Appendix 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
http://www.epa.gov/region08

September 9, 2003

Mr. George Keck
Libby Area Technical Assistance Group
PO Box 53
Libby, MT 59923

RE: August 8, 2003 "Action Item" Letter

Dear George:

As I committed, I have provided a response to each of the action items you presented subsequent to our July 15, 2003 meeting. Answers corresponding to each question are given below:

1. Strictly speaking, there is no amount of any cancer causing material that is "safe." This is no different for Libby asbestos. Any single fiber of Libby asbestos, or molecule of benzene, or particle of saccharin, has the *potential* to start the reaction which leads to cancer. However, if every single fiber of Libby asbestos *actually* caused cancer, every person in Libby, and every person who has ever contacted Libby vermiculite, would contract some asbestos-related disease. This is clearly not the case, especially considering that people in Libby have probably breathed in thousands of fibers over the course of their lives. Not to downplay the magnitude of the problem in Libby, but the fact is that many, if not most, people in Libby are not sick and will never show effects from asbestos exposures despite being exposed at some level during their lives.

What is important in cancer causing materials are the odds that any particular particle of the material will be the one in question. The more toxic the material, the higher the odds. Libby asbestos is certainly more toxic than chrysotile asbestos. Similarly, the more material you contact, the higher the odds. Exposures in Libby in the past were very high and occurred regularly over time. EPA regulates cancer causing materials considering that no matter what you do, unless you remove every molecule, if enough people are exposed someone will get cancer. Removing every particle is impossible, and in many cases we, individually and as a society, make decisions that some risk is acceptable if the materials in question have offsetting benefits - fossil fuels, pesticides, and food additives and cigarettes, to name a few. EPA Superfund risk assessment and risk management methods reflect the philosophy that EPA, and our society, find it acceptable - safe - that as many in 1 in 10,000 people will get cancer, even if there are no benefits. EPA takes the best possible estimates of toxicity, concentration, and exposure, and tries to predict how much is too much. This information provides the basis for EPA to take action. This approach reflects the reality that no cleanup will be perfect, and that there must always be trade-offs between practicality and protection. Paul Peronard cautioned that the time would soon come when we would have to make these difficult decisions in Libby.

EPA has publically discussed the emerging science of asbestos in Libby,

and tried to be completely honest and forthright about what is known and unknown. Many people have formed the impression that there is no level of Libby asbestos that is "safe." Many also believe that, because of the unknowns, the most conservative action possible must be taken, without regard to feasibility or resources. EPA is partly responsible for this impression and, as discussed above, it is grounded in reality. However, Paul has never stated, nor have I, that we would ever be able to remove all sources of Libby asbestos in Libby or across the country. EPA's goal is to remove as much as can practically be removed and to bring long-term risk down to levels generally considered acceptable (e.g. 1 in 10,000 if achievable). The uniqueness of the situation in Libby calls for aggressive measures, but EPA must ensure that available resources are focused on the situations that present the greatest risk. If there are other ways to make the situation in Libby "safe" without removing material, such as containment, these must be considered, especially given the tremendous size of the cleanup. On any single house or property, removing every detectable particle of Libby asbestos or vermiculite may increase the cost of cleanup by hundreds of thousands of dollars and extend the duration by several weeks or months. When the cleanup is expanded to more than 1000 homes, that means hundreds of millions of dollars and decades.

EPA's emergency response program has been focused on addressing the situations that present the greatest risk first. The screening and export plants, ball fields, schools, and other situations were addressed quickly and thoroughly. The amount and concentrations of asbestos found at these locations were often extremely high and the risks they presented were the highest that were still remaining in Libby. EPA spent more than 50 million dollars cleaning up these areas and it has taken the better part of three full years. Conversely, the amount and concentrations of asbestos remaining in homes and businesses today is generally much smaller, and the risk it presents is smaller, but now the scope of the cleanup is not a handful of properties, but well over 1000. As EPA has investigated the problem and began actually implementing cleanup (a type and level of cleanup never attempted before), EPA has had to continually evaluate and reevaluate what is possible, what is necessary, what works, and what doesn't. There is no "revised science," nor is there any fundamental shift in our goals, only the emerging reality of a program that balances protectiveness, implementability, and resources. In the past, because EPA conducted cleanup only in select locations where the risks were the highest, the most conservative, protective decisions were made nearly every time. Because of the scale of the problem we face, EPA must now engage in discussions and decisions about what approaches are feasible and what level of exposure will be "acceptable" in Libby. This is a painful discussion and one in which EPA will never be able to meet all expectations. Libby residents rightfully should question and evaluate these decisions as they evolve.

