer risks associated with these child scenarios will be presented in Part 2 of this report.

- Scenario Routes. Exposure concentrations could, potentially, vary with the route traveled during the sampling activity. The potential for variability within a particularly activity scenario (motorcycle, ATV, SUV, hiking) was limited by selecting routes for each scenario and repeating those routes, to the extent possible, during all sampling events. This approach reduced sampling variability within activity scenarios (e.g. ATV riding). However, different routes were selected for each activity (the ATV route was different from the SUV route), which could contribute to variability in asbestos concentrations across scenarios. To address this source of variation, soil samples were taken along each route and analyzed for soil moisture and asbestos concentration, since these parameters could, potentially, be linked to differences in asbestos dust generation. The results of soil sampling will be presented and interpreted in a future report.

ANALYTICAL UNCERTAINTY

- Overloaded Filters. The analysis of asbestos fibers on filters has inherent limitations and uncertainties. If samples are overloaded with asbestos fibers or dust, it may not be possible to analyze them accurately. To address this concern, two different sample volumes were collected concurrently for each sampling event, based on anticipated air concentrations from previous site-specific experience. For this sampling event, we obtained at least one filter, per activity sampling, that was not over-loaded, thereby eliminating this source of uncertainty.

- Laboratory Uncertainty. Laboratory uncertainty may result in either over- or underestimates of exposure concentrations. There are numerous potential sources of uncertainties in analyzing asbestos samples using transmission electron microscopy. These uncertainties are addressed to a large degree by the protocol for preparing and analyzing asbestos samples, developed by the International Organization for Standardization, known as ISO 10312. This method includes very specific definitions of structure types, which minimizes subjective decisions by analysts. In addition, it contains very specific counting rules and Quality Assurance/Quality Control (QA/QC) procedures. These include field duplicates, field blanks, and internal checks for consistency among analysts. Laboratory uncertainty may result in either over- or underestimates of exposure concentrations.

UNCERTAINTIES IN CALCULATING RISK

- Exposure Parameters. The exposure parameters used in these risk calculations (hours/day, days/year use of the CCMA) were based on estimates reported by recreational motorcyclists at a CCMA public meeting (PTI, 1992). The estimates by the recreational riders at the CCMA public meeting included the high-end estimates of long-term OHV use by attendees. Variations in exposure parameters will exist. For example, the range of use (1 to 12 days per year), used herein, probably does not include extreme uses of the CCMA. The BLM ranger who patrols the CCMA, for example, may ride many more than 12 days per year. Uncertainties in exposure parameters are easily addressed by producing tables of risk that encompass the

broadest expected ranged of use. Future reports may expand the range of exposure parameters used to calculate risk, if warranted.

- EPA Cancer Slope Factor for Asbestos Fibers. The EPA Integrated Risk Information System (IRIS) was the source of the asbestos cancer slope factor used in the risk calculations. The IRIS slope factor is derived from occupational studies where elevated rates of cancer were observed in workers whose occupations exposed them to high concentrations of asbestos for extended periods of time. Neither the actual dose each individual received in these studies nor the actual extent of their individual exposure was measured directly, which can lead to some uncertainty in the derived slope factor. The calculation of the slope factor is done using health protective assumptions. That is, where uncertainties are encountered, health protective assumptions are used so as not to underestimate the risk. Also, there is an uncertainty in extrapolating from high occupational doses over extended times to lower environmental exposures for much shorted time. This type of extrapolation may over estimate but should not underestimate the potential risks.

- Risks for Individual vs. Combined Activities. This assessment estimates risks for individual recreational activities. Combined activities (e.g., SUV driving to reach a staging area, then motorcycling followed by camping), are more likely to occur for users of the CCMA. Estimated risks for individual activities are likely to underestimate total risks for users of the CCMA. Risks of combined activities will be estimated and presented in Part 2 of this report.

Conclusions:

Asbestos air concentration data for the November 2-3, 2004 sampling event at the CCMA ranged from 0.0005 PCMe fibers/cc to 2.0 PCMe fibers/cc, depending upon the sampling scenario. Trailing off highway vehicle riders (motorcycle, ATV and SUV) were exposed to asbestos concentrations that exceeded occupational standards established by OSHA (PEL and 30 minute excursion limit). Vehicle washing and vacuuming activities also generated asbestos exposures that exceeded these occupational standards. These high levels occurred even though the sampling occurred within one week after a rainfall event that produced 1 inch of precipitation at the CCMA.

Lead OHV riding, hiking and camping activities generated significantly less airborne exposures with concentrations less than OSHA standards. The extent to which soil moisture affects airborne asbestos exposure will be discussed in greater detail in a final report, which will summarize and interpret seasonal data from four sampling events (September and November, 2004; February and September, 2005)

Ambient airborne asbestos concentrations, collected with stationary samplers, ranged from 0.0005 PCMe fibers/cc to 0.0056 PCMe fibers/cc, with no discernible difference between airborne concentrations sampled from inside and outside the hazardous asbestos zone. These values are 100 to 1,000 times less than OSHA standards. Clearly, ambient sampling with stationary samplers does not provide a representative measure of exposure concentrations in the breathing zones of recreational users or workers at the CCMA.

Further, the ambient concentrations during this sampling event did not reflect potential differences in asbestos concentrations in the soils within and outside the hazardous zone of the CCMA. Asbestos concentrations in CCMA soils will be reported and discussed in a future report.

The estimated ELCRs for trailing motorcycle, ATV, and SUV riding frequently exceeded 1E-04 (100 in a million), when the user was assumed to ride 2-3 days per year. The ELCRs for lead vehicle riders were often an order of magnitude or more lower, sometimes less than 1E-06. Asbestos exposure concentrations for most other recreational scenarios fell between 1E-04 and 1E-06. These data indicate that risks for trailing OHV riders generally exceed EPA Superfund Program's risk management range, which is a standard for determining the need for remedial action. Since naturally occurring asbestos cannot be cleaned up, aggressive risk management strategies are needed to mitigate these risks.

In short, these results show that BLM workers engaged in OHV riding or vehicle cleaning activities may be frequently exposed to airborne asbestos concentrations that exceed standards established by OSHA. ELCRs for recreational users of the CCME, calculated from these same concentrations, indicate unacceptable cancer risks for recreational OHV riders, especially those in trailing positions, using EPA's Superfund risk assessment guidance as a standard. However, hiking, camping, and vehicle cleaning activities were within EPA's risk management range, indicating that these risks could, potentially, be mitigated through appropriate management decisions.

Asbestos exposure and cancer risks for child users and for combined recreational scenarios (e.g., weekend SUV travel to campsite combined with motorcycle riding and camping within the hazardous zone) will be presented in a future technical memorandum (Part II).

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Table 1
CCMA Recreational Use Exposure Scenarios - Adult
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Activity	Exposure Scenario
	Adult
Motorcyclist	
Lead	X
First Trailing	X
Second Trailing	X
ATV Rider	
Lead	X
First Trailing	X
Second Trailing	X
SUV Driver/Rider	
Lead	X
Trailing	X
Hiker	X
Camper	X
Sleeping Camper	X
Vehicle Washer/Vacuumer	
Powerspray Wash	X
Hose Wash	X
HEPA Vacuum	X
Normal Vacuum	X

Table 2A
CCMA Recreational User Asbestos Exposure Point Concentration and Comparison to OSHA Occupational Standards - Adult
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Receptor	Number of Samples Counted	Asbestos Exposure Point Concentration (PCMe f/cc)	
		Minimum	Maximum
Motorcyclist			
Lead	3	2.0E-02	9.4E-02
First Trailing	5	**2.0E-01**	**4.4E-01**
Second Trailing	5	**1.4E-01**	**4.4E-01**
ATV Rider			
Lead	3	9.8E-03	4.6E-02
First Trailing	2	**5.7E-01**	**8.0E-01**
Second Trailing	3	**1.2E-01**	**2.0E+00**
SUV Driver			
Lead	4	4.6E-02	**2.0E-01**
Trailing	4	**1.4E-01**	**6.7E-01**
Hiker	4	5.0E-03	3.1E-02
Camper	2	5.0E-03	5.3E-02
Sleeping Camper*	2	5.0E-04	5.6E-03
Vehicle Washer/Vacuumer			
Powerspray Wash	3	9.8E-03	**4.1E-01**
Hose Wash	3	1.9E-02	**5.3E-01**
HEPA Vacuum	2	1.0E-02	**1.4E-01**
Normal Vacuum	2	6.0E-02	**1.1E-01**

Notes:
PCMe = Phase Contrast Microscope equivalent
f/cc = fibers/cubic centimeter (f/cc is equivalent to f/ml (fibers/milliliter)
* Staging Area 2 (High Volume Pump)
OSHA = Occupational Safety and Health Administration
Bold font values = Exceeds OSHA PEL of 0.1 fiber/cc
Bold font values (Shaded) = Exceeds OSHA 30-minute exposure limit of 1 fiber/cc

Table 2B
CCMA: Within Asbestos Hazardous Zone and Outside Asbestos Hazardous Zone, Asbestos Ambient Air Concentrations
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Location	Number of Samples Counted	Asbestos Exposure Point Concentration (PCMe f/cc)	
		Minimum	Maximum
Within Asbestos Hazardous Zone			
Staging Area #2	2	5.0E-04	5.6E-03
Staging Area #6	2	2.5E-03	5.2E-03
Outside Asbestos Hazardous Zone			
Oak Flat Campground	3	5.1E-04	3.9E-03
BLM Decontamination Area	2	2.4E-03	5.5E-03
(Staging Area #8)			

Notes:
PCMe = Phase Contrast Microscope equivalent
f/cc = fibers/cubic centimeter (f/cc is equivalent to f/ml (fibers/milliliter)

Table 3A
Summary of Adult Excess Lifetime Cancer Risk Results (Minimum)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Receptor	One-day Per Year Exposure Cancer Risk	Reasonable Maximum Exposure Cancer Risk	High Estimate Exposure Cancer Risk
Motorcyclist			
Lead	1E-06	**6E-06**	**2E-05**
First Trailing	**1E-05**	**6E-05**	**2E-04**
Second Trailing	**9E-06**	**4E-05**	**1E-04**
ATV Rider			
Lead	6E-07	**3E-06**	**9E-06**
First Trailing	**3E-05**	**2E-04**	**5E-04**
Second Trailing	**7E-06**	**4E-05**	**1E-04**
SUV Driver			
Lead	**3E-06**	**1E-05**	**4E-05**
Trailing	**9E-06**	**4E-05**	**1E-04**
Hiker	6E-08	1E-06	**4E-06**
Camper	5E-07	**2E-06**	**5E-06**
Sleeping Camper	5E-08	2E-07	5E-07
Vehicle Washer/Vacuumer			
Powerspray Wash	4E-08	2E-07	4E-07
Hose Wash	7E-08	4E-07	8E-07
HEPA Vacuum	4E-08	2E-07	4E-07
Regular Vacuum	2E-07	1E-06	**3E-06**

Notes:
Bolded results = an excess lifetime cancer risk greater than 1E-06
Bolded results (Shaded) = an excess lifetime cancer risk greater than 1E-04

Table 3B
Summary of Adult Excess Lifetime Cancer Risk Results (Maximum)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Receptor	One-day Per Year Exposure Cancer Risk	Reasonable Maximum Exposure Cancer Risk	High Estimate Exposure Cancer Risk
Motorcyclist			
Lead	**6E-06**	**3E-05**	**9E-05**
First Trailing	**3E-05**	**1E-04**	**4E-04**
Second Trailing	**3E-05**	**1E-04**	**4E-04**
ATV Rider			
Lead	**3E-06**	**1E-05**	**4E-05**
First Trailing	**5E-05**	**2E-04**	**8E-04**
Second Trailing	**1E-04**	**6E-04**	**2E-03**
SUV Driver			
Lead	**1E-05**	**6E-05**	**2E-04**
Trailing	**4E-05**	**2E-04**	**6E-04**
Hiker	3E-07	**7E-06**	**3E-05**
Camper	**5E-06**	**2E-05**	**6E-05**
Sleeping Camper	5E-07	**3E-06**	**6E-06**
Vehicle Washer/Vacuumer			
Powerspray Wash	**2E-06**	**8E-06**	**2E-05**
Hose Wash	**2E-06**	**1E-05**	**2E-05**
HEPA Vacuum	5E-07	**3E-06**	**6E-06**
Regular Vacuum	4E-07	**2E-06**	**5E-06**

Notes:
Bolded results = an excess lifetime cancer risk greater than 1E-06
Bolded results (Shaded) = an excess lifetime cancer risk greater than 1E-04

Table 4
Carcinogenic Toxicity Values
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Constituent	Carcinogenic WOE Classification	Inhalation Carcinogenic Unit Risk $[f/ml]^{-1}$	Inhalation SF Source
Asbestos [1]	A	0.23	IRIS

Notes:
EPA Group: A - Human carcinogen
IRIS: Integrated Risk Information System. EPA 2004.

[1] The unit risk should not be used if the air concentrations exceed 4E-02 fibers/ml, since above this concentration the slope factor may differ from that stated (IRIS, USEPA, 2004). In this risk assessment the calculated Chronic Exposure Concentrations are compared to 4E-02 fibers/ml.

Table 5 **DRAFT**
Exposure Assumptions - Adult
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

		One-day Per Year Exposure		Reasonable Maximum Exposure (RME)		High Estimate Exposure	
Exposure Parameter		**Motorcyclist**	**Source**	**Motorcyclist**	**Source**	**Motorcyclist**	**Source**
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	5.4	PTI, 1992	5.4	PTI, 1992	7	PTI, 1992
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989
		ATV Rider		**ATV Rider**		**ATV Rider**	
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	5.4	PTI, 1992	5.4	PTI, 1992	7	PTI, 1992
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989
		SUV Driver		**SUV Driver**		**SUV Driver**	
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	5.4	PTI, 1992	5.4	PTI, 1992	7	PTI, 1992
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989
		Hiker		**Hiker**		**Hiker**	
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	1	EPA, 2005	4	EPA, 2005	6	EPA, 2005
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989
		Camper		**Camper**		**Camper**	
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	8	EPA, 2005	8	EPA, 2005	8	EPA, 2005
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989
		Sleeping Camper		**Sleeping Camper**		**Sleeping Camper**	
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	8	EPA, 2005	8	EPA, 2005	8	EPA, 2005
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989
		Vehicle Washer/Vacuumer		**Vehicle Washer/Vacuumer**		**Vehicle Washer/Vacuumer**	
Exposure Frequency (days/year)	EF	1	PTI, 1992	5	PTI, 1992	12	PTI, 1992
Exposure Time for inhalation of asbestos (hours/day)	ET	0.33	EPA, 2005	0.33	EPA, 2005	0.33	EPA, 2005
Exposure Duration (years)	ED	30	EPA, 1989	30	EPA, 1989	30	EPA, 1989
Averaging Time for carcinogens (yr)	ATc	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989

EPA, 2005 (Region 9, Professional Judgement)

Table 6A
Risk Calculation Worksheet - Carcinogenic Effects: Adult Motorcyclist
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	Motorcyclist
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	5.4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead Motorcyclist***				
	Minimum Concentration	2.00E-02	5.28E-06	2.30E-01	1.22E-06
	Maximum Concentration	9.40E-02	2.48E-05	2.30E-01	5.71E-06
	First Trailing Motorcyclist				
	Minimum Concentration	2.00E-01	5.28E-05	2.30E-01	1.22E-05
	Maximum Concentration	4.40E-01	1.16E-04	2.30E-01	2.67E-05
	Second Trailing Motorcyclist				
	Minimum Concentration	1.40E-01	3.70E-05	2.30E-01	8.51E-06
	Maximum Concentration	4.40E-01	1.16E-04	2.30E-01	2.67E-05

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 6B
Risk Calculation Worksheet - Carcinogenic Effects: Adult Motorcyclist
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	Motorcyclist
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	5.4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead Motorcyclist***				
	Minimum Concentration	2.00E-02	2.64E-05	2.30E-01	6.08E-06
	Maximum Concentration	9.40E-02	1.24E-04	2.30E-01	2.86E-05
	First Trailing Motorcyclist				
	Minimum Concentration	2.00E-01	2.64E-04	2.30E-01	6.08E-05
	Maximum Concentration	4.40E-01	5.81E-04	2.30E-01	1.34E-04
	Second Trailing Motorcyclist				
	Minimum Concentration	1.40E-01	1.85E-04	2.30E-01	4.25E-05
	Maximum Concentration	4.40E-01	5.81E-04	2.30E-01	1.34E-04

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 6C
Risk Calculation Worksheet - Carcinogenic Effects: Adult Motorcyclist
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	Motorcyclist
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	7
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	Asbestos	EPC Value [PCMe f/ml]	Chronic Exposure Concentration [PCMe f/ml]	Unit Risk $[fibers/ml]^{-1}$	Cancer Risk
Inhalation	***Lead Motorcyclist***				
	Minimum Concentration	2.00E-02	8.22E-05	2.30E-01	1.89E-05
	Maximum Concentration	9.40E-02	3.86E-04	2.30E-01	8.88E-05
	First Trailing Motorcyclist				
	Minimum Concentration	2.00E-01	8.22E-04	2.30E-01	1.89E-04
	Maximum Concentration	4.40E-01	1.81E-03	2.30E-01	4.16E-04
	Second Trailing Motorcyclist				
	Minimum Concentration	1.40E-01	5.75E-04	2.30E-01	1.32E-04
	Maximum Concentration	4.40E-01	1.81E-03	2.30E-01	4.16E-04

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 7A
Risk Calculation Worksheet - Carcinogenic Effects: Adult ATV Rider
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	ATV Rider
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	5.4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead ATV Rider***				
	Minimum Concentration	9.80E-03	2.59E-06	2.30E-01	5.95E-07
	Maximum Concentration	4.60E-02	1.22E-05	2.30E-01	2.80E-06
	First Trailing ATV Rider				
	Minimum Concentration	5.70E-01	1.51E-04	2.30E-01	3.46E-05
	Maximum Concentration	8.00E-01	2.11E-04	2.30E-01	4.86E-05
	Second Trailing ATV Rider				
	Minimum Concentration	1.20E-01	3.17E-05	2.30E-01	7.29E-06
	Maximum Concentration	2.00E+00	5.28E-04	2.30E-01	1.22E-04

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 7B
Risk Calculation Worksheet - Carcinogenic Effects: Adult ATV Rider
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	ATV Rider
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	5.4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead ATV Rider***				
	Minimum Concentration	9.80E-03	1.29E-05	2.30E-01	2.98E-06
	Maximum Concentration	4.60E-02	6.08E-05	2.30E-01	1.40E-05
	First Trailing ATV Rider				
	Minimum Concentration	5.70E-01	7.53E-04	2.30E-01	1.73E-04
	Maximum Concentration	8.00E-01	1.06E-03	2.30E-01	2.43E-04
	Second Trailing ATV Rider				
	Minimum Concentration	1.20E-01	1.59E-04	2.30E-01	3.65E-05
	Maximum Concentration	2.00E+00	2.64E-03	2.30E-01	6.08E-04

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 7C
Risk Calculation Worksheet - Carcinogenic Effects: Adult ATV Rider
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	ATV Rider
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	7
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead ATV Rider***				
	Minimum Concentration	9.80E-03	4.03E-05	2.30E-01	9.26E-06
	Maximum Concentration	4.60E-02	1.89E-04	2.30E-01	4.35E-05
	First Trailing ATV Rider				
	Minimum Concentration	5.70E-01	2.34E-03	2.30E-01	5.39E-04
	Maximum Concentration	8.00E-01	3.29E-03	2.30E-01	7.56E-04
	Second Trailing ATV Rider				
	Minimum Concentration	1.20E-01	4.93E-04	2.30E-01	1.13E-04
	Maximum Concentration	2.00E+00	8.22E-03	2.30E-01	1.89E-03

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 8A
Risk Calculation Worksheet - Carcinogenic Effects: Adult SUV Driver
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	SUV Driver
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	5.4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead SUV Driver***				
	Minimum Concentration	4.60E-02	1.22E-05	2.30E-01	2.80E-06
	Maximum Concentration	2.00E-01	5.28E-05	2.30E-01	1.22E-05
	Trailing SUV Driver				
	Minimum Concentration	1.40E-01	3.70E-05	2.30E-01	8.51E-06
	Maximum Concentration	6.70E-01	1.77E-04	2.30E-01	4.07E-05

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 8B
Risk Calculation Worksheet - Carcinogenic Effects: Adult SUV Driver
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	SUV Driver
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	5.4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead SUV Driver***				
	Minimum Concentration	4.60E-02	6.08E-05	2.30E-01	1.40E-05
	Maximum Concentration	2.00E-01	2.64E-04	2.30E-01	6.08E-05
	Trailing SUV Driver				
	Minimum Concentration	1.40E-01	1.85E-04	2.30E-01	4.25E-05
	Maximum Concentration	6.70E-01	8.85E-04	2.30E-01	2.04E-04

