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Mr. John McGuiggin, P.E.
Ms. Julie Borgesi
U.S. Department of Transportation
Volpe National Transportation Systems Center
55 Broadway, DTS-33, Kendall Square
Cambridge, Massachusetts 02142

Subject: Libby, Montana Asbestos Removal Project
Class IV Unlined Asbestos Landfill

Dear Mr. McGuiggin and Ms. Borgesi:

CDM Federal Programs Corporation (CDM) is evaluating options for facilitating decontamination operations of vehicles and equipment at the Libby Class IV Asbestos Landfill during winter months. The 2002 construction season is rapidly coming to a close and the reinforced concrete decontamination pad included in CDM's design was not able to be constructed by EPA's removal contractor this season. In an effort to allow Asbestos Containing Material (ACM) from residential removals program to be deposited in Cell 1 of the landfill beginning in Fall 2002 and during the following winter, a prefabricated steel "decon pad" was removed from the KDC Flyway property and temporarily installed at the landfill. The steel decon pad is 45 feet (L) and 12 feet (W) with 4-foot slotted tread areas along each side to allow vehicular travel over it. A level trough fabricated of steel sheets is located beneath the tread area and is used to collect washwater and debris for piping to a collection manhole for periodic pumpout and disposal in the Class IV Asbestos Landfill Cell. If soil washed from trucks and equipment during decontamination activities is allowed to settle out, the residual water may be used for dust suppression in Landfill Cell No. 1. The prefabricated steel decon pad was used successfully during the 2001 construction season. It has not been used during the winter.

CDM understands that vermiculite type ACM will be removed from residences in Libby using vacuum trucks. The ACM will be stored in rented air tight roll-off containers at the landfill. When several roll-offs are filled, and on a relatively warm day, a dump and decon will be performed at the landfill. Once emptied and their exteriors deconned, the roll-offs will

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be put back into service. CDM has evaluated several alternatives for dust suppression and equipment decontamination to allow year-round operation of the landfill. We feel that the following three methodologies, or a combination of the three, should be considered at this time to facilitate dust suppression and equipment decontamination activities at the Class IV Asbestos Landfill this coming winter:

- Steam decontamination of trucks and equipment
- Construct a temporary pole barn structure over the prefabricated steel decon pad
- Blend propylene glycol with decontamination water

Pressure washers are available that heat water to form steam. The steam could be used to decontaminate and wash down the exteriors of the roll-offs, trucks and equipment used to dispose of ACM in Cell No. 1. In cold temperatures, the steam would also freeze on the trucks and equipment. To minimize the build up of ice on the roll-offs, trucks and equipment, portable hot air blowers would be used to melt away ice after the steam deconning. Either gasoline or electric powered equipment could be used for implementing this alternative. This could be implemented initially as an open air operation. Steam and water runoff from the equipment deconning would flow to a collection manhole and be pumped out into the landfill cell as necessary.

The cost of implementing the steam decontamination is limited to the cost of the pressure/steam washers. The limitations of this alternative is that "dump and decon" days will have to be scheduled for calm and not extremely cold days. Personnel performing this operation will be subject to working on icy and slippery areas. An increased number of roll-offs may need to be rented if the winter is severe and intervals between dump and decon days extended.

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Temporary Pole Barn Structure

A timber frame steel shell pole barn could be erected to enclose the prefabricated steel decon pad. The pole barn would be sized large enough to house the decon pad, the appurtenant underground tanks and sumps, and provide storage space for pressure washers and other equipment. The pole barn would be large enough so that the permanent reinforced concrete decon pad could be constructed when time permits. At this time, we are considering a structure approximately 70 feet (L) and 40 feet (W). This structure would enclose the decon pad area and be insulated with approximately 3 inches of sprayed on foam insulation. Two or more electric or gas fired space heaters would be installed in the structure to maintain temperatures above freezing during the winter months and lighting would be installed. Design of a roof top ventilation system to cool the building in summer months and also serve as a vapor/moisture exhaust system during winter decon operations without the release of asbestos fibers to the atmosphere. The structure would be equipped with large overhead doors (approximately 12 feet x 12 feet) with electric operators on each end to allow vehicles to enter at one end of the building, undergo decon procedures, and exit from the other end. Heat curtains may be required at each overhead door to prevent ice build up at the bottom of the doors during winter. We anticipate there would be a lead time of about 4 weeks to have the building components fabricated and delivered to Libby and 6 to 8 weeks to erect the building. Another 2 to 4 weeks would be anticipated for completion of the electrical and HVAC work.