As I have mentioned several times, EPA is currently in the process of finalizing documents that detail several aspects of the cleanup program - how we sample, how we determine what needs to be cleaned up (action levels), how we perform cleanup, and what determines when we are done (clearance criteria). The program is not simple, and the rationale is not something that can be conveyed in a few sentences or even a short fact sheet. EPA will provide these documents to the TAG and others for review as soon as possible. It is important that the documents are well thought out and thoroughly reviewed before they are released. Poorly worded sentences or unintended inconsistencies can cause lasting concerns, and there is much at stake in cost recovery with W.R. Grace and in other EPA actions across the country regarding asbestos. These

documents will answer many of the questions regarding our current approach to cleanup and expand upon what I have written here. Additionally, EPA is currently working on education and outreach materials for residents and workers who may encounter vermiculite. Wendy Thomi and I will continue to work with TAG on the need for and development of such materials.

2. Each property EPA addresses is unique and the conditions we face at each property change throughout the progress of cleanup. Using the same approach at every property, or even at the same property from start to finish, is unnecessary and inefficient. People observing these changing and differing approaches from the roadside may get the impression of inconsistency. In fact, EPA's goal is consistently meeting cleanup requirements in the most efficient way possible. With the complexity of the cleanup work and the number of individuals doing the work, mistakes may be made. EPA is always looking for ways to improve the effectiveness and the efficiency of the cleanup.

I have provided Gordon Sullivan with copies of our existing Health and Safety Plans and other documentation that helps explain vehicular, equipment, and personal decontamination procedures. I have invited Gordon to speak directly with our Construction Manager and Health and Safety Coordinator regarding the specifics of these programs and this has already occurred. Through a review of the documents and direct discussion, I am confident that members of the TAG will realize the efficacy of our approaches, and that EPA will learn ways to improve health & safety and decontamination procedures.

3. EPA does not believe that personal vehicles present cross-contamination issues. Private vehicles are parked in areas that are not within exclusion zones and workers decontaminate before using their vehicles. While the presence of several vehicles may be an eyesore or an inconvenience, it is not something EPA will seek to change significantly. Having vehicles present allows workers to reach and leave the job site quickly, thereby eliminating down time and providing workers flexibility in how they spend their personal time. Given that most of the workers work at least 60 hours of week, this is important. If a specific incident occurs where a worker's vehicle presents a problem for a resident near a cleanup site, please contact CDM's Community Involvement Coordinator, Karen Berry.

4. The rationale and approach for perimeter and interior air sampling is contained in the documents being prepared that will be available for public review soon, though the procedures they set forth have not changed significantly since we began residential cleanup last year. We are also working on a summary of two kinds of air data: (1) ambient air samples - collected in various places in Libby when cleanup work is not occurring in the immediate area, and (2) perimeter air samples - collected at work sites in Libby during cleanups. These documents will show a trend that ambient air in Libby is clean, is not affected by the ongoing cleanup actions, and that engineering controls in place for cleanups are successfully eliminating fugitive emissions. I have also invited Gordon Sullivan to discuss these issues with our technical team.

5. EPA's sampling approach and procedures for the many types of sampling conducted before, during, and after cleanup are found in several Sampling and Analysis Plans developed by EPA. Each type of sampling (investigation, design, work place monitoring, clearance) has its own Sampling and Analysis Plan. Many of these are available at the Information Center now. Some

are currently being finalized along with the other documents I have mentioned and will be publically available soon.