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 8C
Risk Calculation Worksheet - Carcinogenic Effects: Adult SUV Driver
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	SUV Driver
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	7
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Lead SUV Driver***				
	Minimum Concentration	4.60E-02	1.89E-04	2.30E-01	4.35E-05
	Maximum Concentration	2.00E-01	8.22E-04	2.30E-01	1.89E-04
	Trailing SUV Driver				
	Minimum Concentration	1.40E-01	5.75E-04	2.30E-01	1.32E-04
	Maximum Concentration	6.70E-01	2.75E-03	2.30E-01	6.33E-04

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 9A
Risk Calculation Worksheet - Carcinogenic Effects: Adult Hiker
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	Hiker
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	1
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-03	2.45E-07	2.30E-01	5.63E-08
	Maximum Concentration	3.10E-02	1.52E-06	2.30E-01	3.49E-07

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 9B
Risk Calculation Worksheet - Carcinogenic Effects: Adult Hiker
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	Hiker
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	4
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-03	4.89E-06	2.30E-01	1.13E-06
	Maximum Concentration	3.10E-02	3.03E-05	2.30E-01	6.98E-06

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 9C
Risk Calculation Worksheet - Carcinogenic Effects: Adult Hiker
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	Hiker
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	6
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-03	1.76E-05	2.30E-01	4.05E-06
	Maximum Concentration	3.10E-02	1.09E-04	2.30E-01	2.51E-05

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 10A
Risk Calculation Worksheet - Carcinogenic Effects: Adult Camper
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information		
	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	Camper
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	8
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-03	1.96E-06	2.30E-01	4.50E-07
	Maximum Concentration	5.30E-02	2.07E-05	2.30E-01	4.77E-06

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 10B
Risk Calculation Worksheet - Carcinogenic Effects: Adult Camper
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	Camper
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	8
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-03	9.78E-06	2.30E-01	2.25E-06
	Maximum Concentration	5.30E-02	1.04E-04	2.30E-01	2.39E-05

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 10C
Risk Calculation Worksheet - Carcinogenic Effects: Adult Camper
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	Camper
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	8
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-03	2.35E-05	2.30E-01	5.40E-06
	Maximum Concentration	5.30E-02	2.49E-04	2.30E-01	5.73E-05

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 11A
Risk Calculation Worksheet - Carcinogenic Effects: Adult Sleeping Camper
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	Sleeping Camper
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	8
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-04	1.96E-07	2.30E-01	4.50E-08
	Maximum Concentration	5.60E-03	2.19E-06	2.30E-01	5.04E-07

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 11B
Risk Calculation Worksheet - Carcinogenic Effects: Adult Sleeping Camper
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	Sleeping Camper
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	8
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-04	9.78E-07	2.30E-01	2.25E-07
	Maximum Concentration	5.60E-03	1.10E-05	2.30E-01	2.52E-06

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 11C
Risk Calculation Worksheet - Carcinogenic Effects: Adult Sleeping Camper
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	Sleeping Camper
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	8
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	Minimum Concentration	5.00E-04	2.35E-06	2.30E-01	5.40E-07
	Maximum Concentration	5.60E-03	2.63E-05	2.30E-01	6.05E-06

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 12A
Risk Calculation Worksheet - Carcinogenic Effects: Adult Vehicle Washer/Vacuumer
One-day Per Year Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	1-day per year
	Receptor Population:	Vehicle Washer
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	1
Exposure Time for inhalation (hours/day)	ET	0.33
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	Asbestos	EPC Value [PCMe f/ml]	Chronic Exposure Concentration [PCMe f/ml]	Unit Risk [fibers/ml]$^{-1}$	Cancer Risk
Inhalation	***Vehicle, Powerspray Wash***				
	Minimum Concentration	9.80E-03	1.58E-07	2.30E-01	3.64E-08
	Maximum Concentration	4.10E-01	6.62E-06	2.30E-01	1.52E-06
	Vehicle, Hose Wash				
	Minimum Concentration	1.90E-02	3.07E-07	2.30E-01	7.06E-08
	Maximum Concentration	5.30E-01	8.56E-06	2.30E-01	1.97E-06
	Vehicle, HEPA Vacuum				
	Minimum Concentration	1.00E-02	1.61E-07	2.30E-01	3.71E-08
	Maximum Concentration	1.40E-01	2.26E-06	2.30E-01	5.20E-07
	Vehicle, Regular Vacuum				
	Minimum Concentration	6.00E-02	9.69E-07	2.30E-01	2.23E-07
	Maximum Concentration	1.10E-01	1.78E-06	2.30E-01	4.08E-07

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 12B
Risk Calculation Worksheet - Carcinogenic Effects: Adult Vehicle Washer/Vacuumer
Reasonable Maximum Exposure (RME)
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	RME
	Receptor Population:	Vehicle Washer
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	5
Exposure Time for inhalation (hours/day)	ET	0.33
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	Asbestos	EPC Value [PCMe f/ml]	Chronic Exposure Concentration [PCMe f/ml]	Unit Risk [fibers/ml]$^{-1}$	Cancer Risk
Inhalation	***Vehicle, Powerspray Wash***				
	Minimum Concentration	9.80E-03	7.91E-07	2.30E-01	1.82E-07
	Maximum Concentration	4.10E-01	3.31E-05	2.30E-01	7.61E-06
	Vehicle, Hose Wash				
	Minimum Concentration	1.90E-02	1.53E-06	2.30E-01	3.53E-07
	Maximum Concentration	5.30E-01	4.28E-05	2.30E-01	9.84E-06
	Vehicle, HEPA Vacuum				
	Minimum Concentration	1.00E-02	8.07E-07	2.30E-01	1.86E-07
	Maximum Concentration	1.40E-01	1.13E-05	2.30E-01	2.60E-06
	Vehicle, Regular Vacuum				
	Minimum Concentration	6.00E-02	4.84E-06	2.30E-01	1.11E-06
	Maximum Concentration	1.10E-01	8.88E-06	2.30E-01	2.04E-06

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table 12C
Risk Calculation Worksheet - Carcinogenic Effects: Adult Vehicle Washer/Vacuumer
High Estimate Exposure
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Exposure Scenario Information	Exposure Scenario:	Recreational User
	Exposure Medium:	Air
	Exposure:	High Estimate Exposure
	Receptor Population:	Vehicle Washer
	Receptor Age:	Adult

Exposure Parameter (units)	**Variable**	**Value**
Exposure Frequency (days/year)	EF	12
Exposure Time for inhalation (hours/day)	ET	0.33
Exposure Duration (years)	ED	30
Averaging Time for carcinogens, 70 year lifetime (hours)	ATc	613,200

Risk Calculations

Exposure Route	**Asbestos**	**EPC Value [PCMe f/ml]**	**Chronic Exposure Concentration [PCMe f/ml]**	**Unit Risk [fibers/ml]$^{-1}$**	**Cancer Risk**
Inhalation	***Vehicle, Powerspray Wash***				
	Minimum Concentration	9.80E-03	1.90E-06	2.30E-01	4.37E-07
	Maximum Concentration	4.10E-01	7.94E-05	2.30E-01	1.83E-05
	Vehicle, Hose Wash				
	Minimum Concentration	1.90E-02	3.68E-06	2.30E-01	8.47E-07
	Maximum Concentration	5.30E-01	1.03E-04	2.30E-01	2.36E-05
	Vehicle, HEPA Vacuum				
	Minimum Concentration	1.00E-02	1.94E-06	2.30E-01	4.46E-07
	Maximum Concentration	1.40E-01	2.71E-05	2.30E-01	6.24E-06
	Vehicle, Regular Vacuum				
	Minimum Concentration	6.00E-02	1.16E-05	2.30E-01	2.67E-06
	Maximum Concentration	1.10E-01	2.13E-05	2.30E-01	4.90E-06

Notes:
Minimum Concentration (or Maximum) = Minimum or maximum air concentration

Table A1
Tabulated Results for CCMA Asbestos Air Sampling on November 2 and 3, 2004
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Sample No.	Activity/Location	Receptor/ Modifier	Date Collected	Matrix	Volume	Volume Units	PCMe(asb)	PCMe Units	Notes
09515	ATV Lead	Adult	11/03/2004	Air	120	Liters	9.8E-03	f/ml	
09452	ATV Lead	Adult	11/02/2004	Air	160	Liters	2.8E-02	f/ml	(Highest of 2 counts)
09401	ATV Lead	Adult	11/02/2004	Air	136	Liters	4.6E-02	f/ml	
09453	ATV Lead	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09402	ATV Lead	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09514	ATV Lead	Adult	11/03/2004	Air	80	Liters	NA	f/ml	
09516	ATV Lead	Child	11/03/2004	Air	120	Liters	4.4E-02	f/ml	
09454	ATV Lead	Child	11/02/2004	Air	120	Liters	1.3E-01	f/ml	
09403	ATV Lead	Child	11/02/2004	Air	120	Liters	1.5E-01	f/ml	
09404	ATV Lead	Child	11/02/2004	Air	80	Liters	NA	f/ml	
09455	ATV Lead	Child	11/02/2004	Air	80	Liters	NA	f/ml	
09517	ATV Lead	Child	11/03/2004	Air	72	Liters	NA	f/ml	
09518	ATV Middle	Adult	11/03/2004	Air	160	Liters	5.7E-01	f/ml	
09456	ATV Middle	Adult	11/02/2004	Air	160	Liters	8.0E-01	f/ml	
09457	ATV Middle	Adult	11/02/2004	Air	112	Liters	NA	f/ml	
09519	ATV Middle	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09520	ATV Middle	Child	11/03/2004	Air	120	Liters	1.3E+00	f/ml	
09459	ATV Middle	Child	11/02/2004	Air	80	Liters	1.3E+00	f/ml	
09458	ATV Middle	Child	11/02/2004	Air	120	Liters	NA	f/ml	Overloaded
09521	ATV Middle	Child	11/03/2004	Air	80	Liters	NA	f/ml	
09522	ATV Tail	Adult	11/03/2004	Air	122	Liters	1.2E-01	f/ml	
09406	ATV Tail	Adult	11/02/2004	Air	120	Liters	7.2E-01	f/ml	
09461	ATV Tail	Adult	11/02/2004	Air	120	Liters	2.0E+00	f/ml	
09405	ATV Tail	Adult	11/02/2004	Air	140	Liters	NA	f/ml	Overloaded
09460	ATV Tail	Adult	11/02/2004	Air	60	Liters	NA	f/ml	
09523	ATV Tail	Adult	11/03/2004	Air	108	Liters	NA	f/ml	
09462	ATV Tail	Child	11/02/2004	Air	120	Liters	5.6E-01	f/ml	
09524	ATV Tail	Child	11/03/2004	Air	120	Liters	6.4E-01	f/ml	
09408	ATV Tail	Child	11/02/2004	Air	80	Liters	7.5E-01	f/ml	
09407	ATV Tail	Child	11/02/2004	Air	116	Liters	NA	f/ml	Overloaded
09463	ATV Tail	Child	11/02/2004	Air	68	Liters	NA	f/ml	
09525	ATV Tail	Child	11/03/2004	Air	80	Liters	NA	f/ml	
09479	Camp 1	Adult	11/02/2004	Air	245	Liters	5.0E-03	f/ml	
09483	Camp 2	Adult	11/02/2004	Air	228	Liters	5.3E-02	f/ml	
09481	Camp 1	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09485	Camp 2	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09480	Camp 1	Child	11/02/2004	Air	245	Liters	1.5E-02	f/ml	
09484	Camp 2	Child	11/02/2004	Air	245	Liters	4.4E-02	f/ml	
09482	Camp 1	Child	11/02/2004	Air	120	Liters	NA	f/ml	
09486	Camp 2	Child	11/02/2004	Air	120	Liters	NA	f/ml	

Table A1
Tabulated Results for CCMA Asbestos Air Sampling on November 2 and 3, 2004
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Sample No.	Activity/Location	Receptor/ Modifier	Date Collected	Matrix	Volume	Volume Units	PCMe(asb)	PCMe Units	Notes
09587	Decon	Hepa Vac	11/03/2004	Air	123	Liters	1.0E-02	f/ml	(Highest of 2 counts)
09496	Decon	Hepa Vac	11/02/2004	Air	123	Liters	1.4E-01	f/ml	
09582	Decon	Reg. Vac	11/03/2004	Air	123	Liters	6.0E-02	f/ml	
09490	Decon	Reg. Vac	11/02/2004	Air	123	Liters	1.1E-01	f/ml	
09581	Decon	Reg. Vac	11/03/2004	Air	123	Liters	<DL	f/ml	
09491	Decon	Reg. Vac	11/02/2004	Air	49	Liters	NA	f/ml	
09586	Decon	Veh. Hose	11/03/2004	Air	123	Liters	1.9E-02	f/ml	(Highest of 2 counts)
09494	Decon	Veh. Hose	11/02/2004	Air	123	Liters	2.0E-02	f/ml	
09585	Decon	Veh. Hose	11/03/2004	Air	123	Liters	5.3E-01	f/ml	
09495	Decon	Veh. Hose	11/02/2004	Air	123	Liters	NA	f/ml	
09492	Decon	Veh. Power	11/02/2004	Air	123	Liters	9.8E-03	f/ml	
09583	Decon	Veh. Power	11/03/2004	Air	119	Liters	3.0E-02	f/ml	
09584	Decon	Veh. Power	11/03/2004	Air	123	Liters	4.1E-01	f/ml	
09493	Decon	Veh. Power	11/02/2004	Air	121	Liters	NA	f/ml	
09430	Field Blank		11/02/2004	Air	0	Liters	<DL	f/ml	
09570	Field Blank		11/03/2004	Air	0	Liters	<DL	f/ml	
09534	Hiker 1	Adult	11/03/2004	Air	196	Liters	5.0E-03	f/ml	
09538	Hiker 2	Adult	11/03/2004	Air	237	Liters	9.8E-03	f/ml	
09466	Hiker 1	Adult	11/02/2004	Air	242	Liters	1.0E-02	f/ml	
09470	Hiker 2	Adult	11/02/2004	Air	242	Liters	3.1E-02	f/ml	
09469	Hiker 1	Adult	11/02/2004	Air	142	Liters	NA	f/ml	
09535	Hiker 1	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09472	Hiker 2	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09539	Hiker 2	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09467	Hiker 1	Child	11/02/2004	Air	238	Liters	1.5E-02	f/ml	
09540	Hiker 2	Child	11/03/2004	Air	234	Liters	2.0E-02	f/ml	
09536	Hiker 1	Child	11/03/2004	Air	234	Liters	<DL	f/ml	
09468	Hiker 1	Child	11/02/2004	Air	142	Liters	NA	f/ml	
09537	Hiker 1	Child	11/03/2004	Air	120	Liters	NA	f/ml	
09473	Hiker 2	Child	11/02/2004	Air	120	Liters	NA	f/ml	
09541	Hiker 2	Child	11/03/2004	Air	120	Liters	NA	f/ml	

Table A1
Tabulated Results for CCMA Asbestos Air Sampling on November 2 and 3, 2004
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Sample No.	Activity/Location	Receptor/ Modifier	Date Collected	Matrix	Volume	Volume Units	PCMe(asb)	PCMe Units	Notes
09558	Moto Lead	Adult	11/03/2004	Air	160	Liters	2.0E-02	f/ml	
09417	Moto Lead	Adult	11/02/2004	Air	160	Liters	4.0E-02	f/ml	
09449	Moto Lead	Adult	11/02/2004	Air	160	Liters	9.4E-02	f/ml	
09501	Moto Lead	Adult	11/03/2004	Air	160	Liters	<DL	f/ml	
09418	Moto Lead	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09450	Moto Lead	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09502	Moto Lead	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09559	Moto Lead	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09420	Moto Lead	Child	11/02/2004	Air	80	Liters	3.5E-02	f/ml	
09503	Moto Lead	Child	11/03/2004	Air	120	Liters	6.0E-02	f/ml	
09431	Moto Lead	Child	11/02/2004	Air	120	Liters	2.0E-01	f/ml	(Highest of 2 counts)
09560	Moto Lead	Child	11/03/2004	Air	120	Liters	<DL	f/ml	
09432	Moto Lead	Child	11/02/2004	Air	80	Liters	NA	f/ml	
09504	Moto Lead	Child	11/03/2004	Air	80	Liters	NA	f/ml	
09561	Moto Lead	Child	11/03/2004	Air	80	Liters	NA	f/ml	
09433	Moto Mid	Adult	11/02/2004	Air	120	Liters	2.0E-01	f/ml	
09505	Moto Mid	Adult	11/03/2004	Air	120	Liters	2.7E-01	f/ml	
09507	Moto Mid	Adult	11/03/2004	Air	120	Liters	2.9E-01	f/ml	
09422	Moto Mid	Adult	11/02/2004	Air	120	Liters	3.3E-01	f/ml	
09421	Moto Mid	Adult	11/02/2004	Air	116	Liters	4.4E-01	f/ml	
09562	Moto Mid	Adult	11/03/2004	Air	120	Liters	<DL	f/ml	
09435	Moto Mid	Adult	11/02/2004	Air	116	Liters	NA	f/ml	
09506	Moto Mid	Adult	11/03/2004	Air	72	Liters	NA	f/ml	
09563	Moto Mid	Adult	11/03/2004	Air	80	Liters	NA	f/ml	
09565	Moto Mid	Child	11/03/2004	Air	80	Liters	2.0E-02	f/ml	
09424	Moto Mid	Child	11/02/2004	Air	80	Liters	3.8E-01	f/ml	
09425	Moto Mid	Child	11/02/2004	Air	80	Liters	7.1E-01	f/ml	
09434	Moto Mid	Child	11/02/2004	Air	120	Liters	7.5E-01	f/ml	
09436	Moto Mid	Child	11/02/2004	Air	80	Liters	NA	f/ml	
09437	Moto Mid	Child	11/02/2004	Air	80	Liters	NA	f/ml	
09427	Moto Tail	Adult	11/02/2004	Air	120	Liters	1.4E-01	f/ml	
09426	Moto Tail	Adult	11/02/2004	Air	120	Liters	2.3E-01	f/ml	
09566	Moto Tail	Adult	11/03/2004	Air	120	Liters	2.4E-01	f/ml	(Highest of 4 counts)
09438	Moto Tail	Adult	11/02/2004	Air	120	Liters	4.3E-01	f/ml	
09439	Moto Tail	Adult	11/02/2004	Air	120	Liters	4.4E-01	f/ml	
09510	Moto Tail	Adult	11/03/2004	Air	120	Liters	<DL	f/ml	
09511	Moto Tail	Adult	11/03/2004	Air	80	Liters	NA	f/ml	
09568	Moto Tail	Child	11/03/2004	Air	120	Liters	6.5E-02	f/ml	
09512	Moto Tail	Child	11/03/2004	Air	120	Liters	2.2E-01	f/ml	
09429	Moto Tail	Child	11/02/2004	Air	80	Liters	3.0E-01	f/ml	
09428	Moto Tail	Child	11/02/2004	Air	80	Liters	3.6E-01	f/ml	
09440	Moto Tail	Child	11/02/2004	Air	80	Liters	7.6E-01	f/ml	
09451	Moto Tail	Child	11/02/2004	Air	80	Liters	1.1E+00	f/ml	
09513	Moto Tail	Child	11/03/2004	Air	80	Liters	NA	f/ml	
09569	Moto Tail	Child	11/03/2004	Air	80	Liters	NA	f/ml	

