The Process of Transporting Contaminated Soil for Disposal from Residential Properties

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As part of the clean-up activities on the Libby Asbestos Superfund site, removal crews excavate soil contaminated with asbestos from residential properties and transport it to the former Vermiculite Mountain mine for disposal. The requirement from the EPA is to remove and transport the soil without increasing the public's exposure to asbestos.

During the removal process, properties that will be excavated are marked-off using orange construction fence as a safety precaution to discourage people from entering the work zone. Signs with asbestos warnings are also used to warn people of the potential risk for asbestos exposures in the work zone. Workers inside of this area wear protective equipment such as respirators and coveralls to protect them against exposure to asbestos fibers. Upon leaving the work zone, workers dispose of their coveralls, clean their respirators, and take a decontamination shower.

Before the soil is loaded into trucks, it is mixed slowly with water using a hose and excavator until the soil is completely saturated and no dust can be created. A worker with a hose stands near the excavator to suppress dust that could be generated during the excavation. Once it is sufficiently wet, the soil is ready to be loaded into trucks.

Because the soil inside of the area is considered contaminated, dump trucks cannot drive directly on it without getting contaminated soil caught up in its tires. However, the trucks need to get inside of the zone in order to be loaded with the soil by the excavator. To solve this problem, large rubber mats or plastic are placed over the contaminated area, or temporary roads are constructed using sand or gravel that has been tested for asbestos and is determined to be clean. These roads are put in during the set-up stage before any excavation takes place, and

are designed to allow the trucks to get into enough of the work zone so the excavator can access the trucks efficiently once excavation starts. At the end of the excavation, the road is dug up and disposed of along with the contaminated soil, the mats are cleaned and removed, or the plastic is disposed of as asbestos contaminated waste.

Specially modified dump trucks are used to transport the soil. The gate on the bed of the truck is sealed with a rubber seal to hold in all the water and mud that would otherwise leak out the back. All of the trucks are equipped with tarps that are pulled back over the load once the truck is loaded to ensure that no soil or dust escapes from the truck bed during transportation.

During loading, a protective screen is hung over the side of the truck to protect it against soil that may fall out of the excavator bucket before being loaded into the truck bed. Workers have developed a system so that the bottom of the screen hangs out away from the truck, like the eve on a house, protecting the side of the truck even more from contaminated soil on the outside of the truck.

Contaminated soils are transported to the former Vermiculite Mountain mine for final disposal. Truck drivers must obtain certification to operate the trucks and to haul the contaminated material. All hauling is regulated by federal rules from the Department of Transportation, OSHA, and the Corps of Engineers' safety requirements. The mine area itself is considered an area of contamination. This area starts a few hundred yards up Rainy Creek Road from Highway 37. Once in this area, truck drivers turn on the positive-pressure unit inside the cab of their truck. The positive-pressure unit creates higher pressure inside of the cab of the truck than outside the truck. This means that air from outside cannot get inside the cab, protecting the driver from outside contamination.

Trucks drive up an asphalt road to an area called the Amphitheater where they will dump their loads. The Amphitheater is constructed of a concrete and asphalt pad, a large soil-staging area, and a decontamination station. At the edge of the concrete pad there is a drop-off of about five

feet that trucks back-up to in order to dump their load over the edge of the pad and into the soil-staging area. Workers on the pad unlock the gate before the dump truck bed is raised. This is the only time in the process when the tailgate is opened. As the soil is being dumped, workers wet the soil again while it is being dumped to ensure that no dust is generated. The soil falls out of the truck over the edge of the pad into the soil-staging areas. Once the soil has been dumped, workers clean the inside of the tailgate along the seal so that no soil is left on the gate that would interfere with the seal, as well as hosing off any soil on the exterior of the truck or truck bed. The bed of the dump truck is lowered, the tailgate is locked, and the truck returns to town for its next load.

The contaminated soil that was deposited in the soil-staging area of the Amphitheater is picked up using a front-end loader, loaded into the back of trucks, and transported to the top of the mine. These trucks are specifically dedicated for use at the mine and do not leave the mine area without a thorough decontamination of the interior and exterior of the truck. These trucks transport the soil from the Amphitheater up the dirt road that leads to the top of the mine. The EPA has determined areas of the mine where the soil can be deposited. The trucks dump their loads in these areas and then return to the Amphitheater for another load.

This is the process for removing soils from residential properties and depositing them at the mine without endangering the people of Libby with an increased exposure to asbestos.