Your question seems to focus mostly on why EPA seals off areas of the home during cleanup and during clearance sampling and whether this practice undermines the representativeness of the clearance sampling (whether the clearance sampling accurately reflects future exposures). EPA seals off areas such as vents, ducts, and windows during cleanup because it is industry standard and is required by OSHA and EPA for conducting asbestos abatement. The purpose is to isolate the area being addressed during cleanup, provide for establishment of negative pressure in the work space, and prevent contaminant migration away from the area of cleanup (e.g. from the upstairs to downstairs, or from the attic into the interior, or from inside to outside). Critical barriers set up during cleanup are not removed until sampling shows clearance criteria have been met.

As to the representativeness of clearance sampling, it is certainly true that sealing off certain areas eliminates them as a factor during sampling. This is not limited to sealing but also affects EPA's approach to personal possessions (discussed in Number 12 below). However, when considering this, it is critical to discuss the approach to interior clearance sampling and criteria. While such sampling and the criteria EPA applies are commonly referred to as the "safe" level or the level at which residents are "allowed" to return to their homes, clearance sampling is not that simple. There are two primary objectives with clearance sampling. First, such sampling allows EPA to determine that cleanup activities for the structure itself - the attic and living space - were successful. The intention is not to evaluate whether every material, space, or object in the home is free of asbestos - that is simply beyond our ability to implement or sample for. Second, it allows EPA to evaluate levels of asbestos present in the home under highly disturbed, though *controlled*, conditions. EPA generally does not allow residents to return to their homes until clearance levels are attained. The clearance levels are very low - based upon values that might be "safe" for a lifetime of continuous exposure and they are collected under conditions that approach the worst case scenario. They do not represent a level that might be "safe" for short-term exposure; such a level would be considerably higher. Because of this conservative and protective approach, in isolated cases we may allow residents back when clearance standards have not been achieved. Clearance sampling is not intended to provide a definitive measurement of future asbestos levels in the home, and not sealing off any areas would not change this. Such measurements can be affected by many, many variables (in addition to sealed areas and personal possessions) and can only be gleaned from conducting sampling of actual exposure levels after cleanup has occurred and the resident resumes normal activities. As discussed in Number 8 below, such sampling is planned this fall.

6. The question of carpet removal is a difficult one. Carpet can act as both a source and a trap for asbestos fibers that are introduced into a living space. Textiles such as drapes and clothes are similar. As a source, this can be bad, as disturbing the carpet or textiles can release fibers into the breathing zone. As a trap, this can be good, as fibers that are trapped in carpet are removed from the living space rather than being continually re-suspended. There are many studies available, several conducted by EPA, that discuss the feasibility and success of cleaning asbestos contaminated carpets with dry HEPA vacuuming and with wet vacuuming. Most of these studies consistently show that neither wet or dry vacuuming removes all asbestos from the bulk materials

of the carpet and that wet methods are more successful than dry ones. However, EPA's assumption in Libby was that dry vacuuming will remove asbestos fibers that are most likely to be released with disturbance. If fibers don't come out with aggressive disturbance and vacuuming, they are unlikely to come out during normal activities. What is important is what is in the air, not what is in the carpet.

As we began residential/commercial cleanup in Libby, it became clear that the effort and cost required to remove and replace all carpets (not to mention textiles such as furniture and fabrics) in residences would be extremely large. Similarly, introducing water into the living spaces of homes would also certainly generate many, many resident complaints and damage claims. This option is also more expensive. While we considered and continue to consider these approaches, we ultimately opted to use dry HEPA vacuuming as an initial approach. EPA has consistently been able to pass aggressive air clearance testing by cleaning carpets, textiles, and surfaces with dry HEPA vacuuming, so results are promising. Additionally, depending on the situation, EPA may offer to remove carpet for a resident if the home requires cleaning and if the resident agrees to pay the cost of carpet replacement. After cleanup EPA will provide residents with HEPA vacuums so that they will be addressing any low-level contamination that may be reintroduced into living spaces on an ongoing basis. Finally, this fall, EPA intends to revisit many homes that have been cleaned to determine whether carpets and other textiles that were not removed are releasing asbestos into the living space. If they are, we may reevaluate our approach.