Table A1
Tabulated Results for CCMA Asbestos Air Sampling on November 2 and 3, 2004
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Sample No.	Activity/Location	Receptor/ Modifier	Date Collected	Matrix	Volume	Volume Units	PCMe(asb)	PCMe Units	Notes
09464	Oak Flat Ambient A	SKC	11/02/2004	Air	1680	Liters	5.1E-04	f/ml	
09465	Oak Flat Ambient A	Aircon	11/02/2004	Air	4240	Liters	1.5E-03	f/ml	(2 counts, identical)
09571	Oak Flat Ambient A1	Aircon	11/03/2004	Air	2340	Liters	3.9E-03	f/ml	
09572	Oak Flat Ambient A1	SKC	11/03/2004	Air	1303	Liters	NA	f/ml	
09983	Sleeping 2	Adult	11/02/2004	Air	960	Liters	< DL	f/ml	
09984	Sleeping 2	Adult	11/02/2004	Air	960	Liters	< DL	f/ml	
09982	Sleeping 1	Adult	11/02/2004	Air	902	Liters	< DL	f/ml	
09981	Sleeping 1	Adult	11/02/2004	Air	530	Liters	NA	f/ml	
09985	Sleeping 2	Adult	11/02/2004	Air	960	Liters	NA	f/ml	
09986	Sleeping 2	Adult	11/02/2004	Air	960	Liters	NA	f/ml	
09573	Staging Area 2	Aircon	11/03/2004	Air	2690	Liters	5.0E-04	f/ml	
09474	Staging Area 2	SKC	11/02/2004	Air	1638	Liters	5.6E-03	f/ml	
09574	Staging Area 2 Ambient	SKC	11/03/2004	Air	1116	Liters	NA	f/ml	
09575	Staging Area 6 A3	Aircon	11/03/2004	Air	2920	Liters	2.5E-03	f/ml	
09477	Staging Area 6 Ambient 3	Aircon	11/02/2004	Air	3950	Liters	5.2E-03	f/ml	
09576	Staging Area 6 A3	SKC	11/03/2004	Air	1164	Liters	NA	f/ml	
09577	Staging Area 6 A3	SKC	11/03/2004	Air	1164	Liters	NA	f/ml	
09475	Staging Area 6 Ambient 3	SKC	11/02/2004	Air	1592	Liters	NA	f/ml	
09476	Staging Area 6 Ambient 3	SKC	11/02/2004	Air	1537	Liters	NA	f/ml	
09488	Staging Area 8 Ambient 4	Aircon	11/02/2004	Air	4510	Liters	2.4E-03	f/ml	(Highest of 2 counts)
09489	Staging Area 8 Ambient 4	Aircon	11/02/2004	Air	4510	Liters	5.5E-03	f/ml	
09578	Staging Area 8 Ambient 4	Aircon	11/03/2004	Air	3050	Liters	<DL	f/ml	
09579	Staging Area 8 Ambient 4	Aircon	11/03/2004	Air	3050	Liters	<DL	f/ml	
09580	Staging Area 8 Ambient 4	SKC	11/03/2004	Air	1224	Liters	<DL	f/ml	
09487	Staging Area 8 Ambient 4	SKC	11/02/2004	Air	1680	Liters	NA	f/ml	
09526	SUV Lead	Adult	11/03/2004	Air	234	Liters	4.6E-02	f/ml	
09550	SUV Lead	Adult	11/03/2004	Air	240	Liters	8.5E-02	f/ml	
09413	SUV Lead	Adult	11/02/2004	Air	240	Liters	1.2E-01	f/ml	
09441	SUV Lead	Adult	11/02/2004	Air	240	Liters	2.0E-01	f/ml	
09415	SUV Lead	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09443	SUV Lead	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09527	SUV Lead	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09551	SUV Lead	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09552	SUV Lead	Child	11/03/2004	Air	237	Liters	2.2E-02	f/ml	
09528	SUV Lead	Child	11/03/2004	Air	225	Liters	7.1E-02	f/ml	
09414	SUV Lead	Child	11/02/2004	Air	237	Liters	2.0E-01	f/ml	
09442	SUV Lead	Child	11/02/2004	Air	240	Liters	4.2E-01	f/ml	
09416	SUV Lead	Child	11/02/2004	Air	120	Liters	NA	f/ml	
09444	SUV Lead	Child	11/02/2004	Air	120	Liters	NA	f/ml	
09529	SUV Lead	Child	11/03/2004	Air	120	Liters	NA	f/ml	
09553	SUV Lead	Child	11/03/2004	Air	120	Liters	NA	f/ml	
09447	SUV Tail	Adult	11/02/2004	Air	120	Liters	1.4E-01	f/ml	
09554	SUV Tail	Adult	11/03/2004	Air	240	Liters	2.0E-01	f/ml	
09530	SUV Tail	Adult	11/03/2004	Air	240	Liters	5.5E-01	f/ml	
09409	SUV Tail	Adult	11/02/2004	Air	315.4	Liters	6.7E-01	f/ml	
09445	SUV Tail	Adult	11/02/2004	Air	240	Liters	NA	f/ml	

Table A1
Tabulated Results for CCMA Asbestos Air Sampling on November 2 and 3, 2004
Human Health Risk Assessment
CCMA Asbestos Exposures (November 2 and 3, 2004)

Sample No.	Activity/Location	Receptor/ Modifier	Date Collected	Matrix	Volume	Volume Units	PCMe(asb)	PCMe Units	Notes
09411	SUV Tail	Adult	11/02/2004	Air	120	Liters	NA	f/ml	
09531	SUV Tail	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09555	SUV Tail	Adult	11/03/2004	Air	120	Liters	NA	f/ml	
09556	SUV Tail	Child	11/03/2004	Air	234	Liters	4.7E-01	f/ml	
09532	SUV Tail	Child	11/03/2004	Air	234	Liters	7.9E-01	f/ml	
09448	SUV Tail	Child	11/02/2004	Air	120	Liters	9.4E-01	f/ml	
09410	SUV Tail	Child	11/02/2004	Air	240	Liters	NA	f/ml	Overloaded
09446	SUV Tail	Child	11/02/2004	Air	240	Liters	NA	f/ml	Overloaded
09412	SUV Tail	Child	11/02/2004	Air	120	Liters	NA	f/ml	Damaged
09533	SUV Tail	Child	11/03/2004	Air	120	Liters	NA	f/ml	
09557	SUV Tail	Child	11/03/2004	Air	120	Liters	NA	f/ml	

Notes:
PCMe (asb) = Phase Contrast Microscopy equivalent (asbestos)
f/ml = Fibers per milliliter
ATV = All Terrain Vehicle
Camp = Camping Activity
Decon = Vehicle Decontamination Activity
Hepa Vac = HEPA Filter Vacuum Cleaner
Reg. Vac = Standard Vacuum Cleaner
Veh. Hose = Standard Water Hose
Veh. Power = High Pressure Water Hose
Hiker = Hiking Activity
Moto = Motorcycle Activity
Sleeping = Sleeping Activity
SUV = Sports Utility Vehicle
Aircon = Aircon Pump
SKC = SKC Pump
Staging Area = Vehicle Staging Area
Ambient = Ambient Air Sample
Oak Flat = Oak Flat Campground
Lead = Lead vehicle
Middle = Middle vehicle (First Trailing Vehicle)
Tail = Last vehicle (Second Trailing Vehicle)
PCMe (f/ml)= f/cc (fibers/cubic centimeter)
Results for child receptors will be evaluated in a future technical memorandum.

Human Health Risk Assessment - Asbestos Air Sampling Clear Creek Management Area, California September 15th, 2004

The purpose of this memorandum is to evaluate the potential human health risks for asbestos inhalation exposures during motorcycling recreational activities, based on the data obtained during the asbestos air sampling pilot study conducted at the Clear Creek Management Area (CCMA) on September 15, 2004. Potential excess Lifetime Cancer Risks (ELCR) were estimated for the Lead Motorcyclist, First Trailing Motorcyclist, and Second Trailing Motorcyclist receptors (Table 1).

The estimated ELCR was calculated for three exposure scenarios: a One-day per Year Exposure, a Reasonable Maximum Exposure (RME) of 5 days per year, and a High Estimate Exposure of 12 days per year (Table 2). The estimated ELCR values were compared to the risk management range of 1E-06 to 1E-04 that is generally used by EPA. Estimated ELCR values within or exceeding this range may require a risk management decision that includes evaluating site-specific characteristics and exposure scenarios to assess if remedial action is warranted.

For all three exposure scenarios, the estimated ELCR values were within or exceeded the risk management range:

- One-day per Year Exposure. ELCR for the lead, first trailing, and second trailing motorcyclist were, 3E-06, 4E-05, and 6E-05, respectively.
- RME Exposure. ELCR for the lead, first trailing, and second trailing motorcyclist were, 1E-05, 2E-04, and 3E-04, respectively.
- High Estimate Exposure. ELCR for the lead, first trailing, and second trailing motorcyclist were, 4E-05, 6E-04, and 9E-04, respectively.

The results of this study suggests that further sampling is needed to confirm the results of this one-time sampling event and to determine if risk management-based mitigation measures are needed to reduce the exposures of recreational motorcycle riders to naturally occurring asbestos at the CCMA.

Background:

The CCMA is located in San Benito County, California and is within a 48-square-mile area that contains large amounts of naturally occurring asbestos. The CCMA is one of the four geographically distinct areas of the Atlas Asbestos Mine Superfund Site. It is managed by the U.S. Department of the Interior, Bureau of Land Management (BLM), Hollister, California. The naturally barren slopes, bald ridges, network of bulldozed mining trails,

and isolated location makes the CCMA a popular location for recreational use by off-road motorcyclists, including many families with children, who camp in the area (Popendorf and Wenk, 1983).

Since the late 1970's the BLM has conducted studies to identify and quantify the dust exposures of recreational users and rangers within the CCMA. The "Human Health Risk Assessment for the Clear Creek Management Area" was developed for the BLM by PTI Environmental Services (1992) to assess the potential hazards and risks posed to public health associated with the inhalation of airborne asbestos generated during off-road vehicle use, as well as other site uses that generate less dust. This current work is part of the task to update the 1992 Human Health Risk Assessment (HHRA).

Introduction:

The asbestos air sampling pilot study was conducted at the CCMA on September 15, 2004. The asbestos air sampling and analysis approach, and methodology followed for the asbestos sampling pilot study are presented in the "Sampling and Analysis Plan for Asbestos Air Sampling, Clear Creek Management Area" (CH2M HILL, 2004). The purpose and objective of the pilot sampling and analysis effort was to reality test the asbestos air sampling and laboratory analysis methods presented in the SAP. In this way, field experience at the CCMA could be gained and adjustments made, as needed, to the SAP to optimize field sampling procedures and laboratory analysis before large-scale field sampling was conducted in November 2004.

Breathing zone air samples were collected from study participants during motorcycling riding, SUV driving, and other activities conducted at the CCMA on September 15, 2004. Using standard asbestos sampling techniques, air samples containing asbestos fibers were collected from personal breathing space air. This was done using a calibrated air pump attached to a plastic cassette, which contained an asbestos fiber-sampling filter.

The collected samples were sent to an analytical laboratory (Lab/Cor Inc.) and analyzed for asbestos type and concentrations in air by Transmission Electron Microscopy (TEM) using ISO 101312 methodology (Lab/Cor, Inc., 2004).

EPA requested that the potential health risks be estimated from exposures to airborne asbestos during motorcycle riding. The results and conclusions of this risk assessment will give EPA an initial estimate of potential risks to recreational motorcycle riders at the CCMA and will be used to further refine the SAP before the larger scale field sampling is conducted. The results and CCMA-specific experience gained from this risk assessment will also be used to assist in the development of the CCMA Risk Assessment Update Work Plan, which will be developed at a later date.

The three samples selected for evaluation were collected by motorcyclists while traveling over a 23-25 mile route of unpaved roads and trails. The results of the TEM laboratory analysis of theses samples (Lab/Cor, Inc., 2004) were reported as PCM (Phase Contrast Microscope) equivalent fibers (Table 3):

- Lead Motorcyclist: 0.0443 fibers/ml
- First Trailing Motorcyclist: 0.659 fibers/ml
- Second Trailing Motorcyclist: 0.955 fibers/ml.

For this human health risk assessment, exposures and risks were calculated using EPA based approaches and methodology as presented in the PTI Environmental Services HRA (1992) as described in the following sections.

Asbestos Dose-Response:

The EPA weight of evidence classification for asbestos is "A"; human carcinogen (Table 4). The basis of the classification, the observation of increased mortality and incidence of lung cancer, mesotheliomas, and gastrointestinal cancer in occupationally exposed workers, are consistent across investigators and study populations (U.S. EPA, 2004).

The unit risk for asbestos is 2.3E-01 $(f/ml)^{-1}$ [fibers/milliliter] $^{-1}$. The unit risk should not be used if the air concentration exceeds 4E-02 fibers/ml, since above this concentration the slope factor may differ from that stated (U.S. EPA 2004). In this risk assessment the calculated chronic exposure concentrations are compared to 4E-02 fibers/ml. The unit risk is based on fiber counts made by phase contrast microscopy (PCM), which detects only fibers longer than 5um and >0.4 um in diameter.

The quantitative unit risk estimate is limited by uncertainty in the exposure estimates, which results from a lack of data on early exposure in occupational studies and the uncertainty of conversions between various analytical measurements for asbestos.

Exposure Estimate:

The following airborne asbestos inhalation exposure algorithm is based on the 1992 PTI HRA:

$$EC = \frac{C_a \times ET \times EF \times ED}{AT}$$

Where,

EC = Chronic Exposure Concentration (averaged over a 70-year lifetime) [f/ml]
C_a = Asbestos Concentration in fibers per cubic centimeter (f/ml) (95% UCL)
ET = Exposure Time in hours/day
EF = Exposure Frequency in days/year
ED = Exposure Duration in years
AT = Averaging Time of 24 hours/day x 365 days/year x 70 years (lifetime).

All Chronic Exposure Concentrations estimated in this study (Tables 5, 6 and 7) were less than 4E-02 fibers/ml.

Risk Calculation:

The upper-bound excess lifetime cancer risks were calculated using the following equation described in EPA risk assessment guidance documents (EPA 1989) and is based on that presented in the 1992 PTI HRA:

$$ELCR = EC \times URF$$

Where,

ELCR = Excess Lifetime Cancer Risk
EC = Chronic Daily Exposure Concentration (averaged over a 70-year lifetime) [f/ml]
URF = Unit Risk Factor for inhalation of asbestos [0.23 $(f/ml)^{-1}$].

Estimated potential cancer risks are presented in Tables 5, 6 and 7.

Results:

For purposes of this evaluation, the potential for unacceptable risk, was identified using the following criteria. ELCR values were compared to the risk management range of 1E-06 to 1E-04 that is generally used by EPA. ELCR values within or exceeding this range may require a risk management decision that includes evaluating site-specific characteristics and exposure scenarios to assess if remedial action is warranted.

For all three exposure scenarios, the estimated ELCR were within or exceeded the risk management range:

- One-day per Year Exposure. ELCR for the lead, first trailing, and second trailing motorcyclist were, 3E-06, 4E-05, and 6E-05, respectively (Table 5).
- RME Exposure. ELCR for the lead, first trailing, and second trailing motorcyclist were, 1E-05, 2E-04, and 3E-04, respectively (Table 6).
- High Estimate Exposure. ELCR for the lead, first trailing, and second trailing motorcyclist were, 4E-05, 6E-04, and 9E-04, respectively (Table 7).

The ELCRs for all three exposure scenarios are summarized in Table 8.

Uncertainty Analysis:

This risk assessment presents quantitative estimates of current and future potential cancer risks. However, it is important to note that these numbers do not predict actual health outcomes. The one-day per year, RME, and high-end scenario risk estimates are calculated in a conservative, health protective manner that tends to overestimate risks. Thus any actual health impacts are likely to be lower than these estimates. Specific uncertainties that should be considered when interpreting the results for this risk assessment include:

- Single Event, Single Rider, Single Sample for Each Riding Position. The asbestos samples were collected during a single sampling event, during the dry-season at the CCMA, with a single motorcycle rider for each riding position, and a single sample analyzed for each rider. Therefore the representativeness of the collected samples has a great degree of uncertainty. For example, the other riders may have different styles of riding (for instance, speed) that influence the amount of dust generated.
- Single 23 to 25-mile Motorcycle Route. The CCMA is a 48 square mile wilderness area. Exposures were monitored over a single 23 - 25 mile motorcycle route, which contributes uncertainties to the estimated exposures. Other parts and routes of the CCMA may have higher or lower levels of asbestos in the soil
- Dry Season - September 15th, 2004. Asbestos air monitoring samples were collected on one day, September 15th, 2004, during the dry season. Therefore the representativeness of the collected samples has a great degree of uncertainty. The dry season is assumed to contribute more asbestos fiber-containing dust to the air, while the wet season is assumed to have comparably less asbestos containing dust in the air. On the other hand more motorcycle riders use the CCMA during the cooler weather wet season.
- Exposure Parameters. The exposure parameters used were based on both EPA and site-specific exposure estimates reported by recreational motorcyclists at a CCMA public meeting (PTI, 1992). EPA default exposure parameters are selected to be protective of public health. The estimates by the recreational riders at the CCMA public meeting included the high-end estimates of long-term on-site motorcycle use by attendees present. Variations in exposure parameters will exist but this range probably covers most cases
- TEM Methodology for Asbestos Analysis. The use of TEM for asbestos fiber analysis adds more reliability to the enumeration and identification of asbestos fibers compared to historical phase contrast microscopy (PCM). However uncertainties arise from the current practice of expressing TEM analysis results in terms of PCM equivalent values. These uncertainties are minimized by applying standardized counting rules to the PCM equivalent analysis.
- EPA Cancer Slope Factor for Asbestos Fibers. The cancer slope factor used in the risk assessment was the value presented in current EPA guidance. The EPA Integrated Risk Information System (IRIS) was the source of the asbestos cancer slope factor used in the risk calculations. As noted in OSWER Directive 9285.7-53 (dated December 5, 2003), the EPA hierarchy of human health toxicity values recommended for use in risk assessments lists EPA's IRIS as the sole Tier 1 source. The hierarchy recognizes the EPA should use the best science available on which to base risk assessments. In general, if health assessment information is available in the IRIS for the contaminant under evaluation, risk assessors normally need not search further for additional sources of information. Since EPA's development and use of peer review in toxicity assessments, IRIS assessments have undergone external peer review in accordance with Agency peer review guidance. IRIS health assessments contain Agency consensus toxicity values.

  Since IRIS toxicity values are routinely re-evaluated and updated, there is some uncertainty as to when a specific toxicity value will be updated. Recently, IRIS has posted the IRIS Chemical Assessment Tracking System, a compilation of status reports

on EPA's IRIS assessments currently in progress, on the IRIS website. The chemical assessment for asbestos (noncancer effects) is in progress with a First Draft expected December 31, 2004 and a Second Draft expected March 31, 2005; Internal Peer Consultation is expected October 31, 2005; Agency Review is expected August 31, 2006; External Peer Review and Public Availability is expected March 31, 2007; Final ORD/NCEA Approval is expected October 31, 2007; and web posting of the asbestos risk assessment toxicity values for noncancer effects is expected January 31, 2008. Thus the results of the IRIS process to develop a new, final toxicity value for noncancer effects for asbestos are expected in 2008.

It should be noted that an assessment of the cancer toxicity value for asbestos is not currently posted on the IRIS Chemical Assessment Tracking System. Therefore, a projected date for review and updates to the asbestos cancer toxicity value is not currently available.

Conclusions:

For all three exposure scenarios, the estimated Excess Lifetime Cancer Risks were within or exceeded the risk management range generally used by EPA. The results of this study suggest that further sampling is needed to confirm the results of this one-time sampling event and to determine if risk management based, mitigation measures are needed to reduce the exposures of recreational motorcycle riders to naturally occurring asbestos at the CCMA. Additionally, air monitoring of asbestos exposures of recreational users of the CCMA should be considered for the wet season as well at the dry season. With lower temperatures, the wet season is a popular time for motorcycling and motorcycle racing events at the CCMA.

References:

CH2M HILL. 2004. Sampling and Analysis Plan for Asbestos Air Sampling, Clear Creek Management Area, San Benito County, California. October.

Lab/Cor, Inc. 2004. CCMA "Dry-Run" - FINAL REPORT, Number 041068R4 (Laboratory TEM Results). November 15.

PTI Environmental Services. 1992. Human Health Risk Assessment for the Clear Creek Management Area. Prepared for: U.S. Department of the Interior, Bureau of Land Management, Hollister, CA. Bellevue, Washington. September.

U. S. EPA (U. S. Environmental Protection Agency). 1989. Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual (Part A), Interim Final. EPA/540-1-89/002. December 15.

U. S. EPA (U. S. Environmental Protection Agency). 2004. Integrated Risk Information System (Asbestos), internet database. October 5.

Children and Asbestos Exposure

Parents and guardians should be aware that children are more likely than adults to suffer from adverse long term health effects after asbestos exposure.

Case reports have shown that children exposed to high levels of asbestos infrequently (during recreational use) have developed asbestos-related diseases or their X-rays show future problems.

Please think twice before bringing your child to the CCMA.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Hollister Field Office
20 Hamilton Court
Hollister, CA 95023
www.ca.blm.gov/hollister

February 28, 2005

In Reply refer to:
1610 (CA-930)P

U.S. Environmental Protection Agency
Region 9 Headquarters
75 Hawthorne St.
San Francisco, CA 94105

Dear Mr. Enrique Manzanilla;

On December 1, 2004 BLM received EPA's comment letter on the Clear Creek Management Area (CCMA) Draft Resource Management Plan Amendment and Draft Environmental Impact Statement (DRMP/DEIS). The comment letter indicates that EPA is concerned that BLM has used inadequate information in the DRMP/DEIS to analyze human health risks from exposure to naturally occurring asbestos, which is based on a risk assessment contracted by BLM in 1992. The comment letter also suggests that BLM should consider issuing a Supplemental DRMP/DEIS to incorporate results of an on-going risk assessment by EPA to determine the human health risks from exposure to naturally occurring asbestos that will be complete in 12-18 months. Furthermore, EPA's comment letter offers alternatives for consideration in a Supplemental DRMP/DEIS, and states that BLM could be referred to the Council on Environmental Quality (CEQ) if the agency does not adequately address EPA's concerns. Finally, EPA's comment letter recommends that BLM immediately implement all mitigation and monitoring commitments from a 1999 Record of Decision.

