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FEDERAL COORDINATING OFFICE

federal emergency management agency

MOUNT ST. HELENS TECHNICAL INFORMATION NETWORK

Saturday, June 28, 1980

BULLETIN #30 - "Management Approaches to Dust Exposure Control"

The Mount St. Helens volcano poses a potential long term dust problem because of the possibility of future eruptions and re-entrained dust. The chronic effects of long term exposure to this dust are not known, and since residual dust will have a large respirable component, exposures should be minimized by appropriate control measures. The most practical control methods are a) chemical dust suppressants, b) work practices and c) personal protective equipment. These control methods should be supplemented by a suitable monitoring program.

A. Chemical Dust Suppressants

Chemical dust suppressants may be effective for certain outside applications. For example, several types of dust suppressants may be effective on roads, driveways, sidewalks, and even lawns and gardens. On the other hand, covering farm lands and forests would probably be impractical, especially where the vegetation cover is relatively impenetrable. Farm lands and gardens will eventually be plowed or cultivated, thereby controlling the dust by mixing it with soil.

Two major chemical dust suppressants are:

a) Calcium chloride ($CaCl_2$) is inexpensive and may be applied as a powder or in water solution. It is also hydroscopic (water absorbing) and will, therefore, act as a long term wetting agent and dust suppressant. $CaCl_2$ would be appropriate for dust control on roads, driveways, sidewalks and hard surfaces. However, large amounts, especially applied to agricultural land, may cause ecological problems.

b) Nonionic surfactants, when used in low concentrations, are relatively inexpensive, relatively nontoxic, and good dust binders. They are also biodegradable and long lasting.

Most chemical distributors stock $CaCl_2$ and a number of applicable nonionic surfactants. Also, several major U.S. chemical companies are working with volcano dust samples to provide optimal dust suppressants.

Additional chemical dust suppressant information may be obtained from the Federal Emergency Management Agency (FEMA) Technical Information Bulletin No. 19, ("Controlling Blowing Dust from Volcano Ash").

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