7. Similar to Number 2 above, I have provided Gordon Sullivan with copies of our contractor's Health and Safety Plans and invited him to discuss these issues with our CDM Health and Safety Coordinator. Many of the documents under development also address issues of worker safety in various contexts. Health and safety is extremely important to EPA and a primary concern during our work. We conduct extensive monitoring and precautions to ensure the workers' safety. However, much of the responsibility for worker safety falls to the contractors EPA employs to perform the work. While EPA reviews, comments and provides guidance on health and safety plans and procedures, we generally will not put ourselves in an "approval" role for contractor health and safety. EPA will not assume this liability and responsibility. Of note, the Occupational Safety and Health Administration (OSHA) has conducted several field inspections of our field operations and has issued no negative findings.

While it is known that smoking is a health hazard and more so in conjunction with asbestos exposure, EPA may not have a legal basis for forbidding smoking by workers. Smoking is not illegal. The workers labor hard and are making the individual choice to do this during their break. EPA is open to discussing this issue further.

8. Plans for follow up air and dust testing at homes are currently being developed. EPA intends to perform initial post-cleanup sampling in fall 2003 and will provide the TAG with draft copies of sampling plans when they are developed.

9. We have based our containment approach for interior and exterior cleanup on many factors, including existing OSHA and EPA regulations regarding asbestos cleanup, efficiency, and the results of ongoing monitoring performed at cleanup sites. As more cleanups occurred and results showed the effectiveness of containment, EPA reduced the amount of sampling. This makes the

work more efficient without sacrificing protectiveness. While one may argue with the placement of samplers or readings on particular samples, the results obtained over several years show a clear trend that fugitive emissions are not a problem. As stated previously, EPA is currently preparing a summary of this data, and the most current procedures for sampling are found in the documents being developed. I also welcome Gordon or others to discuss our sampling approaches for both interior and exterior cleanup with representatives from CDM.

10. Exactly how much exposure is "safe" is not a question with a clear cut answer. EPA and others continue to investigate and improve understanding work on improving our understanding of these issues. However, there are many distinctions that can be made right now about what exposures are most important and which are least important, even considering the many uncertainties involved in asbestos analysis and risk assessment. For instance, all of the risk models available, even the most current ones, suggest that certain concentrations of asbestos are likely to cause significant problems only if exposure occurs frequently and over long periods of time, such as thirty or more years. These are generally the concentrations that residents in Libby face today. As I discussed in Number 1 above, exposure to some level of Libby asbestos will continue to occur indefinitely both in Libby and across the country. By all measures we have to assess the risks, these types of exposures do not increase one's risk of health effects significantly. In Libby, EPA is acting to prevent these exposures from continuing for long periods of time.

Heating vents are a separate discussion and similar to the issues affecting carpet removal. Cleaning heating vents and ducts, similar to carpets, is not a trivial undertaking. The general concern is that heating ducts collect contamination and recycle it throughout the home. However, based upon the data collected to date, it does not appear that this is the case. If this was the case, our dust sampling data throughout Libby would have shown a pattern of dust levels that were consistent around the home as contamination was spread through forced air system. Instead, we generally see a pattern of one level of the home being impacted (e.g. the ground floor or the floor below the attic), which indicates some a particular source, usually outdoor soils or perhaps attic insulation. Similar to carpets, it is not as important what is in the duct, but what gets into the living space. Based on these factors, our approach is not to sample or clean ducts, but we will evaluate this approach in our post-cleanup sampling. If ducts are a problem, we should see significant re-contamination of properties we cleaned after heating is activated for the winter.

11. To clarify, I did not say that any studies or reports that Dr. Chris Weis produced were "flawed and outdated." When I made this statement, I was referring to the current EPA model for assessing asbestos risk, the "IRIS" model, which is generally acknowledged as being flawed and outdated. Paul Peronard, Dr. Chris Weis, Dr. Aubrey Miller, and I have discussed this issue publicly many times. Dr. Weis referenced this model in several documents he authored, and we will continue to reference this model in our reports, while continuing to acknowledge its limitations. The IRIS model is still the only EPA approved model for assessing risk from asbestos exposure and we cannot ignore it. While flawed, it can also still provide valuable information regarding relative risk at differing exposure concentrations and durations, as discussed in Number 10 above. EPA is currently conducting a review of an alternative risk model, known as the Berman-Crump model, which we are also considering as we develop cleanup plans and standards in Libby. I can provide a copy of this model to the TAG's technical advisor.