BLM recognizes the importance of utilizing the best available information to conduct analyses for the protection of human health and safety as critical to the mission of the BLM to promote the use and enjoyment of public lands. Therefore, BLM will address EPA's concerns in a subsequent public review process to evaluate alternatives for public use of the Clear Creek Management Area when the results of the on-going risk assessment become available. However, BLM is requesting that EPA withhold referral to the CEQ on the current DRMP/DEIS to allow BLM to complete the route designation process, pursuant to the 1999 Record of Decision (ROD) that EPA referenced in the comment letter, which is also the primary purpose the current CCMA Plan Amendment was developed.

To further discuss these issues and elaborate on the process and techniques BLM would use to address EPA's concerns, representatives from both agencies met on February 8, 2005 to develop agreement on a planning process that meets the needs of both the EPA and BLM. Representatives from EPA included: Lynn Suer, Jeanne Geselbracht, Arnold Den, Lisa Hanf, and

Bob Fitzgerald. Representatives from BLM included: Bob Beehler, George Hill, Sky Murphy, Eli Ilano, and Jack Mills.

Issues discussed and addressed included the following:

- The pending results of EPA's risk assessment study do not directly relate to the specific designation of a route network, but rather to the overall public use of the CCMA.
- Upon completion of the CCMA Designation EIS/Plan Amendment, there would be immediate benefits to BLM's management ability to address the resource condition objectives identified in the 1999 ROD, including furthering protection of special status species, watershed resources (erosion, sediment transport, water quality), and limitations on public use (dry season closure, registration.)
- A current lawsuit filed by California Native Plant Society (CNPS) and Center for Biological Diversity (CBD) charges BLM with failure to implement the 1999 Record of Decision, which includes route designation.

During the discussion, EPA and BLM tentatively agreed to terms that would allow BLM to complete the route designation process and convince EPA that referral to CEQ would not be necessary provided BLM addresses issues identified below in Final EIS.

- EPA wants assurance that should BLM proceed with route designation that it will address results of risk assessment upon completion of study (Jan. 2006 ?) in a subsequent Clear Creek Plan.
- Should Clear Creek designation EIS proceed, EPA wants the following issues addressed in the document:
  - expand on mitigation measures to meet resource condition objectives and implementation of commitments from the 1999 Record of Decision (ROD), including dry season closure and registration and limitations of public use;
  - acknowledge uncertainties in data/information presented in the current DEIS with regard to the 1992 Human Health Risk Assessment;
  - fully disclose the pending risk assessment and specifically identify how the results of this study will be addressed in a separate planning process;
  - identify immediate actions to be taken to reduce human health risks from exposure to naturally occurring asbestos; and
  - the Final EIS must clearly show environmental benefits of route designation.
- EPA requests review of administrative draft of Final EIS prior to public release.

The BLM believes the best course of action is to complete route designation EIS, to avoid consequences of current litigation and provide critical management tools to address resource concerns in the interim while awaiting results of EPA risk study.

BLM is committed to addressing EPA's risk assessment in future land use planning decisions for the CCMA. Upon completion of EPA's risk study in 2006, BLM would begin preparation of a Clear Creek Management Plan (Resource Management Plan Amendment) addressing overall public recreation use of the CCMA incorporating findings from the study. This plan would analyze a broad range of alternatives, including a range of "Limited Use" area designations

which could further restrict public use to include potential closure based on health risk. BLM has receipt of the first EPA Technical Report relating to dry season sampling in September 2004 and based on the results, proposes to implement a dry season closure through a Federal Register Notice for the summer 2005 season.

BLM has made significant progress over the past few years in implementing decisions from the 1999 ROD, and it is critical to continuing this progress that the current designations be completed in a timely manner. There is a great deal of public interest in the CCMA and honoring our commitments to our stakeholders in this planning process is also an important consideration. BLM formally requests a Letter of Support from EPA for BLM to complete the route designation process prior to the release of EPA's on-going risk assessment, under the terms and conditions as discussed in this letter and in the meeting of February 8, 2005.

Sincerely,

Mike Pool
California State Director

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. **All public access, including motorized and non-motorized recreation use is restricted on public lands within the Serpentine ACEC from June 4, 2005 through October 15, 2005.** 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.

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 a significant hazard and risk associated with exposure to asbestos.

Except for travel on San Benito County roads, 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 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.

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

Approved By: _____ **Date:** May 25, 2005
George E. Hill
Assistant Field Manager, Hollister Field Office, BLM

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Hollister Field Office
20 Hamilton Court
Hollister, CA 95023
www.ca.blm.gov/hollister

25 May 2005

In Reply refer to:
1610 (CA-190)P

Nova Blazej, Acting Manager
Office of Federal Activities
U.S. Environmental Protection Agency, Region IX
75 Hawthorne St.
San Francisco, CA 94105

Dear Ms. Blazej:

We appreciated your letter of April 14, 2005, to the Bureau of Land Management (BLM) regarding strategies to complete the environmental review process for BLM's pending Resource Management Plan Amendment for the Clear Creek Management Area (CCMA). This letter provided us important further directions from EPA to clarify the December 1, 2004, letter on this project from Director Wayne Nastri to BLM State Director Mike Pool.

BLM welcomes EPA's concurrence on an appropriate process to implement route designations for the CCMA as soon as possible through issuance of a Final Environmental Impact Statement (EIS) and Record of Decision for the plan amendment. We agree that completing this planning process will greatly improve BLM's management ability related to minimizing impacts to watershed resources, protection of special status species, and management of OHV recreation.

BLM is in receipt of EPA's Feb. 5, 2005 Technical Memorandum "Human Health Risk Assessment -Asbestos Air Sampling Clear Creek Management Area, California," regarding sampling on September 15, 2004. As acknowledged in this Technical Memorandum, specific uncertainties exist that should be considered when interpreting the results for this risk assessment, and that further sampling and evaluation is necessary for completion of this risk assessment. Upon completion of the asbestos exposure studies and your final report, both our agencies will better be able to assess exposure to naturally occurring asbestos (NOA) from recreational uses at the CCMA.

Until that data is available, BLM agrees to the following three actions, as stated in EPA's April 18 letter, which will allow us to protect public health and safety, our highest priority, and complete the CCMA Route Designation Final EIS and ROD:

1) A Dry Season Closure for the 2005 summer season;
2) Incorporation of Dry Season Data in the Final EIS; and
3) Identification of an Expedited Decision-making Process to address EPA's completed study.

Dry season use restrictions have been identified as a management tool in previous plans for the CCMA, including the 1995 FEIS, although have not been implemented in the past. The Management Guidance and Determinations Common to all Alternatives section of the 1995 FEIS/Plan Amendment for the CCMA states that "A seasonal restriction to OHV use would be enforced throughout the CCMA…during dry soil and dusty conditions" (p. 12). The same document also refers to "seasonal access closures" during "months of extreme dry and dusty. . ." road conditions (p. 23). The 1999 Record of Decision (ROD) reaffirms limiting the number of vehicles within CCMA, or establishing vehicle quotas during certain seasons.

In compliance with EPA's Technical Memorandum for the September 2004 sampling, BLM believes that in the interim it is in the public interest to restrict public use of the Serpentine ACEC (Hazardous Asbestos Area) during the driest period to reduce potential risks to public health. Considering that dry season use restrictions were not described or analyzed in detail in the 1995 FEIS, BLM has completed an environmental assessment in compliance with NEPA requirements (see attached).

While your letter states that the dry season closure "should begin as soon as possible, but not later than Memorial Day weekend, and continue through mid-November based on historical precipitation and stream gage data," we anticipate completing our required regulatory procedures for the closure as described below in time to implement a closure by the first weekend in June (June 4-5). For reasons cited below, the dry season closure would end in Oct. 15, 2005.

BLM is committed to significantly expanding our signage and other public information materials to clearly identify potential health risks related to asbestos exposure during the dry season. BLM would appreciate assistance of your staff in drafting of this warning language.

Dry season use restrictions would be in accordance with 43 CFR 8364.1 as follows: "Closure and restriction orders. (a) To protect persons, property, and public lands and resources, the authorized officer may issue and order to close or restrict use of designated lands." Closures and restrictions pursuant to this regulation become effective immediately upon signature and also require publishing of the orders in the *Federal Register*. As results of the November sampling are not public information at this point, these use restrictions will be based solely on EPA's Technical Memorandum from the September 2004 sampling. The closure will indicate that the restrictions would be lifted October 15 , based on field observations, asbestos sampling data, climatic conditions, and rainfall data from remote stations. An evaluation of conditions at that time would be conducted to determine if any further use restrictions were warranted.

It is important to note that BLM has no authority to restrict use or close roadways owned by San Benito County, including Clear Creek/New Idria Road (R001), T158, R015, and R011 (Spanish Lake Road). This network of roads is approximately 27 miles and traverses the heart of the Serpentine ACEC. BLM is discussing this issue with the San Benito County Board of Supervisors who will have the authority to close or not close these routes.

There are a number of parcels of private land within the CCMA which require legal access for these landowners. There are also rights-of-way holders including communications sites on both Santa Rita Peak and San Benito Mountain that are primarily accessed from the New Idria side by

various entities for maintenance purposes. These access rights must be recognized and exemptions to the closure can be granted by BLM if requested. We will, of course, provide safety information to minimize asbestos exposure.

BLM has met with a variety of stakeholders and interested agencies to solicit input on this issue, including Blue Ribbon Coalition, American Motorcycle Association, California State Parks Off-Highway Motor Vehicle Recreation Division, California Department of Toxic Substance Control, and San Benito County. A public workshop was held on May 17, 2005 to inform local area users and interest groups about the use restrictions. We point out that several of these parties have expressed a great deal of concern over implementation of a seasonal closure at the CCMA, particularly if aimed solely at OHV use. Because public safety is the reason for this closure, it will apply to all users of the public lands, with the exception of those granted exemptions due to valid access rights or other legal requirements.

Implementation of the closure will include producing press releases to notify and inform the public of the purpose of the restrictions. BLM will prepare any necessary maps, place restriction signs and information at all area entry points, and perform local public outreach. BLM Law Enforcement Rangers will patrol the area and entrance points to ensure compliance during the use restriction period. BLM will continue to post asbestos information throughout the area and include this information monthly to the public in the CCMA bulletin.

BLM anticipates completion of the CCMA Route Designation EIS later this summer. The plan amendment, as required by EPA in your April 18 letter, will describe the 2005 Dry Season Use Restrictions, incorporate available sampling data from EPA's risk assessment, and identify planning issues that may require subsequent environmental analysis relating to overall public use of the CCMA. BLM appreciates your willingness to commit to a priority review of the administrative draft of this plan.

BLM will continue to coordinate with EPA and interested parties on efforts to protect public health and safety throughout the interim dry season closure and the plan amendment process. Please let us know if you have any questions regarding this matter, or feel free to contact me at (831) 630-5010.

Sincerely,

for **Robert Beehler**
Field Manager, Hollister Field Office

Enclosure: Environmental Assessment

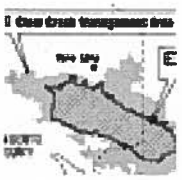
SFGate.com

SAN BENITO AND FRESNO COUNTIES

Asbestos concerns at dirt-bike area

- Maria Alicia Gaura, Chronicle Staff Writer

Thursday, December 9, 2004



Officials should consider restricting or cutting off access to one of the most popular dirt-biking areas in California because riders are being exposed to high levels of naturally occurring asbestos, according to the federal Environmental Protection Agency.

The thousands of off-road enthusiasts who roar over 50,000 barren acres of the Clear Creek Management Area are being exposed to asbestos levels as high as nine times the allowable maximum in the workplace, the EPA said.

The Bureau of Land Management, which runs the site 55 miles south of Hollister, should consider closing Clear Creek to all visitors until health hazards can be studied more thoroughly, the EPA said last week.

Two environmental groups have also sued to temporarily ban off-road vehicles from Clear Creek, saying dirt bikers are crushing a small, endangered primrose that grows there.

Clear Creek contains one of the largest naturally occurring asbestos deposits on Earth, and the land is dotted with abandoned asbestos and mercury mines. Visitors entering Clear Creek's 30,000-acre "red zone" see signs warning of asbestos exposure.

But many bikers shrug off the warnings, and few bother with lung protection, even for children. Some believe that the asbestos at Clear Creek is harmless or that the risk has been overstated.

The EPA sent off-road riders into Clear Creek in September fitted with air-sampling devices. The tail rider in a group of three motorcyclists was exposed to 0.955 asbestos fibers per cubic centimeter, compared with the allowable workplace level of 0.1 fibers per cubic centimeter, the agency said.

While additional air tests are planned, the EPA said the "potential for significant health impacts" could warrant closing Clear Creek at least during the dry season, when the dust is up.

Other measures worth considering, according to the EPA, include limiting the number of days per year a person may visit Clear Creek; requiring an informed consent waiver; restricting access by children; banning camping in the red zone; or requiring respirator use for all visitors.

The EPA also urges that measures be taken to prevent visitors from tracking asbestos-laden dirt into restaurants, cars and homes.

The agency performed the tests as part of a broader environmental study of Clear Creek being run by the Bureau of Land Management.

Robert Beehler, field manager for the bureau's Hollister office, said he planned to post the EPA's new asbestos data on the agency Web site as well as in a monthly bulletin sent to regular users. But he said the bureau had no immediate plans to limit access.

"The EPA information isn't exactly a shocking revelation," Beehler said. "When it's dry and dusty out there, the asbestos levels are higher. We are trying to inform people before they get out there, as well as on the site."

Longtime Clear Creek rider Ed Tobin said the new information didn't impress him in the least.

"In my opinion the EPA is an organization with a bunch of fanatics who believe that one asbestos fiber will kill you, like a silver bullet," Tobin said. "I'm very skeptical of any work they produce. They have an agenda, and that is to shut us down.

"I've been riding out here for 30 years," Tobin said. "And I'm not dead yet."

The EPA isn't the only group looking to limit access to Clear Creek. The California Native Plant Society and the Center for Biological Diversity filed suit in federal court last month demanding that the Bureau of Land Management block motor traffic until it acts to protect the threatened San Benito evening primrose.

The groups say that about two-thirds of the area's colonies of the primrose have been harmed by off-road activity, and that one colony of 1,476 plants was wiped out by off-road drivers between 2000 and 2003.

Native Plant Society spokeswoman Emily Roberson said the lawsuit had been filed after more than 20 years of trying to negotiate an acceptable plant protection plan with the bureau.

"We are very sorry that it came to litigation," Roberson said. "Our goals are to work with the BLM and find ways to protect the rare plants, while allowing off-road vehicle use to resume in areas where it doesn't pose a risk (to rare plants)."

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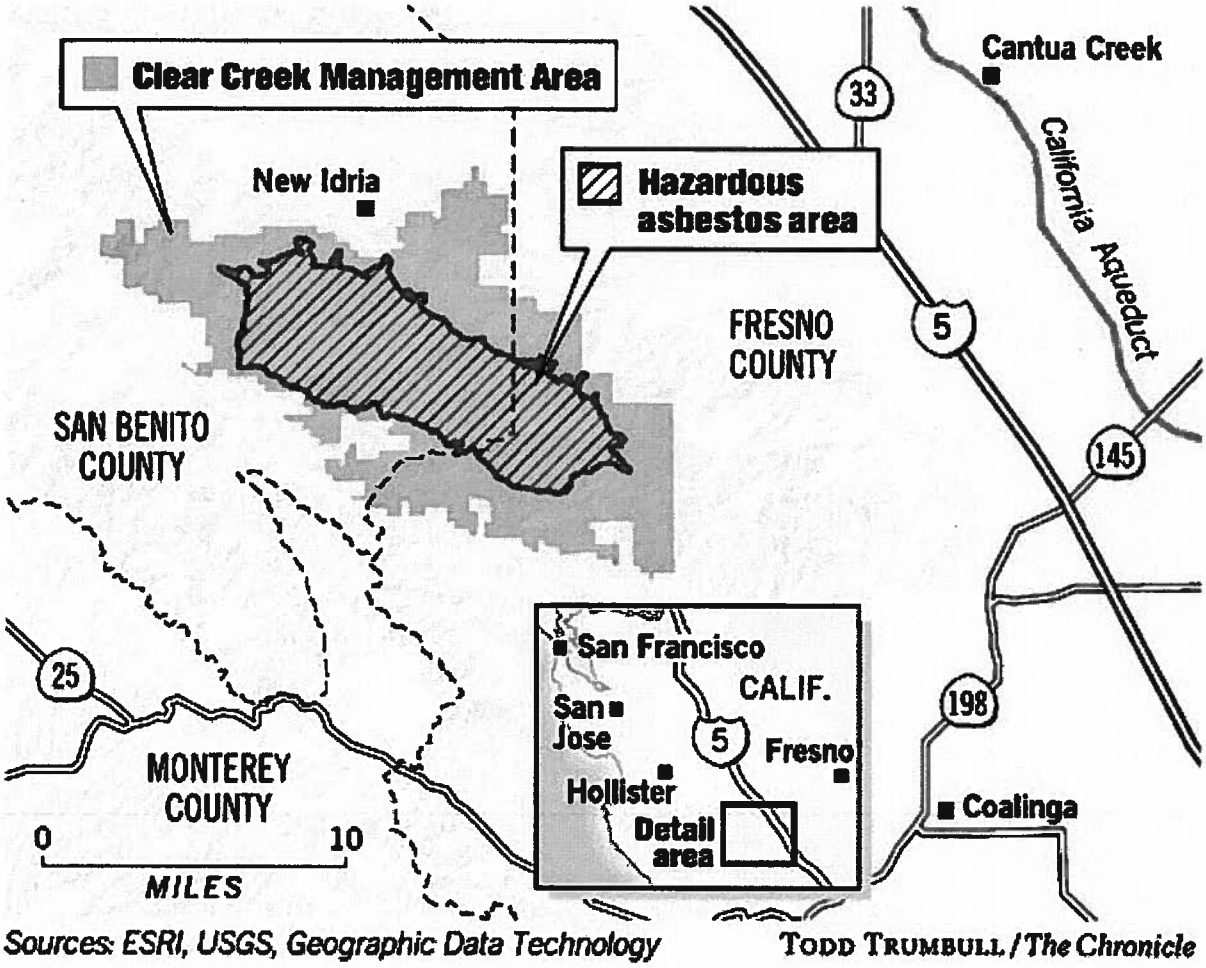
URL: http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2004/12/09/BAGJJA8OFJ1.DTL

SAN BENITO AND FRESNO COUNTIES / Asbestos concerns at dirt-bike area

Clear Creek Management Area. Chronicle graphic by Todd Trumbull



DATE: January 29, 2005

BRIEFING FOR THE STATE DIRECTOR

SUBJECT: Completing Clear Creek Route Selection and the Hollister RMP revision.

BACKGROUND: The Hollister Field Office is in the process of selecting a route network for the Clear Creek Management Area. They have issued a Draft EIS and have begun analyzing comments they have received.

EPA Concerns - The EPA has submitted a letter requesting that the BLM delay the Final EIS, pending the completion of a study they are conducting that is assessing the asbestos exposure in the Clear Creek Management Area. The EPA study will likely not be complete before January 2006. EPA's letter suggests that BLM complete a Supplemental EIS analyzing a broader range of alternatives in light of this pending information, which may show that BLM did not properly address asbestos exposure in the Draft EIS. Subsequent conversations with EPA indicate that EPA is not necessarily insistent on the BLM developing a Supplemental EIS; rather, they would like to see BLM adequately address the pending study and the associated health risks.

California Native Plant Society (CNPS) lawsuit – The CNPS has filed suit against the BLM for its management of OHVs and special status species in the Clear Creek Management Area. The lawsuit charges that BLM violated US Fish & Wildlife Service's Biological opinion (1997) and failed to implement the CCMA Plan Amendment Record of Decision (1999), which includes route designation.

US Fish & Wildlife Service – USFWS Biological Opinion (1997) required BLM to monitor known populations of San Benito evening primrose (*Camissonia benetensis*) and implement emergency closures or re-initiate consultation on the CCMA Plan Amendment (1995) if incidences of "damage" exceeded agreed upon thresholds within any one year. Subsequently, annual monitoring reports indicated that incidences of "damage" had exceeded the threshold for re-initiation of consultation on the CCMA Plan Amendment (1995). However, USFWS declined a BLM request for re-consultation on the CCMA Plan Amendment (1995) in favor of consultation on the Draft CCMA Plan Amendment for Route Designation that was completed in 2004.

Hollister RMP revision - The BLM has also initiated an RMP revision for the Hollister Field Office area. Scoping has been completed and work on the Draft RMP / Draft EIS will begin shortly. A request for quotations (RFQ) and statement of work (SOW) was distributed to prospective contractors; award of the contract is expected February 7, 2005. BLM is considering options to omit any land use plan (or RMP-level) decisions for the Clear Creek Management Area from the Hollister RMP revision.