Estimated costs for design and construction of the pole barn alternative are as follows:

Building components and building erection	$47,000
Building Insulation	$12,000
Engineering Design	$20,000
Oversight during construction	$36,000
Submittals review and general services during construction	$10,000
Heating system	$17,500
Electrical installations	$30,000
New electric service (if required)	$5,000 to $10,000
Total estimated design and construction cost	$177,500 to $182,500

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Estimated operating costs are:

Annual electric cost ($.0625 per KWH for 5 months)	$7,500
Annual propane cost ($1.05 per gal. for 5 months)	$20,000

There do not appear to be major limitations to the pole barn alternative other than initial construction costs and annual operating costs. The useful life of the steel sided pole barn may likely be limited to 5 to 10 years, given the wet atmosphere which will be created during both winter and summer operations. Should a review of building code requirements indicate that electric heat be installed rather than propane, the electric service to the landfill may need to be upgraded.

Mixing Propylene Glycol with Decontamination Water

CDM considered mixing propylene glycol with water to prevent it from freezing during winter deconning activities. Propylene glycol is a non-toxic antifreeze used to deice airplanes and winterize water tanks on boats and recreational vehicles. Approximately 68 gallons of propylene glycol would need to be mixed with 100 gallons of water to prepare a mixture for deconning activities in an ambient temperature of -20°F. We were quoted a cost of $5.88 per gallon for bulk propylene glycol, FOB. Checking with other suppliers may result in a lower unit cost. Using approximately a 50/50 mix of propylene glycol and water would result in a mixture cost of $2.93 per gallon. Assuming 50 gallons of the propylene glycol and water mix per truck/roll-off, results in a cost of approximately $150 per truck/roll-off. An above ground storage tank would need to be installed at the landfill site for the propylene glycol. The propylene glycol alternative could be implemented in an open air environment.

Estimated costs for the propylene glycol alternative based on 10 truck/roll-offs per week for 5 months are as follows:

Furnish and install above ground 4,000 gallon storage tank	$10,000
Propylene glycol to decon 220 trucks/roll-offs	$33,000
Estimated cost of additional glycol mix for dust suppression	$10,000 to $20,000

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Although recycling the propylene glycol/water mix at the landfill is a possibility, the costs of installing a functional recycling system are expected to be significant. A recycling system for propylene glycol/water mix at the landfill would need to include one or more settling tanks to allow the soil washed off trucks during the deconning activities sufficient detention time to settle out. The residual sludge would need to be periodically pumped out of the settling tank and disposed in the landfill cell. CDM will develop a cost estimate for design, construction, and operation of a propylene glycol recycling system if requested by the Volpe Center. A cost benefit analysis could then be performed to determine if recycling propylene glycol would provide potential cost savings to the project.

Propylene glycol, while non-toxic, is not without undesirable environmental side effects. Propylene glycol has a high chemical oxygen demand (COD). In anaerobic conditions, the mixture of propylene glycol and water frequently generates offensive sulfur like odors. This side effect of deicing airplanes with propylene glycol has been documented at airports throughout the United States without completely closed loop recycling systems. Constructing a recycling system at the landfill could potentially reduce the amount of propylene glycol disposed in the landfill cell but, in and of itself, not eliminate the possibility of causing the offensive hydrogen sulfide type odor. The solution to the sulfur-like odor generation at airports is in its infancy. Chlorine was considered but the result was the generation of chlorinated byproducts. Other oxidizers similar to swimming pool treatments such as potassium peroxi monosulfate (Trade name Oxone by Dupont) are being tested. If propylene glycol were to be used at the Libby landfill, generation of offensive odors is possible. Should EPA elect to pursue the propylene glycol alternative for the unlined Class IV Landfill Cell, it would be prudent to conduct additional soil testing and biodegradation analyses to explore possible side effects of potential solutions to odor problems commonly associated with propylene glycol should they occur.

The cost estimates provided above are conceptual in nature and subject to adjustment as the project proceeds. Considering the three alternatives evaluated above for facilitating winter deconning activities at the Class IV Landfill Cell, CDM recommends the temporary pole barn. The pole barn would permit the use of water to decon trucks and equipment with no adverse environmental side effects as with the propylene glycol. If the government chooses to implement this alternative a decision to proceed will be needed quickly. One building company in Montana that we spoke to said they could not schedule manufacturing and

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erecting a building until January 2003. With an intensified search, we believe the lead time for delivery of a pole barn could be reduced to perhaps 4 to 8 weeks from the date the order is placed. Given these lead times, it would be prudent to utilize the steam with hot air alternative until the pole barn could be erected. Alternatively, the roll-offs can be stockpiled at the landfill and disposal/decontamination activities could be conducted only when daytime temperatures are above freezing. Please let us know, as soon as possible, if you agree with pursuing the pole barn alternative. Feel free to contact me at 617-452-6270 or Tim Wall at 617-452-6257 with any questions on this matter.

Very truly yours,

Peter J. Borowiec, Jr.

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