DEPARTMENT OF HEALTH AND HUMAN SERVICES
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ATLANTA, GEORGIA 30333

CDC--MOUNT ST. HELENS VOLCANO HEALTH REPORT #4 June 6, 1980

This issue includes brief introductory summaries of activities of other agencies with regard to drinking-water quality, evaluation of food effects, and disaster planning. More detailed reports on these health aspects will appear in future reports.

Drinking Water

EPA Region X has been monitoring drinking water for possible problems relating to the Mount St. Helens eruption.

To date, no major population centers have reported drinking-water-quality problems, other than high turbidity in surface water sources, as a result of the Mount St. Helens ash falls. Some smaller systems using unfiltered surface water have reported elevated turbidity and are temporarily using wells. These sources are clearing naturally as runoff and precipitation continue. No reports have been received of metals or toxins being introduced into drinking water systems.

Quantity problems have occurred in many areas. These are due to a combination of high water demands for cleanup and dust control and the unavailability of normal surface-water sources.

Preliminary analyses of different ash samples indicate that no major soluble contaminants' adversely affecting health are expected. Partial analyses indicate turbidity removal will be a continuing and recurring problem as runoff and aerial resuspension of ash occurs. Treatment methodologies are being developed using ash samples from different areas.

Activities Relating to the Food Chain

The Food and Drug Administration (FDA) is looking at potential problems related to the uptake of the elemental content of the volcanic ash into the food chain. They have taken samples of ash, soil, and milk from dairy herds in heavily affected areas of Washington, Idaho, and Montana. These samples are being analyzed in FDA laboratories, including the FDA Research Laboratory in Cincinnati. The Bureau of Foods, FDA, will conduct animal feeding studies if indicated by the analytical findings. More detailed information on FDA's activities relating to the volcanic eruption will be forthcoming in future bulletins.

Disaster Planning

As a result of the recent eruptions of Mount St. Helens, contingency plans of affected and neighboring jurisdictions are being reviewed under the leadership of the Federal Emergency Management Agency (FEMA). Relevance to possible future activities of the volcano will be evaluated along with the need to consider additional factors not included in previous contingency plans. Details of these factors and plans will be reported as received.

Total Suspended Particulate Measurements

Air monitoring stations set up by Region VIII EPA in the states of Montana, North Dakota, South Dakota, Colorado, Wyoming, and Utah indicate that sections of Montana and North Dakota received the greatest fallout from the volcanic eruptions as measured by total suspended particulates (TSP), among the 6 states in the monitoring system in Region VIII. South Dakota, Wyoming, Colorado, and Utah have never exceeded the EPA significant harm level for TSP (1000 $\mu g/m^3$--EPA ambient-air quality standard for 24-hour average).

In Montana and North Dakota these peak levels were found in the following cities:

Station	TSP/ $\mu g/m^3$	Date	Time Frame
Billings, MT	1020	May 19	24 hours
Helena, MT	3406	19	" "
Butte, MT	2063	19	" "
Missoula, MT	8959	19	" "
Great Falls, MT	5689	19	" "
Kalispell, MT	5287	20	" "
Libby, MT	1311	21	" "
Williston, ND	1217	21	" "
Dickinson, ND	1095	21	" "
Minot, ND	1401	21	" "

TSP measurements at most of the monitoring stations indicate a decreasing trend since May 24 with the exception of several stations in Oregon and the State of Washington which were affected by the second eruption.

On May 28, TSP measurements in none of the EPA monitoring stations in regions VIII and X exceeded the 270 $\mu g/m^3$ 24-hour average.

Volcanic Ash Exposure in Moses Lake, Washington

Moses Lake is among the areas that had the heaviest volcanic ash fallout after the May 18, 1980, eruption. The town was visited by a CDC team headed by Russell Ephraim, M.D., on June 2-5, 1980; he submitted the following personal observations:

Some of the residents of Moses Lake were not aware of the volcanic eruption when they saw clouds of gray-black ash approaching the town.

They were told to remain indoors as the ash descended. A total of 2-4 inches of ashfall settled on the ground, covering houses, roads, and fields.

Organized cleanup efforts began 5-6 days after the eruption. The major roads have been cleared, but most of the unpaved residential roads remain covered with ash. A light rainfall several days after the ashfall crusted the top layer of the ash. The crust, however, was easily disturbed by vehicles or pedestrians, and fine dust would be generated. Many residents tried to control the dust by daily wetting, or hosing the ash into the street. The speed limit in the town was reduced to 15 MPH in an attempt to reduce the dust in the air.

Airborne ash was seen everywhere in Moses Lake. It was raised in the air as funnels, or as clouds behind road vehicles and tractors. A thin layer of fine, gray ash settled within minutes on passing cars or in the hair and clothing of pedestrians.

The children of Moses Lake treated the volcanic ash as play sand or newly fallen snow. The toddlers sat in the ash piles and played using shovels and buckets. Some children rode bicycles and tricycles on the ash-laden roads and over the ash mounds created by their parents in the cleanup process. Other children threw the ash or wetted ashballs at each other and at passing vehicles. Most people, including children, homeowners, farmers, and municipal workers involved in the cleanup, were seen without masks or other protective devices against the dust. The residents were given dust masks by the National Guard after the eruption, but many stopped wearing the masks after a few days. Surgical masks were available from the town's emer-

gency center, but these masks may not be effective as barriers for respirable particulates. Some residents dismissed any potential health effects that might result from this heavy exposure to volcanic ash. They described having lived on this dry and dusty volcanic soil for years without any apparent adverse effects. A CDC survey team member described axillary skin irritations and dryness of the throat. Large amounts of ash accumulated in his nasal passages when he did not wear a mask. He did not experience any eye irritation.

The results of the CDC team's review of the hospital emergency room records and of the symptoms reported by the 384 residents in the 193-family CDC survey will be described in the next issues of this report. The above account, however, with descriptions of the continuing environmental exposures, highlights the need for continued health surveillance.

NIOSH Air Sampling Activities

Since Monday, June 2, 1980, 6 industrial hygienists from NIOSH have been collecting area and personal air samples for a 5- to 8-day period, in Moses Lake, Longview, Yakima, Centralia, Chehalis, and Spokane (Washington), Coeur d'Alene (Idaho), and areas of northern Oregon. Area sampling is being done in private homes, schools, and other public areas. Personal sampling is being done for workers and others using respirable dust samplers that selectively collect particles less than 10 microns in size. Additional sampling for total dust and respirable fraction is also being conducted. The samples will be analyzed by NIOSH and results reported in future issues.

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