ISSUES FOR DECISION: How can BLM most effectively and efficiently move forward with management decisions while addressing EPA concerns and the CNPS lawsuit.

OPTION #1: Complete Clear Creek Route Selection on current schedule and address findings from EPA study in a subsequent Clear Creek RMP – This option would finalize the route selection process Spring 2005 and address the findings from the EPA asbestos study in a Clear Creek RMP. The Clear Creek RMP would begin scoping in fiscal year 2006 and make RMP-level decisions for the Clear Creek management area. Route selection would be complete and decisions related to individual routes would not be revisited in the Clear Creek RMP. An analysis of Clear Creek as closed or limited to OHV use would be included in the Clear Creek RMP using the selected route network. This analysis would also address issues related to season of use and duration of use. The density of routes would probably not be re-visited.

Advantages:

- Completes route selection more quickly; meets BLM commitments from 1999 ROD.
- Demonstrates progress on the USFWS Biological Opinion (1997), refuting claims in the CNPS lawsuit.
- Provides BLM with immediate measures to protect San Benito evening primrose.
- Provides BLM with immediate measures to benefit protection of watershed resources.

Disadvantages:

- May not adequately address EPA concerns. EPA/CEQ may close Clear Creek.
- Fragments decision-making; revisiting analysis of closed or limited designation for entire CCMA creates high potential for public controversy.
- May not fulfill NEPA requirements for using best available information.
- Three concurrent planning processes affecting staffing and funding capabilities.

OPTION #2: Complete Clear Creek Route Selection on current schedule addressing potential findings from EPA study and include remaining Clear Creek issues in Hollister RMP- This option would finalize route selection process Spring 2005. The FEIS would expand on the issue of wet and dry season closures, user registration, establish a new compliance monitoring plan for *Camissonia*, and specifically address the pending Health Risk Assessment and potential management actions (i.e. administrative closure) should the risk be determined to be unacceptable. BLM would implement a dry season closure for 2005 through a Federal Register Notice under 43 CFR 8300. BLM would work closely with EPA to obtain their support for completing route designation and expansion of RNA as an interim measure to provide improved management for critical issues pending outcome of final Risk Report. With the designation process complete the remaining issues for Clear Creek would be addressed in the Hollister RMP.

Advantages:

- Completes route selection more quickly; meets BLM commitments from 1999 ROD.
- Demonstrates progress on the USFWS Biological Opinion (1997), refuting claims in the CNPS lawsuit.
- Provides BLM with immediate measures to protect San Benito evening primrose.
- Provides BLM with immediate measures to benefit health risk.
- Provides BLM with immediate measures to benefit protection of watershed resources.
- Completes project as scoped to the public.
- Primarily one sequential planning process for most efficient staffing and funding.

- Provides best level of credibility for BLM and Field Office with all stakeholders.
- Shifts responsibility for any immediate closure to EPA/CEQ
- Potential future closure would be accomplished through administrative action rather than planning process.
- RMP planning process is comprehensive rather than fragmented.
- Findings from EPA risk assessment would be addressed in Hollister RMP.

Disadvantages:

- Requires EPA buy-in.
- Findings from EPA risk assessment would be addressed in Hollister RMP.
- Dry season closure could stir some level of controversy.

OPTION #3: Complete Clear Creek Route Selection and RMP-level decisions on a delayed schedule to incorporate predicted EPA data and concerns and special status species concerns in a new Clear Creek RMP – This option would address all Clear Creek issues, RMP-level and route selection, in a Clear Creek RMP. BLM would wait until the asbestos study is available from EPA to develop an RMP and route network for the Clear Creek management area. This Clear Creek RMP and EIS would analyze a broader range of alternatives than the current Clear Creek Draft EIS, including alternatives for all RMP-level decisions. This range would include an analysis of closed and limited to OHV use, including limitations and conditions related to season of use and duration of use. Any seasonal or emergency closures that BLM deems prudent (in response to EPA concerns or special status species concerns) before the completion of the RMP and route selection could be accomplished under the 43 CFR 8300 regulations.

Advantages:

- Likely responds adequately to EPA concerns.
- Addresses all Clear Creek issues at one time.
- Makes all decisions related to Clear Creek using the same information.

Disadvantages:

- Delays completion of route selection, supporting plaintiff's claims in pending litigation. CNPS/CBD and courts may close Clear Creek.
- May require BLM and USFWS to re-initiate consultation on the 1995 CCMA Plan Amendment.
- May jeopardize future grants from the State OHV Commission.
- Two concurrent planning processes affecting staffing and funding capabilities.

OPTION #4: Complete Clear Creek Route Selection on a delayed schedule to incorporate predicted EPA data and concerns and special status species concerns, implement an aggressive interim management strategy, and include route designation and RMP-level decisions for Clear Creek in Hollister RMP – This option would delay route and RNA designations until completion of EPA risk assessment. An aggressive interim management strategy would be developed to address critical issues pending EPA's final report. This would include a variety of administrative actions, including implementing a dry season closure

commencing 2005, closure of the Larious watershed and other critical watersheds, and registration of users through a Federal Register Notice. The Hollister RMP would address route designation and all other Clear Creek issues and RMP-level decisions. The Hollister RMP and EIS would analyze a broader range of alternatives than the current Clear Creek Draft EIS, including alternatives for all RMP-level decisions. This range would include an analysis of closed and limited use area designations for Clear Creek, including limitations and conditions related to season of use and duration of use.

Advantages:

- Responds to EPA and CNPS concerns with aggressive interim management strategy.
- RMP planning process is comprehensive rather than fragmented.
- Makes all decisions related to Clear Creek using the same information.
- Provides BLM with some additional measures to protect San Benito evening primrose.
- Primarily one sequential planning process for most efficient staffing and funding.

Disadvantages:

- Delays completion of route selection, supporting plaintiff's claims in pending litigation. CNPS/CBD and courts may close Clear Creek.
- May require BLM and USFWS to re-initiate consultation on the 1995 CCMA Plan Amendment.
- May jeopardize future grants from the State OHV Commission.
- Implementation of interim management strategy would likely stir considerable controversy among some stakeholders.
- Potential closure of Clear Creek would be addressed in planning process.
- Could delay release of Draft RMP.

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PREPARATION PLAN ANALYSIS
FOR THE
CLEAR CREEK MANAGEMENT AREA
RESOURCE MANAGEMENT PLAN

HOLLISTER FIELD OFFICE
June 2007

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PREPARATION PLAN ANALYSIS
FOR THE
CLEAR CREEK MANAGEMENT AREA
RESOURCE MANAGEMENT PLAN

RECOMMENDED BY: _____ **DATE**_____

Rick Cooper
Field Office Manager
Hollister Field Office

APPROVED BY: _____ **DATE**_____

Mike Pool
California State Director

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PREPARATION PLAN ANALYSIS
FOR THE
CLEAR CREEK MANAGEMENT AREA
RESOURCE MANAGEMENT PLAN

A. Introduction and Background

Introduction

Management areas are typically large units of public lands that have a degree of similarity with regard to resource characteristics and planning issues. The Clear Creek Management Area (CCMA) is located in central California in the southern portion of San Benito County and the western portion of Fresno County. It encompasses approximately 63,000 acres of public land managed by the Hollister Field Office of the Bureau of Land Management (BLM) and 12,000 acres of State and private lands.

The Clear Creek Management Area has a long history of use. The geologic nature of the area (with many minerals including nickel, mercury, chromium, copper, magnisite, and naturally occurring asbestos in serpentine rock) lead to extensive mining operations on land owned by the Federal Government and private parties since the mid-1800's. In the mid-1950's, an investigation by the California Division of Mines and Geology indicated that the serpentine matrix of the New Idria Formation was mainly chrysotile asbestos.

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. Exposure to airborne friable asbestos may result in a potential health risk because persons breathing the air may breathe in asbestos fibers. Continued exposure can increase the amount of fibers that remain in the lung. Fibers embedded in lung tissue over time may cause serious lung diseases including: asbestosis, lung cancer, or mesothelioma.

In 1962, the Atlas Division of the Atlas Corporation began construction of an asbestos mill that was in operation until 1979. The mining activity included digging the asbestos ore out of surface pits and then milling the ore. The by-products (tailings) of the milling process were bulldozed into piles near the asbestos mill. Therefore, the Atlas Mine Superfund Site was approved for listing on the National Priorities List (NPL) in 1984. The NPL is the Environmental Protection Agency's (EPA) list of the hazardous waste sites potentially posing the greatest long-term threat to health and the environment.

A large portion of the CCMA was included as part of the Atlas Mine Superfund Site because asbestos mining and milling waste has been transported throughout the CCMA by wind, water, and vehicular traffic. This area is sometimes referred to as the Hazardous Asbestos Area (HAA). In 1984, the HAA (covering about 31,000 acres) was formally designated as the Serpentine Area of Critical Environmental Concern (ACEC) based on the health concerns associated with the

naturally occurring asbestos within the serpentine soils and because of the unique vegetation and forest types associated with serpentine soil. The boundaries of the ACEC were defined by mapping of asbestos soils derived from the New Idria Formation.

The CCMA has been used extensively for off-highway vehicle (OHV) recreation for many years. A variety of other recreation activities also occur within the CCMA including, hunting, rock-hounding, and hiking. Human disturbance to the soils and plants in the serpentine ACEC is a special management concern because throughout the ACEC soil formation tends to be slow and the topsoil shallow. Plant regeneration is also slow, and accelerated erosion from human activities has adversely impacted soil and vegetative resources over the years. Minimizing soil erosion and minimizing the damage to vegetation is a management priority.

Within the Serpentine ACEC is the San Benito Mountain Research Natural Area (SBMRNA), which is approximately 4,082 acres in size. This area was originally established as an Outstanding Natural Area in 1972, with an area of about 1,880 acres. RNAs are designated for the protection of public lands having natural characteristics that are unusual or that are of scientific or other interest. The SBMRNA was designated because of the unique vegetative communities associated with the serpentine soils. Its primary purpose is to provide research and educational opportunities while maintaining and protecting a unique assemblage of vegetation in as natural condition as possible.

The general location of Clear Creek Management Area, the Hazardous Asbestos Area (a.k.a.. Serpentine ACEC) and the Atlas Superfund Site are shown on Figure 1. The acreages of these areas, and the San Benito Mountain Research Natural Area (SMBRNA), are shown in Table 1 along with State and private land ownership in the planning area.

Table 1. Land Ownership in the Planning Area (acres)

Ownership	Clear Creek Management Area	Percent of CCMA	Serpentine ACEC	San Benito Mountain Research Natural Area	Atlas Superfund Site
BLM	63,197	83.3	30,968	4,147	450
Private	10,668	14.1			
State	1,964	2.6			
Total	**75,829**	**100.0**	**30,968**	**4,147[a]**	**450**

[a] Includes the San Benito Mountain Wilderness Study Area (1,488 acres).

Planning History

The Hollister Resource Management Plan (RMP), adopted in 1984, provides management guidance for the Clear Creek area. The 1984 RMP outlined management goals and resource management decisions, and established the 30,000 acre Clear Creek Serpentine ACEC within the

CCMA. The Hollister RMP also called for the preparation of watershed management guidelines (Best Management Practices) to control erosion and reduce sediment transport. In 1986, a more detailed activity plan was prepared for the CCMA to incorporate these "Best Management Practices" into a complex ecosystem comprised of sensitive and unique plant communities, a highly erosion-prone watershed, and unique serpentine soils containing naturally occurring asbestos. In 1995, an amendment to the Hollister RMP was prepared for the Clear Creek Management Area, in which six alternatives for management were analyzed. The purpose and need for the 1995 CCMA RMP Amendment was based upon new information that became available on the asbestos-related health risks and rare plant species. Alternatives ranged from continuing the existing management with the majority of routes and areas open to OHV use, to prohibiting motorcycles and limiting other OHVs to a small network of roads.

In January 2006, the BLM approved a Record of Decision (ROD) for a CCMA RMP amendment to implement decisions from the 1995 CCMA RMP amendment and its associated ROD (1999). In particular, the 1999 ROD designated the CCMA a "Limited Use Area" for Off-Highway Vehicle (OHV) use, which required that vehicle travel be restricted to a designated route system. An additional purpose of the 2006 CCMA RMP amendment was to address management of lands acquired within the CCMA, specifically for route designations. These lands are located primarily in the northeast portion of the CCMA.

B. Purpose and Need

Purpose for the Clear Creek Management Area RMP

The Record of Decision for Clear Creek Management Area RMP Amendment and Route Designation (2006) discussed the available studies at the time of publication on naturally occurring asbestos in the CCMA. At the same time, the U.S. Environmental Protection Agency was conducting an asbestos exposure evaluation study in the Clear Creek Management Area. The study was designed to provide further information on the exposure levels from various types of activities in the CCMA. Initial results from the EPA study indicated that an environmental impact statement would be necessary to consider the new information and a range of management options for the CCMA.

Accordingly, BLM agreed to work with EPA and the public to appropriately respond to the new information upon completion of the EPA human health risk study. If the information is significantly different than the 1992 risk assessment, BLM agreed to expeditiously initiate a National Environmental Policy Act (NEPA) review to consider the new information and potential management responses at the CCMA in light of any new findings. BLM and EPA agreed that this subsequent NEPA review would address general public access and recreation at the CCMA and analyze a full range of alternatives.

The Hollister RMP was updated in 2006 to establish goals, objectives, and management actions for BLM public lands that address current issues, knowledge, and conditions. However, the CCMA was not addressed in that document because of EPA concerns about the technical

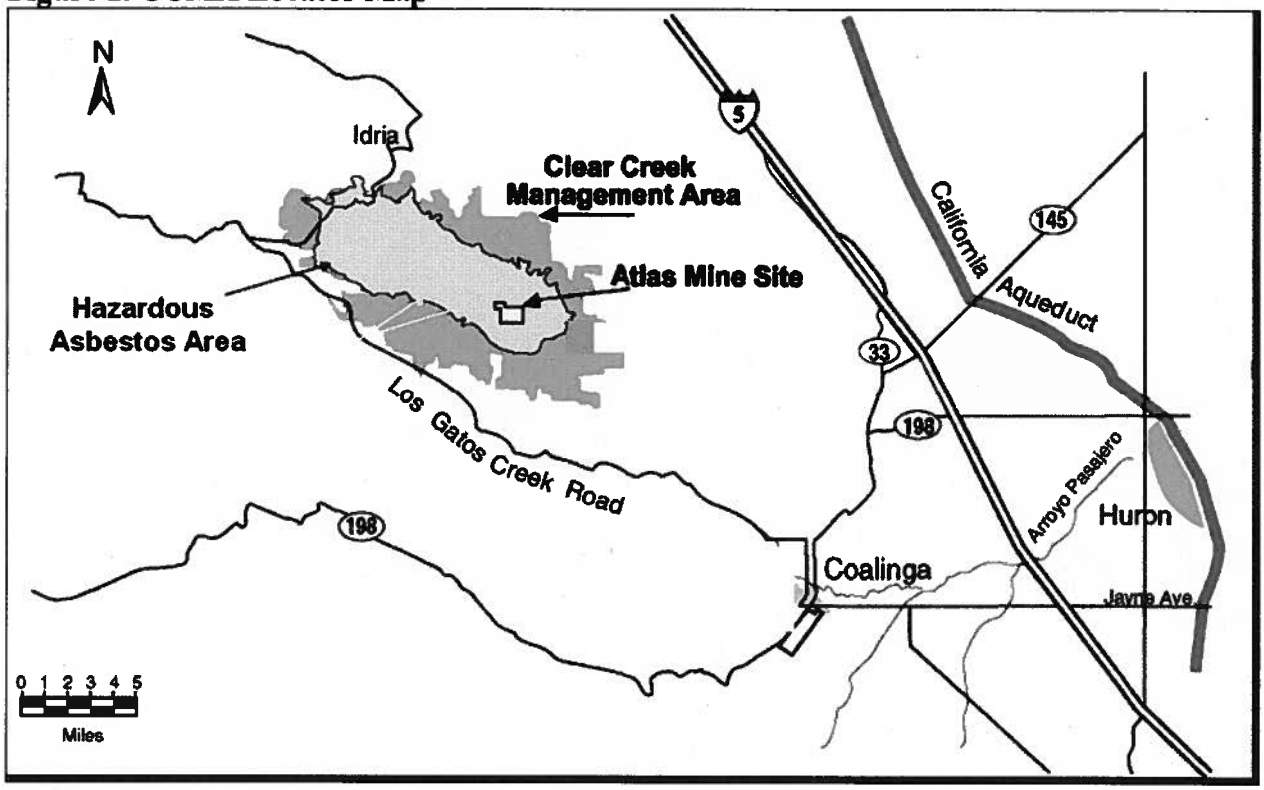
deficiencies of the 1992 health risk assessment. Therefore, current management direction for Clear Creek Management Area is contained in the 1984 Hollister Resource Management Plan and subsequent amendments (Appendix A). This plan and its amendments, while providing a broad overview of goals, objectives, and needs associated with public lands, lack detailed direction and are generally outdated. Social, political, and environmental changes, coupled with significant population growth not anticipated in the plan and amendments, have presented some complex management issues, which will benefit from an updated "stand alone" RMP. The current CCMA plan amendments do not address present program guidance, laws, regulations and policies developed since their conception. Development of a new CCMA RMP would enhance management by addressing planning needs discussed in the Hollister Field Office Land Use Plan Evaluation (2002) as well as concerns about the health risk from exposure to naturally occurring asbestos as agreed upon by BLM and the Environmental Protection Agency. A new stand alone RMP for CCMA will also provide the opportunity for public involvement in a new era of land use planning to address these complex and controversial issues.

Purpose for the CCMA Pre-Plan

This Pre-Plan provides a general blueprint for completion of the RMP and requisite NEPA analysis for public lands within the CCMA. This Pre-Plan and the preparation strategy it displays will be dynamic such that it can be readily adapted to unforeseen circumstances and fluctuating funding levels. The purpose of this pre-plan is to:

- Identify the anticipated planning issues and preliminary planning criteria;
- Identify the data needs for meaningful and defensible planning decisions;
- Identify a completion schedule, budget and staffing needs;
- Establish and identify the public participation process and coordination responsibilities.

Figure 1. CCMA Locator Map



C. Anticipated Planning Issues

A Planning Issue is identified as a matter of controversy or dispute over resource management activities or land use that is well defined or topically discrete and entails alternatives between which to choose. Management concerns are topics or points of dispute that involve a resource management activity or land use. While some concerns overlap issues, a management concern is generally more important to an individual or a few individuals, as opposed to a planning issue, which has more widespread point of conflict.

The issues and management concerns presented below are preliminary and based on the best information known to date. Preparation of this RMP will afford many opportunities for collaboration with local, State, Federal and Tribal governments and land management agencies, public interest groups, and public land users. As a result, these issues and concerns may need to be modified to reflect public comments and concerns raised during formal scoping.

Issue 1: What measures are necessary to address impacts to public safety and human health from naturally occurring asbestos?

Extraction of a variety of mineral materials has occurred on public lands in the area. Most of these activities are no longer active and contribute to watershed and potential human health impacts. Some analytical planning questions that are related to this issue are:

- Does the EPA Human Health Study (2006) present significantly different health risk data (i.e., exposure rates) from the 1992 Human Health Risk Assessment?
- How do the results of the EPA study influence BLM goals, objectives, and alternative development?

Issue 2: What measures are necessary to address impacts to resources and human health from past mining activities?

- What types of monitoring are necessary to assess impacts from abandoned mining activities?
- How will restoration and mitigation contribute to improving watershed conditions and reducing human health risks and hazards?

Issue 3: What areas, if any, should be designated and managed as special management areas?

Areas with special resource values on public lands include free-flowing rivers and streams; unique vegetation types; habitats for threatened, endangered, and sensitive species; cultural resources; and unique geologic resources. Possible areas of special management include ACECs; traditional cultural properties; and pre-historic and historic properties and trails eligible for listing in the National Register of Historic Places.

Possible questions relating to this issue include:

- Which areas should be identified or designated to receive special management?
- Which designations are most appropriate?
- Is management of existing ACECs effective and appropriate?
- Should boundaries or management of existing special designations be changed?

Issue 4: How should upland ecosystems be managed to achieve desired conditions?

Vegetation has numerous values, both consumptive and non-consumptive, including wildlife habitat, forage for livestock, and watershed protection. Ecosystem management objectives described in the Standards and Guidelines for Rangeland Health for Livestock Grazing Management must be achieved. There is concern that resource use may be affecting the natural function and health of upland plant communities, soil productivity, and cultural resource site stability. Management objectives are needed for upland vegetation which will determine grazing

use, treatment methods, and other activities to sustain the resource and uses which depend on it.