As part of the documents I've discussed, EPA is currently preparing additional screening level risk estimates for Libby. These estimates consider both the IRIS and Berman/Crump model. They expand upon, not replace, earlier risk estimates put forth by EPA in Dr. Weis' risk memo. This will be available for public review soon.

12. Similar to the discussion on ducts, carpet, and textiles, cleaning all personal possessions is a daunting prospect for many reasons. Generally, EPA believes these items will not represent a long-term exposure hazard, have little potential for storing significant amounts of asbestos, and are simply too numerous to try to clean or sample. Once the source that may have contaminated such materials is removed, any residual contamination on these materials will decline. So, in general, EPA does not intend to clean personal possessions but does intend to (1) provide HEPA vacuums to residents so that they can address any low-level residual contamination that may be reintroduced into the living space after cleanup, and (2) provide guidance for addressing other potential sources/traps of asbestos that EPA will not address, such as personal possessions (washing clothes or fabrics is very effective). Storing materials in plastic bags prevents damage to the items and ensures that very small amounts of untraceable asbestos from personal possessions do not affect clearance sampling.

Again, EPA's rationale for our approach to cleanup and clearance is laid out in the draft documents that will be available soon.

13. The roles and responsibilities of the various government representatives and contractors are specified in the documents currently being produced. In general, EPA is ultimately responsible for all decisions. However, we delegate the responsibility for many decisions to others, and we standardize many decisions by setting clear standards for completion that do not need subjective interpretation. In general, after each cleanup, the property must:

- pass inspection by an AHERA accredited inspector. EPA employs MACTEC, an asbestos specialty firm, to conduct such asbestos abatement inspections;
- pass aggressive air sampling of the area in question (e.g. attic, a particular level of living space). MACTEC and CDM conduct this sampling and samples are analyzed at our on-site asbestos lab, operated by EMSL;
- meet the terms of the cleanup agreement. CDM oversight personnel ensure that physical work by the cleanup contractor was done in accordance with any applicable contract or work plan documents.

Once these procedures are complete, the property is "deregulated" by general agreement of the many people involved in the cleanup - no one person makes most decisions. For most properties, this is very consistent and there is clear agreement that the work is complete. In unique situations, myself, Courtney Zamora, or Scott Supernaugh may make decisions based upon the information available but, again, this is rare.

14. EPA is currently developing a fact sheet including guidance on "Living with Vermiculite." The TAG is currently reviewing this document and EPA will finish and distribute the document once the TAG submits comments. The fact sheet includes contacts but these will change over time. It is EPA's intent to work with the community in establishing procedures for identifying and

handling this material when necessary. This is one of several "operation and maintenance" issues that EPA will include in the long-term, comprehensive cleanup plan for Libby.

15. This question is a difficult one to answer in a short letter, because it involves extensive knowledge of multiple asbestos analytical techniques and many site-specific studies and procedures EPA has developed specifically for Libby. In general, the quality of information from the on-site lab is at least equal, but generally better, than if the *same analysis* were performed off-site. This is because the on-site lab uses the same equipment and methods as off-site labs and has very experienced analysts that remain in Libby. However, the on-site lab generally only performs rapid turnaround analyses - there are some analyses that take longer to perform that we send off-site.

16-18. As mentioned above in Number 14, there are many long-term issues including comfort letters, how to address properties where residents refuse cleanup, how to deal with residual contamination, etc. that will take time to address. EPA envisions formation of a work group in the near future to begin tackling these issues. TAG and other local groups and representatives must be part of this work group.

I hope these answers, as well as forthcoming documents and discussions, help answer TAG's concerns. I look forward to working with the TAG to improve our approach, alleviate community concerns, and ensure a successful cleanup. If you have any questions, please do not hesitate to contact any of the local Volpe/CDM staff, Wendy Thomi or me.

Sincerely,

Jim Christiansen
Remedial Project Manager