Possible questions relating to this issue include:

- What is the current health, ecologic status and trend of the various ecosystems and plant communities, including those lands subject to invasive species and noxious weeds?
- How will healthy native plant communities be restored and/or maintained?
- What is the appropriate mix of consumptive and non-consumptive uses while maintaining healthy, functioning ecosystems?
- How will public lands be managed to improve and maintain water quality, watershed functions, and promote hydrologic recovery?
- How will public lands be managed to maintain or improve soil productivity, and site stability?
- What is the current status and condition of habitat needed to support guilds or suites of species, including threatened and endangered and sensitive species, neo-tropical birds, and species disjunct from their population center or at the edge of their range?

Issue 5: How should riparian areas and wetlands be managed to achieve the desired conditions?

Riparian and wetland vegetation provides the foundation for many resource uses on public lands, including habitat for wildlife and endemic vegetative communities, forage for domestic animals and recreational activities. Healthy riparian areas stabilize the soil, prevent erosion and improve water quality, and act as a repository, releasing water throughout the year. There is a concern that resource uses may be affecting the natural function and health of riparian areas and wetlands. Management objectives are needed for riparian areas. The objectives would determine levels of uses which would be compatible, while sustaining the resource and uses which depend upon them. Possible questions relating to this issue include:

- What is the current health and trend of riparian/wetland plant communities?
- What is the current status of riparian systems relative to habitat quality for fish, wildlife, plants and invertebrates? What is the population status of these dependent species?
- How are BMP's contributing to achieving desired water quality and proper functioning conditions?
- What is the current condition of water quality and quantity and what is needed to meet BLM standards and to promote hydrologic recovery including:
    * Meeting State numeric, narrative, and non-degradation standards
    * Meeting needs of aquatic assemblage of native species
    * Meeting needs of other beneficial uses

Issue 6: How will wildland and prescribed fire be managed to achieve the goals of the Federal Wildland Fire Policy?

- What is the fire history in the area, and its effect on anticipated fire trends?

- What is the role of fire in upland and riparian ecosystems and how should fire planning, including urban interface considerations, and the National Fire Plan be incorporated into the RMP?

Issue 7: How should recreational access (motorized and non-motorized) be managed on public lands?

Currently, public lands in the area are generally accessible by motorized vehicles to agency personnel for resource management, to commercial enterprise for use or extraction of public resources, and to the general public for recreation and enjoyment of public lands. There is a need to balance access to public lands with resource management and human health and safety.

Possible questions relating to this issue include:

- Are there areas where visitor use or season of use is in conflict with public health standards? If so, should these areas (or specific routes) be closed or their use limited for motorized and/or non-motorized recreation? Where are the existing roads and ways or other travel routes? What is their condition?
- Where is acquisition of legal access necessary to promote resource management and public use?
- Are there needs to reroute or construct routes to facilitate resource management and public use?

Issue 8: How should the public lands be managed to sustain the traditional practices of Native American cultures?

Native American groups with traditional homelands in the planning area want continued access for social, spiritual and traditional uses.

- How should public lands be managed to meet the needs of tribal-sufficiency and traditions?

Issue 9: How should the public lands be managed to meet the needs of local and regional communities?

The BLM-administered lands in the area are located within San Benito and western Fresno counties. The communities which are associated with public lands in this area depend heavily on these public land resources for the economic and social benefits they provide.

- What economic and social benefits to local and regional communities are derived from the public lands managed by the BLM?
- How important are these benefits to local and regional economies?
- How can community planning groups contribute to regional management strategies?

Issue 10: What lands are available for disposal or are of interest for acquisition by the BLM?

Opportunity exists to increase public benefits by disposing of some public lands through sale or exchange, or to acquire offered lands in areas which would enhance public enjoyment and facilitate resource management. Management of lands acquired through previous land tenure adjustments also needs to be incorporated into the RMP.

Possible questions relating to this issue:

- What public lands are not central to the BLM's mission to maintain the health, diversity, and productivity of public lands for use and enjoyment of present and future generations and could therefore be available for disposal?
- If the opportunity should arise, which lands could be available for disposal to increase benefits to the public, enhance public enjoyment and facilitate future resource management?
- What criteria will guide land disposal and acquisition?

Issue 11: What lands and resources have potential for energy development and how will those be managed?

- What criteria will guide development of energy resources to ensure this development is compatible with other resources and resource uses?
- Is management related to existing utility corridors compatible with resource objectives?
- Will additional utility corridors be established and if so, what will be the criteria for locating and managing those corridors?
- What lands will be available for energy-related rights-of-way such as communication and utility facility sites? What criteria or parameters will guide approval or denial of such right-of-way proposals?

Issue 12: How will recreation opportunities be managed?

With the rapid population growth of urban areas within the area of influence of Central and Southern California, including the San Francisco Bay Area and Central Coast, the demand for recreation opportunities has increased substantially in recent years. In addition, a significant shift in the demographics of these urban areas, as well as in some of the more rural small communities, has noticeably changed the types of recreation experience traditionally sought on these public lands. Possible planning questions related to this issue are:

- What is the current extent and nature of demand for recreational opportunities in the CCMA?
- What recreation opportunities are currently provided over the planning area, and what resource or use conflicts may exist?

- What management decisions are necessary to meet the changing demands for recreation on public lands, or to prevent resource damage from uncontrolled recreation activity?

D. Preliminary Planning Criteria

BLM planning regulations (43 CFR 1610.4-2) require the development of planning criteria to guide preparation of all RMPs. Planning criteria are the constraints or ground rules that guide and direct the development of the plan and determine how the planning team approaches the development of alternatives. They ensure that plans are tailored to the identified issues and ensure that unnecessary data collection and analysis are avoided. Planning criteria are based on standards prescribed by applicable laws and regulations, agency guidance, the result of consultation and coordination with the public, other Federal, state and local agencies and governmental entities, and Native American Indian tribes, and analysis of information pertinent to the planning area.

The following preliminary criteria were developed and will be reviewed by the public during scoping. These criteria will be included in the Notice of Intent (published in the Federal Register). After public comment analysis, the planning criteria will be distributed to all interested parties collaborating in the planning process.

1. The RMP will be developed in compliance with with the Federal Land Policy and Management Act (FLPMA), all other applicable laws, regulations, executive orders, and BLM supplemental program guidance.

2. The planning process will include an environmental impact statement (EIS) that will comply with the National Environmental Policy Act (NEPA) standards.

3. Economic and social baselines and consequences will be developed in coordination with local and county governments.

4. Initiate government to government consultation, including tribal interests.

5. Consider the extent to which the revised plan reduces airborne asbestos emissions and minimizes asbestos exposure and addresses public health impact of the Hazardous Asbestos Area. (Ref; EPA Atlas Superfund Site ROD, Appendix 2, pg. 14)

6. Consider the extent to which the revised plan reduces accelerated erosion and offsite transport of asbestos fibers on vehicles and clothes due to OHV use. (Ref; EPA Atlas Superfund Site ROD, Appendix 2, pg. 14)

7. All new data collected will have information about the data (metadata) stored in a data base. All metadata will meet the Federal Geographic Data Committee (FGDC) standards.

8. The RMP/EIS will incorporate by reference the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management.*

9. The plan will result in determinations as required by special program and resource specific guidance detailed in Appendix C of the BLM's Planning Handbook (H-1601-1).

10. Decisions in the plan will strive to be compatible with the existing plans and policies of adjacent local, State, Tribal, and Federal agencies as long as the decision are in conformance with legal mandates on management of public lands.

11. Resource allocations must be reasonable and achievable within available technological and budgetary constraints.

E. Data and GIS Needs

There are significant data and GIS needs that are required to address the resource and use issues that are discussed previously in this pre-plan. In many cases, existing resource information exists that is adequate to address the anticipated planning issues, however, much of this information needs to be updated, compiled and put into digital format for use in the planning process. Acquired lands need inventories for special status (threatened, endangered, and sensitive) species to compile data for GIS analysis. Data and GIS needs include: mapping and updated ownership; updating mineral claims, leases, and valid existing uses; vegetation mapping and interpretation, and special status species surveys.

F. Plan Format and Process

The primary product of this planning process will be a stand-alone document called the CCMA Resource Management Plan (RMP). BLM's standard planning process will be followed, adhering to the direction contained within BLM's Land Use Planning Handbook.

The RMP/EIS documents will follow standard formats required under NEPA. A range of alternatives, including the No-Action Alternative, will be developed to respond to the issues identified during scoping. Each alternative will provide different solutions to the issues and concerns. The objective in the alternative formulation will be to develop realistic solutions that each represent a complete plan. Likely alternatives will include; 1) *No Action Alternative*; 2) *Enhanced Protection and Conservation Alternative*, which will maximize the enhancement and protection of the Area's natural, cultural and scenic values; 3) *Preferred Alternative*, which will fall within the range of alternative 1 and 2.

Internal review periods of two weeks will be provided to the California State Office (SO)Review Team and Washington Office (WO) Planning Division upon completion of the alternatives, prior to finalizing the draft RMP/EIS and Proposed RMP/FEIS, and before the ROD/Approved RMP is approved by the State Director. The SO reviews will occur prior to the WO reviews. The

Team Leader will be responsible for coordinating the document and ensuring that the time lines for completion are met.

Public comments will be analyzed during scoping and alternative development. All comments will be considered by the BLM for preparation of the draft RMP/EIS. Public comments will be analyzed after a 90-day review period for the draft RMP/EIS. All comments will be considered by the BLM for preparation of the proposed RMP/final EIS.

An administrative record will be maintained during the development of the plan and located in the Hollister FO, Hollister, CA. The record will be compiled consistent with Department of Justice guidance on administrative records and Office of the Solicitor guidance on privileged documents. All documents will be indexed following approved filing structures.

G. Plan Preparation Schedule

The Clear Creek Management Area RMP will be initiated in FY 2007 and will result in a Proposed RMP/FEIS being distributed in FY 2009, with a ROD/Approved Plan scheduled for release in FY 2009. The proposed preparation schedule for the RMP is shown below. This schedule includes timeframes related to WO/DOI review and approval. These timeframes must be met in order to complete the project on schedule.

Preparation Plans	03/2007
Analyze the Management Situation	03/2007- 06/2007
Prepare and Publish Notice of Intent in Federal Register	06/2007
Conduct Public Scoping, Meetings Briefings, Public Comment	08/2007-12/2007
Alternative Development	12/2007- 03/2008
Draft Plan (Preliminary) and EIS Preparation	04/2008-07/2008
Issue Draft RMP and EIS	08/2008
Public comment period, briefings, meetings	08/2008- 11/2008
Initiate consultation with Tribes and SHPO	08/2008
Develop Biological Assessment	08/2008
Submit Biological Assessment to FWS	11/2008

Analyze Public Comments, Prepare Proposed RMP & Final EIS	12/2008-03/2009
Submit NOA and conduct SO and WO briefings	02/2009
Issue Proposed RMP/Final EIS	04/2009
Protest Period and Governors Consistency Review	04/2009- 05/2009
Resolve Protest and Prepare Record of Decision	05/2009-08/2009
Issue Record of Decision/Approved RMP)	09/2009

H. Participants

A number of individuals will form the Core Team and Interdisciplinary Team for developing and/or reviewing the RMP/EIS. Other staff will act on an ad-hoc basis to support development and review efforts.

Management Team

The management team is responsible for overall direction and completion of the RMP. This includes assuring availability of the Core and ID Team members for completion of the RMP; reviewing and approving progress in completing the Draft RMP/EIS, Proposed RMP/Final EIS, and ROD/Approved RMP; fully participating in all public involvement and collaborative activities; and ensuring the integrity of the process and subsequent management direction is maintained. Given the parameters described above, it is expected that each of the management team members will be called upon to spend an average of 30 days dedicated to various aspects of the planning process in 2007.

Hollister Field Office Manager	Rick Cooper
Hollister Assistant Field Manager	George Hill
State Office Representative	State P&EC

Project Manager and Core Team

The Project Manager is responsible to the Field Office Manager that comprises the BLM's administrative coverage for the analysis area. The Project manager is responsible for day-to-day guidance for development of the RMP, coordinating schedules of staff in all phases of the planning effort, working with Core Team Leads and public to facilitate public involvement, and ensuring the RMP and associated EIS are prepared within the technical and procedural quality standards provided by the BLM's planning policy and applicable laws and regulations. It is

anticipated that through 2008 and 2009 that the Project Manager and GIS and Database Manager will expend 120 days each on the RMP effort. Further, core team members should plan on spending an average of approximately 60 days each.

The Core Team is responsible for coordinating with the Core Team Leads, in preparation of all phases of the process and all sections of the analytical and guiding documents, assuring consistency throughout the RMP development, and fully participating in all public involvement and collaborative efforts. Project Manager and Core Team members include.

Project Manager	George Hill
GIS and Database Manager	Eric Wergeland
Planning and Environmental Coordinator	Sky Murphy
Outdoor Recreation Planner	David Moore

Interdisciplinary Team

The Interdisciplinary Team is responsible for assisting the Core Team in preparing the necessary sections of the RMP including: preparing specific sections of the EIS/RMP; and coordinating data deliverables for GIS analysis and reviewing for technical adequacy. ID Team members should plan on spending approximately 60-90 days per fiscal year working on the CCMA RMP.

Fish and Wildlife	Jason Lowe
Rangeland Management and Forestry	Bruce Cotterill
Botany, noxious weeds	Ryan O'Dell
Lands and Realty	Dan Byrne
Wilderness, WSR, Visual Resources	Lesly Smith
Recreation	Lesly Smith
Transportation Planning, OHV	David Moore
Cultural	Erik Zaborsky
Air, Water, Soil, Minerals, HAZMAT	Timothy Moore
Fire Management	Mario Marquez
Social/Economic, & Environmental Justice	Sky Murphy

I. Estimated Budget

ITEM	FY07 ($)	FY08 ($)	FY09 ($)
Salaries/Labor			
Project Manager	$50,000	$55,000	$55,000
GIS Manager	$20,000	$25,000	$5,000

Public Affairs	$30,000	$30,000	---
Core Team (5)	$100,000	$150,000	$65,000
ID Team (15)	$75,000	$225,000	$100,000
Seasonals	---	---	---
Total Salaries/Labor	**$275.000**	**$485,000**	**$225,000**
Contracts			
Plan Preparation			
Veg. Map			
Cult (Class II)	---	---	---
Total Contracts	**$0**	**$0**	**$0**
Procurement			
Misc.	$10,000	$5,000	$5,000
Draft Pub.		$30,000	
Final Pub.			$30,000
Total Procurement	**$10,000**	**$35,000**	**$35,000**
Vehicle Costs	$10,000	$10,000	$5,000
Travel	$5,000	$5,000	$5,000
Training	---	---	---
Total Budget	**$300,000**	**$540,000**	**$245,000**

J. Public Participation and Collaboration Plan

Situation:

The BLM's Hollister Field office is currently revising its land use plan for the Clear Creek Management Area.

Communication Objectives:

– Inform and involve local communities, resource users and key constituents in the land use planning process.

– Keep internal audiences, including BLM field office, and state office staffs informed of, and involved in, the process.

– Keep federal, state and local elected officials informed and involved.

– Inform and involve area tribes in the planning effort.

Key Messages:

These messages should be incorporated into the communication products developed as part of the planning process:

Development of a land use plan is a public process. The BLM encourages involvement by everyone interested.

There is a need to develop a new land use plan because the current RMP for the CCMA is outdated.

The land use plan and the associated environmental analysis, completed under provisions of the National Environmental Policy Act, are the foundation for the on the ground decisions about how the public lands are managed. It is critical that the CCMA land use plan be current.

The analysis and land use plan will address a number of issues which have been generated internal to the BLM. These are identified in Section B. It is recognized that additional planning issues may be identified during scoping.

Communication Tools:

--Personal briefings
    Elected officials
    User groups
– News releases
    Announce public meetings
    Announce comment periods and deadlines
– Tours
    Elected officials
    Resource Advisory Council
– Fact sheets
    Broad audiences
    Key constituents
– Planning summary

Broad audiences
Internal audiences

Action Plan:

1. **Develop Mailing List**
   Lead: PEC/Core Team Leads
   Date: On-going
2. **Develop Key Constituent Contact List**
   Lead: PEC/Core Team Leads
   Date: On-going
3. **Develop Fact Sheet**
   Lead: PEC/CCMA Coordinator
   Date: prior to scoping meetings
4. **Brief Resource Advisory Council**
   Lead: Field Manager
   Date: Each meeting through the process
5. **Briefings for County Supervisors and Commissioners**
   Lead: FM/AFM/Core Team Leads
   Date: On-going
6. **Personal initial briefings with Congressional staffs (Herger, Doolittle and Gibbons)**
   Lead: FM/AFM
   Date: On-going
7. **Direct mail to key constituents and mailing list – public scoping meetings**
   Lead: PEC/CCMA Coordinator
   Date: 15 days prior to scoping meetings
8. **News release announcing public scoping meetings**
   Lead: PEC/CCMA Coordinator
   Date: 15 days prior to scoping meetings
9. **Publish first planning update (summarize issues developed at scoping meetings)**
   Lead: PEC/CCMA Coordinator
   Date: 30 days after scoping meetings
10. **Personal briefings for elected officials and key constituents (status of process)**
    Lead: FM/AFM
    Date: On-going
11. **Publish planning update on the status of the plans development, anticipated completion date.**
    Lead: PEC/CCMA Coordinator
    Date: key junctures throughout process
12. **Briefings for key constituents and elected officials on status, anticipated completion date.**
    Lead: FM/AFM
    Date: Key junctures throughout process
13. **Brief elected officials and key constituents on release of draft RMP/EIS.**

Lead: FM/AFM
Date: at release of draft plans

14. **Send draft RMP/EIS with cover letter detailing comment period to mailing list**
    Lead: PEC/CCMA Coordinator
    Date: at release of draft RMP/EIS
15. **News release announcing availablility of draft RMP/EIS and comment period**
    Lead: PEC/CCMA Coordinator
    Date: at release of draft RMP/EIS
16. **Initiate Tribal Consultation and Coordination with SHPO**
    Lead: PEC/Archaeologist
    Date: at release of draft RMP/EIS
17. **Early Coordination/Consultation with FWS**
    Lead: PEC/Biologist
    Date: at release of draft RMP/EIS
18. **State Governor's Consistency Review**
    Lead: PEC
    Date: at release of draft RMP/EIS
19. **Publish planning update on status of comment review, planning process**
    Lead: PEC/CCMA Coordinator
    Date: at conclusion of comment analysis
20. **Develop fact sheet, briefing materials summarizing the Proposed RMP/Final EIS**
    Lead: PEC/CCMA Coordinator
    Date: at release
21. **Brief elected officials and key constituents on pending release of Proposed RMP/Final EIS**
    Lead: FM/AFM
    Date: at release
22. **Mail Proposed RMP/Final EIS to mailing list with cover letter explaining protest procedures**
    Lead: PEC/CCMA Coordinator
    Date: at release
23. **News release announcing availability of Proposed RMP/Final EIS, protest procedures**
    Lead: PEC/CCMA Coordinator
    Date: at final release
24. **Thank you's to key constituents who played key roles**
    Lead: HFO
    Date: at final release

APPENDIX A Land Use Planning Base for Central California

RESOURCE MANAGEMENT PLAN, PLANNING AMENDMENTS, SUPPLEMENTAL PROJECT AND ACTIVITY LEVEL PLANNING	
1984	Hollister Resource Management Plan and Grazing Environmental Impact Statement and Record of Decision.
1986	Clear Creek Management Plan and Record of Decision
1988	California Vegetative Management Final EIS
1993	Hollister Oil and Gas RMP Amendment and EIS
1995	Clear Creek Management Area Resource Management Plan Amendment and Final EIS
1998	Rangeland Health Standards and Guidelines for California and Northwestern Nevada
1999	Clear Creek Management Plan Amendment and Record of Decision
2006	Record of Decision for CCMA RMP Amendment and Route Designation
U.S.F.&W.S.CONSULTATIONS AND BIOLOGICAL OPINIONS	
1985	Pesticide Permit for the Use of Malathion to Control Curly-top Virus in Fresno, Kings, Kern, Los Angeles, Merced, Monterey, San Luis Obispo, San Joaquin, Santa Barbara, Stanislaus and Ventura counties, California (1-1-95-F-141).
1985	Draft Clear Creek Management Plan (1-1-85-F-67)
1986	Final Clear Creek Management Plan RMP Amendment (1-8-96F-20)
1991	San Joaquin Valley Interim Grazing Program (1-92-F-11)
1992	San Joaquin Valley Final Grazing Program (1-92-F-5)
1997	Clear Creek Management Area Resource Management Plan Amendment and Final EIS and Proposed Administrative Site Development Plan (1-8-96-F-20)
1998	Draft Recovery Plan for the San Benito Evening -primrose (Camissonia benitensis)
1998	Recovery Plan for the Upland Species of the San Joaquin Valley, California
2000	Recovery Plan for the California Red-Legged Frog (Rana aurora draytonii)
2001	Renewal of Pesticide Permit for the Use of Malathion to Control Curly-top Virus in Fresno, Kings, Kern, Los Angeles, Merced, Monterey, San Luis Obispo, San Joaquin, Santa Barbara, Stanislaus and Ventura counties, California (1-1-00-F-0212).
2005	Biological Opinion for the CCMA RMP Amendment and Final EIS (1-8-05-F-20)

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF SAN BENITO

A RESOLUTION OF THE SAN BENITO COUNTY BOARD OF SUPERVISORS ORDERING TEMPORARY CLOSURE OF COUNTY ROADS IN THE SERPENTINE AREA OF CRITICAL ENVIRONMENTAL CONCERN OF THE CLEAR CREEK MANAGEMENT AREA	Resolution No. _____

WHEREAS, The United States Department of Interior, Bureau of Land Management (BLM) is responsible for managing 63,000 acres of public land in San Benito and Fresno Counties known as the Clear Creek Management Area (CCMA); and

WHEREAS, BLM has issued an immediate temporary Closure Order effective May 1, 2008, closing a 31,000 acre area of the CCMA, it refers to as the Serpentine Area of Critical Environmental Concern (ACEC), to all public use; and

WHEREAS, such area has been closed due to public health and safety concerns related to high levels of naturally occurring asbestos creating the potential for asbestos exposure and increased health risk; and

WHEREAS, the BLM has closed the area to public use each year during the period June 1 to October 15 since 2005 due to these public health concerns; and

WHEREAS, the federal Environmental Protection Agency (EPA) has recently determined the public risk exists year round and that exposures measured for many recreational activities at CCMA are "above the EPA acceptable risk ranges for lifetime cancers"; and

WHEREAS, the closure order is expected to remain in effect until BLM completes a CCMA Resources Management Plan/Environmental Impact Statement; and

WHEREAS, San Benito County has approximately 25 miles of non-maintained county roads within the closure area; and

WHEREAS, San Benito County has by Resolution 94-165 terminated maintenance on the approximately 25 miles of county roads within the closure area; and

WHEREAS, the California Environmental Protection Act (CEQA) defines a "project" subject to CEQA as an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, in Public Resources Code section 21065.

NOW, THEREFORE, BE IT RESOLVED by the Board of Supervisors of the County of San Benito that it hereby finds that in light of the above information and evidence presented to the Board by a representative of the BLM at the Board's regular meeting on May 6, 2008, that temporary closure of the 25 miles of county roads within the ACEC is necessary for the protection of the public.

BE IT FURTHER RESOLVED by the Board of Supervisors that it hereby finds that a temporary closure of the non-maintained county roads within the ACEC is not a "project" under the California Environmental Protection Act (CEQA), because it will not cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

BE IT FURTHER RESOLVED by the Board of Supervisors that it hereby finds that if such temporary closure is deemed a project under CEQA, the temporary closure of the roads within the ACEC is an action being taken to mitigate or prevent an emergency and is, therefore, statutorily exempt from the California Environmental Protection Act pursuant to Public Resources Code Section 20180.

BE IT FURTHER RESOLVED by the Board of Supervisors of the County of San Benito that, pursuant to Streets and Highways Code section 942.5, the approximately 25 miles of county roads within the ACEC more particularly described as:

Clear Creek Road from Oak Flats Campground to New Idria Road,

New Idria Road from the BLM property line to Clear Creek Road,

Mexican Lake Road from Clear Creek Road to the Fresno County line,

Wildass Road from Mexican Lake Road to its terminus, and

Sawmill Creek Road from Wildass Road to Mexican Lake Road,

are hereby closed until further action by the Board of Supervisors.

BE IT FURTHER RESOLVED by the Board of Supervisors of the County of San Benito that, signs notifying the traveling public of this closure shall be posted.

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PASSED AND ADOPTED by the San Benito County Board of Supervisors at the meeting of said Board held on _____ day of _____ 200_, by the following vote:

AYES: Supervisor(s)

NOES: Supervisor(s)

ABSENT: Supervisor(s)

ABSTAIN: Supervisor(s)

By: _____
Jaime De La Cruz, Chair

ATTEST:
Linda Churchill, Clerk of the Board

By: _____
Deputy Clerk

Date: _____

APPROVED AS TO LEGAL FORM
Dennis LeClere, County Counsel

By: _____

Date: May 12, 2008

Department of Toxic Substances Control

Linda S. Adams
Secretary for
Environmental Protection

Maureen F. Gorsen, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

May 6, 2008

United States Department of Interior
Bureau of Land Management
Attn: Mr. Rick Cooper
Hollister Field Manager
20 Hamilton Court
Hollister, California 95203-2535

SUPPORT FOR BLM'S TEMPORARY CLOSURE OF CLEAR CREEK MANAGEMENT AREA

Dear Mr. Cooper:

The Department of Toxic Substances Control (DTSC) supports the Bureau of Land Management's (BLM's) May 1, 2008 decision to order an immediate temporary closure of the approximately 31,000 acre Area of Environmental Concern which represents nearly half of BLM's Clear Creek Management Area (CCMA). The order provides necessary protection to the public from human health risks associated with exposure to airborne asbestos generated from recreational and other uses of the CCMA.

As part of a 2001 review of U.S. EPA's cleanup efforts at the Atlas Asbestos Mine Superfund Site, DTSC recommended further evaluation of the surrounding CCMA for potential health effects resulting from exposure to naturally occurring asbestos. In 2003 these concerns were reiterated by both DTSC and U.S. EPA in comments on BLM's resource management plan amendment for the CCMA. DTSC supported and provided technical assistance for subsequent air sampling conducted during the period between 2004 and 2006 which was designed to model activities typical of users of the CCMA. On May 1, 2008, U.S. EPA produced the Clear Creek Management Area Asbestos Exposure and Human Health Risk Assessment report. DTSC concurs with the report's findings that the health risk for BLM workers and recreational users from exposure to asbestos is inappropriately high.

The CCMA receives about 35,000 visitors per year including families with children. Many of these visitors participate in activities that may result in unhealthful exposures to asbestos including riding motorcycles, all-terrain vehicles and SUVs as well as hiking, camping, and hunting.

DTSC anticipates continued involvement with asbestos risk assessment efforts and the

development of long-term resource management plans for the area. If you have any questions, please contact Mr. Steven Ross project manager for the site at (916) 255-3694.

Sincerely,

Maziar Movassaghi
Deputy Director
Brownfields and Environmental Restoration Program

cc: Mr. Kieth Takata
U.S. EPA Region 9
75 Hawthorne Street
Mail Code: SFD-1
San Francisco, CA 94105

State of California • The Resources Agency
Arnold Schwarzenegger, *Governor*
DEPARTMENT OF PARKS AND RECREATION • P.O. Box 942896 • Sacramento, CA 94296-0001
(916) 324-5801
Ruth Coleman, *Director*

June 20, 2008

CCMA RMP
Attention: George Hill
Hollister Field Office, BLM
20 Hamilton Court
Hollister, CA 95023

Re: Notice of Intent to Prepare a Resource Management Plan for the Clear Creek Management Area, California, and Associated Environmental Impact Statement

Dear Hollister Field Office:

As long time partners with your office, the Off-Highway Motor Vehicle Recreation (OHMVR) Division of California State Parks offers these comments in the hope that an alternative can be identified which will result in the continued ability of the Bureau of Land Management (BLM), Hollister Field Office, to provide some level of off-highway vehicle (OHV) recreational opportunities at the Clear Creek Management Area (CCMA).

Over the years, the OHMVR Division has invested approximately $7 million of OHMVR Trust Funds for trail maintenance, restoration, law enforcement, resource conservation, and other projects for the improvement of the CCMA as a venue for OHV recreation opportunities. This significant investment of public funds was made with the full expectation of long-term opportunity for OHV recreation at the site. While we recognize the reasoning behind the recent Immediate Temporary Closure of the area to public use, we strongly encourage you to seek alternative management strategies that will result in re-opening some OHV routes and trails rather than complete closure. Our challenge is to work with all the interested agencies and stakeholders to provide reasonable alternatives to complete closure that address the asbestos issue. After examining the available information, we believe there are additional actions that should be considered as alternatives to continued complete closure.

Minimizing Dust Generation and Asbestos Exposure

Surface Hardening and Soil Amendments. It is very likely that a high percentage of the soil disturbance and resulting dust generated at the site is due to large, heavy vehicles traversing the CCMA's dirt roads and staging areas. In order to reduce the likelihood of stirring up potentially hazardous airborne substances, the BLM should consider hardening and/or paving road surfaces and staging areas within the CCMA that are primarily used for access and egress by full-sized highway legal vehicles.

In addition or as an alternative to hardening surfaces, BLM should consider the use of soil amendments. This option is now commonly used by BLM in other Field Offices. These actions would result in a significant reduction in the generation of dust, and an overall improvement in air quality at the site. While these options vary in price, cost should not be a reason for automatic dismissal. The closure of CCMA has drawn attention worldwide, and BLM should explore areas for partnership in funding heretofore thought impossible.

Limit Single-Track Trail Use to Dirt Bikes. In an effort to continue to lower the amount of dust generated into the air, another alternative for BLM to consider would be limiting OHV recreation in the CCMA to dirt bikes and eliminating use by all-terrain vehicles (ATVs) on the single track trails. Dirt bikes are less likely to stir up dust when operated in a responsible manner. We realize this alternative is quite a radical departure from the usual approach by the OHMVR Division to encourage multiple-use OHV recreational opportunities. However, we feel this departure is warranted because Clear Creek is nationally recognized as a premier dirt bike riding area with a reputation for its single track dirt bike trails.

Trail Re-routes and Reduced Trail Widths. To further reduce the potential for visitors to come into contact with potentially hazardous materials, the existing single track trail system should be carefully examined and re-routed around areas of the most readily disturbed soils, such as thin, poorly consolidated silt-rich soils. Creation of a one-way trail system would also allow for a dramatic reduction in trail width as part of a "motorcycle only single track system." Together, reroutes and limited trail widths would greatly reduce the amount of dust created as well as potential exposure rates for the riders. By limiting trail width and restricting trail riding to those areas where soils are more sustainable and durable to dirt bike recreation, the potential for significant dust exposure is reduced.

Use of Dust Abatement Additives. The application of dust abatement additives (such as "dust off") should be considered on single track trails. We recognize this may be a difficult undertaking and clearly would not be practical on all trails, but there are certainly opportunities to apply dust abatement additives to the most frequently disturbed sections of single track trails. We recognize this may require purchase or development of specialized equipment in order to access the trails and apply the additives. The OHMVR Division stands ready to assist in exploring possibilities for developing the techniques needed for this type of application. By judiciously applying such measures to the most disturbed sections of trails, reductions in dust generation could be achieved.

Rider Education. An education campaign should also be considered that emphasizes responsible motorcycle riding and avoidance of unnecessary wheel spin which exacerbates dust production.

Limit Vehicle and Visitor Use. The number of vehicles also impacts the amount of fugitive dust that is generated. A lottery system could be created to limit the number of vehicles allowed in the CCMA at one time. Visitors could be limited to the number of times they can visit and for how long each year. Age restrictions could be imposed (18 and older) with implied consent waivers such as are employed at some county OHV parks.

Seasonal Closure. The potential for dust to be generated is reduced with increased soil moisture. An effective means to reduce dust generation at CCMA is to seasonally limit visitation to periods when soil moisture is replenished by precipitation. Seasonal closure dates could be adjusted based on a predetermined prescription of soil moisture values found at sampling stations set up throughout the riding area. Dust reduction is increased further by coupling a seasonal closure strategy with the other strategies detailed above.

Wash Racks. The secondary "non-point source" pollution concerns could be offset by requiring the use of the wash racks for all visitors. Wash systems would return the water in a tertiary condition for reclamation and possible application to trails.

Additional Studies

The OHMVR Division feels the actions detailed above could be part of a proactive management strategy which may more effectively reduce the potential for dust and asbestos exposure than simply closing off OHV access to CCMA. Whether or not these actions are pursued, the OHMVR Division feels strongly that more information is needed before any final decisions can be made. If some, or all, of the measures suggested above were to be employed, studies of the risk of exposure would need to be conducted to determine the overall effectiveness of the collective measures. By targeting the most egregious sources of dust and soil disturbance and either re-routing around them, hardening the surfaces, or treating them with dust abatement additives, in conjunction with some or all of the other suggested measures, a safe environment for recreational use should be possible.

Finally, if all other measures prove ineffective in creating an environment considered to be safe for recreational use in the current CCMA OHV trail system, we would encourage the Hollister Field Office to consider expanding the current footprint of the CCMA to incorporate nearby BLM areas which could be developed for OHV recreational opportunity. Areas that could be incorporated might be found to be more appropriate for OHV recreation and easily accessible to a larger population. Improvements to and management of this larger footprint could be addressed through a cooperative relationship with the state and/or local governments. In addition, other BLM lands in the region should be considered for development to provide OHV recreation.

The OHMVR Division is charged with the statewide management and provision of OHV recreational opportunities. The loss of such a significant area as the CCMA represents a significant reduction in our ability to continue to meet our mission. If the CCMA were to be permanently closed, the riders who formerly recreated at CCMA would be displaced to other areas. Nearby Hollister Hills State Vehicular Recreation Area (SVRA) is already experiencing increased pressure from riders who are not able to recreate in the CCMA due to the current temporary closure. As a result, Hollister Hills SVRA has reached capacity and has had to close to the public on several occasions.

The OHMVR Division understands and appreciates the challenges facing the BLM Hollister Field Office. Funding for federal land management agencies continues to decrease while the demands for responsible management are increasing. The closure of Clear Creek has resulted in a new outpouring of concern throughout the OHV community unlike anything we have seen before. The OHV community has made it clear to the Division that they stand ready to partner with BLM in whatever way possible to address this crisis in their recreation. We would encourage BLM to think "outside the box" as it prepares its Resource Management Plan and reach out to members of the OHV community to explore all options. The OHMVR Division is prepared to work closely with the BLM in developing alternatives which will lead to reopening the CCMA to continued OHV recreation.

Best,

Daphne C. Greene
Deputy Director
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M E M O R A N D U M

TO: Mr. Steven Ross, P.E.
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From: Fran Collier, M.S. David L. Berry for Fran Collier
Associate Toxicologist
Human and Ecological Risk Division

David Berry, Ph. D. David L. Berry
Senior Toxicologist
Human and Ecological Risk Division

Date: **April 16, 2009**

SUBJECT: Clear Creek Management Area Draft Resource Management Plan/Environmental Impact Statement

PCA: 11090 **Site Code:** 101717 **WP:** 00

The Human and Ecological Risk Division (HERD) has been asked to review the Clear Creek Management Area Draft Resource Management Plan/Environmental Impact Statement (RMP) prepared by the United States Bureau of Land Management (BLM). The document is undated and was sent electronically to the Department of Toxic Substances Control (DTSC) on March 23, 2009. .

Background

The Clear Creek Management Area (CCMA) is located in the highly mineralized New Idria area that is known for extensive serpentine deposits. The area has been commercially mined from the 1850s through 2002 for mercury, asbestos and gems. The landscape is generally rugged with steep topography with sparsely vegetated to barren slopes. Seven special status plant species are found in the CCMA. The CCMA was, until recently, primarily used as an off road vehicle (OHV) park where all terrain vehicles (ATVs), motorcycles and sport utility vehicles (SUVs) were used for recreational hill climbing and trail riding on the estimated 242 miles of unpaved trails.

CCMA was also used for hiking, hunting and camping, rock collecting, botanical and other recreational activities. The CCMA is managed by BLM who estimates up to 50,000 visitors per year have traditionally used the site, primarily in the cooler winter months. Several motor cross events were held each year at the CCMA. Recreational users include adults, children, and families.

BLM is in the process of amending the CCMA management plan. Previous studies have shown that extensive dust containing high concentrations of asbestos is generated from the CCMA vehicular activities. Asbestos is a known human carcinogen that causes lung cancer and mesothelioma. Asbestos also causes incurable diseases such as pleural diseases and asbestosis. The long lag time between first exposure and manifestation of disease symptoms (10 to 40 year) also contributes to public health concerns about asbestos exposure. In order to aid BLM in managing the CCMA to protect human health, USEPA, with encouragement from the California Air Resources Board (CARB) and DTSC, conducted studies to assess potential risk from exposure to asbestos dust generated from CCMA activities for both recreational users and workers. USEPA conducted activity-based monitoring in 2004 and 2005 during both dry and wet weather conditions. Studies were conducted for several individual recreational activities including camping, hiking, vehicle washing and vacuuming, motorcycle and ATV riding and working conditions such as patrolling, camp ground maintenance and fence building. Results from individual activities were bundled into four recreational scenarios and three worker scenarios for evaluating cumulative risk. Ambient air samples were also collected at four locations during the same sampling periods that the activity-based monitoring studies were being conducted.

Activity-based air samples were collected by USEPA contractors performing the activities while wearing personal air pump sampling devices that collect particulate matter, including asbestos fibers on filters for microscopic evaluation by Transmission Electron Microscopy. Asbestos fibers were identified and counted using ISO Method 10312. All asbestos fibers were individually identified and measured that have an aspect ratio of 3:1, and between 0.25 and 3 microns wide regardless of length. Those fibers that were greater than 5 microns in length were counted as Phase Contrast Microscopy equivalent (PCMe) fibers. The PCMe fiber count is used as the exposure point concentration for calculating potential incremental risk. The cancer slope factors used by both USEPA and the California Office of Environmental Health Hazard Assessment (OEHHA) are based on PCM assessment that can only accurately measure fibers greater than or equal to 5 microns in length. Shorter fibers are believed to contribute to potential risk; however studies to quantify risk from short fibers have not been performed.

USEPA calculated potential risk using both minimum and maximum concentrations of asbestos measured for each activity. Calculations were also performed using both USEPA and OEHHA cancer slope factors. Calculations for both adult only, child only, and age adjusted combination of adult and child were made. Risks were calculated for each activity/scenario for 1, 5 and 12 exposure events per year for adult, child and adult/child ages. Although USEPA is intending to propose a reference concentration

(RfC) concentration for asbestos in the near future, an RfC does not currently exist. As a result, potential non-cancer hazard from asbestos exposure was not calculated.

Asbestos exposure point concentrations ranged from 0.00027 fibers/cubic centimeter (f/cc) to 2.00 f/cc for individual activities. It is worthy to note that the OSHA Permissible Exposure Limit (PEL) is 0.10 f/cc. The risk assessment results show elevated and unacceptable excess lifetime cancer risk for many of the activities and scenarios, even for brief duration and infrequent exposures and regardless of weather conditions. Calculated risk for the maximum exposure point concentrations were as great as a high .of 8 in 100 for adults, a high of 4 in 1000 for children, and a high of 3 in 100 for the for combined adult/child age exposures [based on OEHHA methodology]. USEPA considers exposures that result in theoretical excess cancer risks exceeding 1 in 10,000 excess cancers to be of concern and require action to reduce the exposure and resulting risk. Theoretical excess cancer risks for all uses exceed 1 in 10,000 for exposures lasting more than one day per year. Risks associated with vehicle activities exceed the 1 in 10,000 even for exposures of one day per year.

As a result of these studies, BLM temporarily closed the CCMA to all activities until a new RMP could be developed and implemented. The draft 2009 RMP evaluates seven alternative management scenarios ranging from resuming the full extent of previous uses (No Action Alternative A) to sustaining the complete closure of the designated Serpentine Area of Critical Environmental Concern (ACEC) (Alternative G). The RMP evaluates the scenarios for protection of human health as well as resource management. BLM proposes adopting Alternative E, although the RMP notes that various other combinations of management options within each of the 7 alternatives could be considered for the final RMP.

Alternative E would allow for limited vehicle touring through the ACEC along the 11-mile scenic route that follows T153 and Spanish Lake Road from Idria to Wright Mountain. Pedestrian day trail use opportunities would be allowed at scenic locations along the scenic route at designated locations. Access would be allowed by permit only and limited to 5 days per year (d/yr) for vehicle use, 12 d/yr for pedestrian use, private land owners, existing rights of ways and utility corridors. Access would be restricted during extreme weather conditions and dust mitigation measures would be used at existing recreational facilities and on the designated vehicle routes. A remote automated weather station or other available technology will be established to monitor soil moisture to determine need for closure. No OHV use or camping would be allowed in the ACEC. Full size vehicles and All Terrain Vehicle (ATV) use opportunities would be developed in the public lands of Condon Peak and San Carlos Bolsa (Cantua Zone), where appropriate. Pedestrian use, hunting and non-motorized recreation uses would also be emphasized in areas outside the ACEC. Rehabilitate surface disturbance areas through use of vegetative materials and an erosion control strategy for proposals involving surface disturbances on slope of 20 to 40 percent. Install and maintain signs and boundary markers to maximize public safety and enjoyment of public lands. No mineral leasing or sales on public lands and withdrawal of 30,200 acre ACEC from locatable mineral entry under the 1872 Mining Law. Authorize special recreation

permits for hobby gem and mineral collection on a case by case basis. Acquire lands from willing sellers in the CCMA with high value for special status species, other biological resources, and recreational opportunities as well as augmenting the management efficiency of the CCMA. Consider signed waivers of liability and enforcement of speed limits on major route network. Continue to identify mine-related illegal dumps, private land hazards (eliminate or mitigate as soon as possible). Continue to identify and resolve mining-related trespasses, especially public safety conflicts occurring with visitor use. Augment existing public health risk awareness through hand-outs (maps and brochures), advisories, monitoring, public contact and education programs with best available information concerning asbestos health hazards.

BLM proposes to revise the draft RMP for release to the public for review and comment by early May, 2009. Public meetings in summer and fall 2009 will be held to receive input on the proposed management strategy.

Scope of Review

HERD has reviewed this document with emphasis on those aspects that pertain to evaluating potential risk to human health from exposure to asbestos found within the CCMA. HERD has not reviewed, nor is commenting on the resource protection measures proposed except for their potential impacts on human health. Grammatical or typographical errors that do not affect the evaluation have not been noted.

Documents reviewed

HERD has reviewed the Clear Creek Management Area Draft Resource Management Plan/Environmental Impact Statement (RMP) prepared by the United States Bureau of Land Management (BLM). The document is undated and was received by HERD on March 23, 2009.

GENERAL COMMENTS

1. HERD notes that the RMP provides revised risk assessment calculations from the 2008 USEPA risk assessment based on refined estimates of exposure duration primarily for driving to and from recreational opportunities within the CCMA. The revised calculations still show significant incremental, theoretical excess cancer risk for all recreational users, particularly when OHV uses are occurring at the same time as other activities. Although the risk evaluation does not include evaluation of non-cancer endpoints, the occurrence of non-cancer potential health effects due to asbestos exposure could be significant. Other studies have shown that non carcinogenic effects can occur at greater frequency than carcinogenic disease. As such HERD recommends that all possible precautions be used to minimize potential exposure to asbestos in the CCMA.

2. HERD recomments that the boundaries of the new recreation facilities outside the ACEC be verified for the overlying serpentine formation and re draft accordingly. The USGS mapped the area and BLM needs to verify that their proposed boundaries are appropriate to minimize asbestos exposure to all proposed uses.

3. HERD concurs that unacceptable potential risk exists for OHV use in the ACEC areas of CCMA for adults and especially for children. Although USEPA's risk assessment did not evaluate mechanized recreation such as cycling on trails, HERD observes that these activities also can generate significant dust clouds. HERD recommends that activity based monitoring be conducted for these activities and potential risk assessed for adults and children prior to allowing these activities in the ACEC under any of the proposed alternatives.

4. HERD recommends that existing and proposed OHV routes in the Tucker Mountain, Condon Peak and San Carlos Bolsa (Cantua Zone) be assessed for potential asbestos emissions, including geologic review and mapping and activity based monitoring, if warranted in potential asbestos areas, using similar scenarios to those assessed by USEPA for the ACEC to determine potential risk to adults and children using OHVs in these areas. HERD also recommends developing an activity based scenario for mechanized recreation such as mountain cycling on these trails as well as equestrian uses.

5. HERD also recommends that the proposed scenic route through the ACEC be resurfaced to reduce asbestos emissions [i.e., see Table 4.3-x]. A DTSC study on SloDusty road showed significant reduction in asbestos emissions by resurfacing a serpentine aggregate road.

6. HERD also recommends that, regardless of the management alternatives selected, that vehicle washing and HEPA vacuuming stations be established at the entrances at CCMA entrances so that vehicles can be cleaned upon leaving the CCMA. HERD recommends that SOPs be developed for cleaning and maintenance of these stations as track-out can result in significant exposure(s).

7. HERD recommends that that text and tables in the RMP identify the specific measures described in Appendix V for each of the management strategies and resource protection goals described in Chapters 2 and 4. Various sections of the document refer to application of mitigation measures, Best Management Practices (BMPs) and/or restoration however the text in Chapter 2 and Chapter 4 does not specifically identify the measures that might be for the various management strategies in each alternative.

8. HERD recommends that Appendix V describe the conditions in which the management practices will be used as well as measurement techniques and criteria for measuring effectiveness of these measures. Although Appendix V lists various measures, it does not describe what will trigger the initiation of each measure nor does it describe how effectiveness will be measured.

9. HERD recommends that the document be critically edited such that the language in each of the sections is internally consistent and that reference to tables is correct.

SPECIFIC COMMENTS

Chapter 2: Analysis of Alternatives

HERD offers the following specific comments organized according to the 7 management alternatives, first for the measures that are common to all proposed alternatives, then for BLM's proposed Alternative E followed by Alternatives A, B, C, D, F and G.

Common Measures:

1. Section 2.3 Elements Common to All Alternatives; Recreation and Access: HERD recommends that any rights of ways for existing communication sites and private land owners through BLM lands be mitigated to reduce asbestos emissions from theses uses. These uses were not assessed as part of USEPA's risk evaluation, so potential risk due to these uses is unknown. As such, mitigation measures to minimize asbestos emissions from these activities should be used.

2. Section 2.3 Elements Common to All Alternatives: Public Health and Safety: HERD recommends that the Best Management Practices (BMPs) proposed by BLM be clearly identified and described for each alternative in the RMP text, including assessing the effectiveness of reducing asbestos emissions from allowable activities.

3. Section 2.4.1.1 Recreation Goals and Objectives; Recreation and Allowable Use Definitions: HERD recommends removing "equestrian use" from the "non-motorized" definition category. All the alternatives, except G, permit non-motorized uses in the ACEC. Horses can raise significant dust that can impact trailing riders. Equestrian use was not evaluated in the USEPA activity based monitoring or risk evaluation. Alternatively, BLM and USEPA could conduct activity based monitoring and evaluate risk from equestrian use in the ACEC.

4. Section 2.4.2.1 Hazardous Materials and Public Safety Goals and Objectives: HERD recommends adding enhancing public safety by minimizing potential exposure to releases of asbestos from activities conducted in CCMA.

5. Section 2.4.2.3 Hazardous Materials and Public Safety Management Actions Common to Alternatives B through G: HERD recommends reducing the proposed speed limits of 15-25 miles per hour (mph) on the major route network to no more than 10 miles per hour unless the roads and trails in the ACEC are resurfaced to prevent dust emissions. The "Serpentine Road Study in Garden Valley, California" referenced in the RMP showed that although asbestos emissions occurred at 10 mph on serpentine aggregate, the emissions were an order of magnitude less than

traveling the same road at 35 mph. As noted in the RMP, the study showed that application of BMPs such as resurfacing further reduced these emissions.

6. Section 2.4.3.2 No Action Alternative (Management Actions); Note: The "Note" in the first paragraph is confusing to this reader. It seems to imply that all options under Alternative A apply to the other alternatives. Language on exceptions is vague. As such, HERD recommends that management actions be clearly identified for each specific alternative, even though ones that are common to more than one alternative will be repeated. This is particularly important for the "Routes", as each alternative proposes different routes and uses as shown on their respective maps.

7. Section 2.4.3.2 No Action Alternative (Management Actions); A. Routes: HERD recommends that "occurrence of asbestos" be added to the list of designation criteria in the first paragraph of this section.

8. Section 2.4.4.2 Biological Resources—Vegetation Resources: The "Note" in the first paragraph is confusing to this reader. It seems to imply that all options under Alternative A apply to the other alternatives. Language on exceptions is vague. As such, HERD recommends that management actions be clearly identified for each specific alternative, even though ones that are common to more than one alternative will be repeated.

9. Section 2.4.4 Biological Resources—Vegetation Resources, Section 2.4.5 Biological Resources—Wildlife Habitat, Section 2.4.6 Biological Resources – Special Status Species, Section 2.4.8 Soil Resources and Section 2.4.9 Water Resources and Section 2.4.13 Cultural Resources, Section 2.4.14 Paleontological Resources : HERD recommends that appropriate measures to minimize exposure to asbestos be added to the subsections to protect workers and other users who are maintaining or harvesting vegetation including timber, maintaining wildlife habitat and protecting the soil and watershed resources. HERD supports the proposal to re-vegetate areas and trails within the ACEC that have been impacted by OHV activity or other activities which show significant barrens. Re-vegetation will help to reduce wind generated dust and asbestos emissions from these areas and slow erosion.

10. Section 2.4.7 Air Quality: HERD recommends adding language to minimize releases of asbestos to the air in the appropriate subsections.

11. Section 2.4.10 Special Management Areas—ACEC/RNA: HERD recommends adding measures to these subsections that include health and safety protection measures to minimize asbestos exposure to workers and others who are using these areas for environmental restoration and maintenance. The emphasis appears to be education and awareness; however other mitigation measures to minimize asbestos emissions should also be evaluated for the various tasks to be performed in addition to dust suppression on access roads.

12. Section 2.4.11 Livestock Grazing: HERD recommends not allowing livestock grazing on the ACEC BLM managed lands in order to minimize dust generation and release of asbestos.

13. Section 2.4.12 Energy and Minerals: HERD recommends not allowing mining and energy generation activities on BLM managed lands in the ACEC to minimize dust generation and release of asbestos to the air.

14. Section 2.4.15 Social and Economic Conditions, Section 2.4.26 Visual Resources Management: HERD recommends that these subsections include measures for educating and initiating health protective measures to minimize asbestos exposure as part of balancing social and economic management of CCMA resources.

15. Section 2.4.17 Fire Management: To the extent feasible, HERD recommends adding precautions to protect fire fighters using BMP from asbestos exposure during wildland fires and controlled burns within the CCMA.

Alternative E:

1. Section 2.4.1.6 Management Actions Alternative E; REC-USE-E4: HERD recommends assessing existing and potential trails and locations of other facilities in the Cantua area for the occurrence of asbestos. HERD recommends that these facilities be located in areas that do not contain serpentine rock or other minerals that contain asbestos. If needed, HERD recommends conducting activity based monitoring and assessing potential risk from asbestos exposure prior to allowing recreational uses.

2. Section 2.4.1.12: Visitor Services Common to Alternative E and F; all: See comment #1 above.

3. Section 2.4.3.5 Management Actions for Alternative E TRANS E4: HERD recommends assessing the existing and proposed routes for the occurrence of asbestos. If found, routes should be evaluated using activity based monitoring and assessment of potential risk.

4. Tables 4.2.2 and 4.2.6 Risk Calculations: HERD recommends limiting day use hiking and hunting to no more than 5 days per year. These tables show significant risk for hiking and hunting for 12 days per year, which is proposed for alternative E. Spreadsheets showing risk calculations for Alternative E assume that hiking occurs for only 4 hours per day, which may represent the average amount of time, rather than the reasonable maximum exposure estimated time for hiking.

Alternative A No Action:
Because of the extensive OHV use in the ACEC, calculations show unacceptable risk for proposed uses and activity durations. As such HERD does not support adopting this

Alternative unless mitigation measures are used that demonstrate that asbestos emissions and exposures have been reduced to protective levels.

Alternative B:
This alternative is basically the same as Alternative A, however the dry season of no OHV use in the ACEC would be extended and the number of annual visitor days would be limited. Risk calculations show unacceptable risk for both adults and children for OHV use and other recreational activities. As such, HERD does not support adopting this option unless mitigation measures are used that demonstrate that asbestos emissions and exposures have been reduced to health protective levels.

Alternative C:
This alternative also reduces the amount of time and duration for OHV use and would not allow anyone under the age of 18 to visit the CCMA. While this alternative addresses potential risks of asbestos exposure to children visiting the CCMA, calculations still show unacceptable risk for adults, particularly for OHV usage. As such, HERD does not support adopting this option unless mitigation measures are used that demonstrate that asbestos emissions and exposures have been reduced to health protective levels.

Alternative D:
This alternative would allow full size vehicle use year round on existing roads and dry season routes in the ACEC. Risk calculations show unacceptable risk for both adults and children for vehicle use and other recreational activities for more than 5 days per year. HERD recommends that use be limited to less than 5 days per year and that above comments pertaining to roads and other best management practices be addressed if Alternative D will be considered. BLM should demonstrate that mitigation measures are being used that reduce asbestos emissions and exposures to health protective levels.

Alternative F:
This alternative would not allow any motorized vehicle use in the ACEC. Pedestrian and non motorized vehicle use would be allowed. Risk calculations show potential risk is within risk management range for hiking and hunting up to 12 days per year. HERD recommends that access be limited to no more than 12 days per year and that the above comments be addressed if Alternative F will considered.

Alternative G:
This alternative would close the ACEC for all uses. Because no access would be allowed, potential risk calculations were not performed. HERD recommends that areas outside the ACEC be evaluated for potential exposures to asbestos under the various proposed uses.

Chapter 4: Environmental Consequences

Section 4.1.1 Recreation Introduction: HERD recommends that impacts to users from "mechanized" uses also be evaluated. This section only proposes two categories, motorized and non-motorized, while Chapter 2 provides analysis of three categories, motorized, mechanized and non-motorized.

Appendix V: Mitigation Measures

MP-17 Dust Mitigation: HERD recommends that this section be expanded to include descriptions of monitoring techniques and frequency. In addition this section should describe the conditions that will trigger dust mitigation measures and how effectiveness of the mitigation measures will be assessed.

CONCLUSIONS AND RECOMMENDATIONS

Risk calculations show significant risk for all recreational users, particularly when OHV uses are occurring at the same time as other activities. Although the risk evaluation does not include evaluation of non-cancer endpoints, the occurrence of non-cancer potential health effects due to asbestos exposure could be significant. Other studies have shown that non carcinogenic effects can occur at a much greater frequency than carcinogenic disease. There is a great deal of uncertainty in developing management practices on a theoretical carcinogenic risk endpoint and not considering the non-cancer, threshold effects for other asbestos related diseases in the management decision. As such HERD recommends that all possible precautions be used to minimize potential human exposure to asbestos in the CCMA regardless the management alternatives that are selected. Further, HERD recommends that regular monitoring be initiated to demonstrate that mitigation measures are effectively reducing asbestos emissions and potential risk to acceptable levels that protect human health as well as the environment. If the measures are not effective, HERD recommends that the recreational or commercial uses be discontinued until effective measures can be put in place in the CCMA to reduce exposure to asbestos to acceptable levels.

HERD recommends that the above comments be addressed in a revised RMP.

Reviewed by: Gerald A. Pollock, Ph.D.
Senior Toxicologist, HERD

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ADMINISTRATIVE DRAFT RESOURCE MANAGEMENT PLAN FOR THE CLEAR CREEK MANAGEMENT AREA, SOUTHERN SAN BENITO AND WESTERN FRESNO COUNTY, CALIFORNIA

Dear Mr. Cooper:

Thank you for providing the Department of Toxic Substances Control (DTSC) an opportunity to participate in the March 26, 2009 meeting in Sacramento and to review the Bureau of Land Management (BLM) Administrative Draft Resource Management Plan (RMP) for the Clear Creek Management Area (CCMA). The CCMA encompasses approximately 75,000 acres of which BLM manages 63,000 acres of public lands.

As you know, the CCMA is identified as a distinct geographical area in the United States Environmental Protection Agency Record of Decision for the Atlas Asbestos Mine Superfund Site. DTSC review focused primarily on those aspects of the BLM land use alternatives that pertain to evaluating potential risk to human health from exposure to asbestos found within the CCMA and whether Atlas Mine Operable Unit is secured from potential trespass allowing for eventual delisting from the federal Superfund list after a final land use decision.

From review of the document, it was difficult to comprehend all management actions for each of the alternatives. Grouping all management actions for each alternative would be useful to the reader. From our understanding of the BLM preferred alternative, the following management actions **inside** the Serpentine Area of Critical Environmental Concern (ACEC) are intended to meet objectives of minimizing public exposure to asbestos:

1. Install gates at entrance points to manage motorized access.

2. Install, replace and maintain signs and boundary markers to maximize public safety and enjoyment of public lands.
3. Acquire lands from willing sellers with high value for special status species, other biological resources, and recreational opportunities and to augment the management efficiency.
4. No Off Highway Vehicle use.
5. No Camping allowed.
6. Terminate public right-of way on County roads and visitor use fee program.
7. Authorize access to private landowners, existing rights-of-ways and utility corridors.
8. Authorize access by permit only no more than five days/year for motorized activity limited to vehicle touring along 11-mile scenic route that follows T153 and Spanish Lake Road.
9. Authorize access by permit only no more than 12 days/year for non-motorized activity limited to pedestrian trail day use opportunities of unique scenic, natural or geologic features. These non-motorized recreational activities include hiking, hunting, target shooting, rock-hounding, mountain bike and equestrian use.
10. No mineral leasing or sales on public lands and withdrawal of 30,200 acre ACEC from locatable mineral entry under the 1872 Mining Law.
11. Authorize special recreation permits for hobby gem and mineral collection on a case by case basis.
12. Develop and maintain transportation facilities (i.e. pull-outs and parking areas) on portions of T153 and Spanish Lake Road (R11) and other destinations with unique biological, natural and geologic features.
13. Mitigation measures to reduce emissions at staging areas, existing recreational facilities and designated major route network through surface hardening or other dust suppression techniques (paving, base rock, chip seal, or applications of surfactants) to stabilize and solidify soils or aggregates and control erosion.
14. Restrictions on access and use during extreme weather conditions and enforce temporary closures. Establish remote automated weather station or apply the use of other available technologies to monitor soil moisture to determine need for closure based on extreme weather conditions.
15. Augment existing public health risk awareness through improved signing, hand-outs (maps and brochures), advisories, monitoring, public contact and education programs with best available information concerning asbestos health hazards.
16. Rehabilitate surface-disturbing areas through use of vegetative materials. Require an erosion control strategy and topsoil segregation/restoration plan for proposals involving surface disturbance on slopes of 20 to 40 percent.

17. Consider signed waivers of liability and enforcement of speed limits (15-25 mph) on major route network.
18. Continue proper handling of hazardous materials and wastes.
19. Continue to identify mine-related illegal dumps, private land hazards (eliminate or mitigate as soon as possible.
20. Continue to identify and resolve mining-related trespasses, especially public safety conflicts occurring with visitor use.

Attached as Exhibit A, you will find our toxicologists comments regarding the ACEC and proposed new recreation facilities outside the ACEC. Please address the comments identified in a revised RMP.

Regarding the Atlas Mine Operable Unit, DTSC requests the fence extend to secure the site from trespass near the northern boundary of Pond A. At the nearest distance, this area appears to be less than 4 miles from the proposed new recreational facilities in the Cantua Zone and two miles from the proposed scenic route. As you can see from Exhibit B, there is an approximate 2000 foot gap where trespass may occur along disturbed mine areas on BLM managed lands and the affected privately owned parcel. Please provide a satisfactory proposal so institutional controls in the form of enforceable land use covenants may be fully explored.

If you have any questions, please contact me at (916) 255-3694.

Sincerely,

Steven Ross
Hazardous Substances Engineer
Brownfields and Environmental Restoration Program

Attachments

EXHIBIT A

DTSC MEMORANDUM

EXHIBIT B

ATLAS SITE FEATURES

United States Department of the Interior

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25 August 2003

1610
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James L. Tjosvold, P.E.
Chief, Northern California-Central Cleanup Operations Branch
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826-3200

Dear Mr. Tjosvold:

Thank for your interest and involvement in the BLM's management of the Clear Creek Management Area (CCMA), and in our current planning process. As referenced in your letter, we are in the process of preparing a Draft Plan Amendment and Environmental Assessment for the CCMA to implement the route and area designations, and designation of the boundaries of the San Benito Mountain Research Natural Area, as identified in the modified Alternative 3 (ROD, 1999).

We are aware that information regarding potential human health effects relating to exposure to naturally occurring asbestos is constantly evolving. We will be working closely with EPA on determining any new risk assessment values, and will incorporate these into our management of the CCMA. We have updated our public information to reflect potential increased risks to children, and as any new risk assessments are completed, these will be incorporated into our public information program, and utilized in evaluating management decisions regarding the CCMA. Personal air monitoring samples are now being analyzed using Transmission Electron Microscopy as well as PCM, to provide a more detailed analysis of fiber type, size, and concentrations, to assist in assessment of management activities.

The BLM continues to implement Best Management Practices related to asbestos exposure, including wet season closures, dust suppression of primary roads during high use periods, restriction of activities when the Personal Exposure Limit is exceeded, and compliance with the ATCM for airborne asbestos relating to road maintenance operations. Air monitoring indicates that these measures provide a certain degree of effectiveness. Current planning involves relocation of our decontamination facility to the CCMA, including provisions for a public wash facility, and consideration of additional camping and public use facilities outside of the hazardous asbestos area.

BLM will continue to work closely with you and all other stakeholders, and federal and state agencies to address issues and develop effective management strategies related to management of the CCMA. The Draft Plan Amendment is expected to be released for comment in mid-September, and a copy will be forwarded to you. We encourage the Department of Toxic Substances Control's comments and participation in this planning process. If you have any questions, please contact myself or George Hill at (831) 630-5000.

Sincerely,

Robert E. Beehler
Field Manager
Hollister Field Office, BLM