DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333

CDC--MOUNT ST. HELENS VOLCANO HEALTH REPORT #16 August 1, 1980

Update of Round Robin for Free Silica Analysis of Volcanic Ash

The Division of Physical Science and Engineering, NIOSH, has sent out 4 settled dust samples of <10 microns in particle size to approximately 25 laboratories that volunteered to participate in the round-robin analyses (see Report #13, pg 3); included are industrial hygiene, environmental, and mineralogy laboratories. Each laboratory will analyze the ash using the following 3-phase approach:

1. X-ray diffraction (XRD).
2. Their usual analytical method if different from XRD.
3. Phosphoric acid digestion followed by XRD.

In each of the 3 phases, the laboratories will use their usual particle-size calibration standard for quartz and crystobalite as well as the NIOSH particle-size calibration standard for quartz and crystobalite. Particle-size calibration is a critical issue which could account for differences ranging from 50% to 70% in determining the quartz and crystobalite content of the ash.

Preliminary results of these analyses are expected in mid-September. This phase of the round robin may identify the sources of variation which have occurred thus far in the analyses of the ash. However, subsequent round robins may be necessary.

Preliminary Findings on Survivors of Mount St. Helens' May 18 Eruption

Analysis is under way of the information obtained about survivors (100), persons who died (31), and persons who are still missing and presumed dead (34) following the May 18, 1980, eruption of Mount St. Helens. Currently, it has become apparent that all of the people who were injured or died from the eruption of Mount St. Helens were within the boundaries of the area of tree destruction or mud flow caused by the eruption. Those people who survived within the area of tree destruction, with or without injuries, were on the periphery of this destruction, i.e., within 1 mile of that boundary. Therefore, it seems that morbidity and mortality correlate directly with location.

In the tree blow-down and mud-flow areas, there have been 14 survivors (12 in the tree blow-down area and 2 in the mud-flow area). The other survivors were all within 5 miles of the tree blow-down area. The average age of people who died is 37.1 years and the average age of survivors is 29.3 years. Only 5 of the 66 survivors who did not work in ash-laden areas experienced cough and throat irritation for longer than 1 week after their exposure to ash on May 18, 1980.

It seems advisable for people who are in the vicinity of an active volcano to stay near their vehicles, have planned escape routes that lead directly away from the mountain, and proceed along these planned routes as rapidly and calmly as possible. If escape plans fail, people should stay in sheltered areas, use respiratory protective devices, and wait until the escape plans can be carried out or until assistance becomes available. Most importantly, people should stay away from active volcanoes whenever possible.

Migrant Agricultural Workers in the Yakima Valley

The number of migrant agricultural workers and their families in the Yakima Valley area is estimated to be between 50,000 and 100,000 people. The fruit-workers are very mobile and tend to move through the area depending upon the crop and the time of its preparation or harvesting. Many are specialized and prefer to work only with particular crops, e.g.,apples, grapes, or hops. Common occupational health problems are contact dermatitis, upper respiratory tract irritation, and injuries due to falls. Immediately after the May 18 eruption, asparagus pickers found the ash particularly troublesome (about 1" of ash fell in Yakima), but no instances of serious health impairment appear to have been reported. Peach harvesting is currently underway.

Farming in this desert area (average annual precipitation is less than 7", and most of this falls as snow) is made possible by irrigation, the crops being periodically watered by sprays or at ground level. Spraying tends to remove the ash from the plants, but a residual layer of fine ash is usually left behind. Fruit picking in trees and bushes, particularly near ground level where the ash has settled, therefore results in exposure to volcanic dust.

These workers and their families are a special concern because their language, culture (most are Mexican), and migratory life tend to isolate them from medical services. However, 2 clinics established in the area specifically for migrants reported no increases in visits for eye problems, (e.g., foreign bodies) or respiratory illnesses (e.g., asthma and bronchitis). The data are difficult to interpret because of the known fluctuations in the number of workers in the area at any given time and the under-utilization of health services by migrants compared with the indigenous population.

Increased exposure to volcanic dust is likely during the coming harvests, and appreciable non-occupational exposures may be occurring due to the type of construction of some of the homes. Children also help out in the fields. The clinics, aware of the need for preventive measures, distribute free face masks and advise on the importance of minimizing exposure to the ash. The surveillance of clinic visits will be maintained over the summer, and NIOSH will attempt to measure exposures by personal monitoring of key groups of workers.

We thank the staff of the migrant clinics for their assistance in preparing this report, particulary Louise Tander, who is compiling the surveillance data.

Update on Communities in the Hospital Surveillance Network

The varied wind trajectory at the time of the 4 Mount St. Helens eruptions has caused variations in the communities receiving ashfall after each eruption. After each eruption, hospitals in newly affected communities have been added to the CDC Hospital Surveillance System. The following is the list of communities currently in the hospital surveillance network. If a number is not given, only 1 hospital in that community is included.

Washington		Oregon
Eastern and Central	Western	
Ritzville	Aberdeen (2)	Portland (4)
Moses Lake	Centralia	The Dalles
Othello	Chehalis	
Spokane (2)	Longview	
Pullman	McCleary	
Yakima (2)	Shelton	
Ephrata	Vancouver (2)	
Soap Lake		
Ellensburg		
Walla Walla		
Toppenish		
Davenport		
Grand Coulee		
Chewelah*		
Colville*		

* Chewelah and Colville received the highest ashfall (1/4" to 1/8") from the fourth eruption, on July 22, 1980 (CDC Mount St. Helens Volcano Health Report #15, July 25, 1980).

CCERP Meeting Devoted to Mount St. Helens

The July 23, 1980, meeting of the Department of Health and Human Services Committee to Coordinate Environmental and Related Programs (CCERP) was devoted to scientific presentations and discussion of the health implications of the Mount St. Helens eruptions. Presentations were given by representatives from the Chronic Diseases Division, CDC; National Institute for Occupational Safety and Health, CDC; Health Effects Research Laboratory, EPA; Batelle Laboratory, Richland, Washington; and the University of Oregon Health Science Center. Faculty from the Mount Sinai School of Medicine, University of Pittsburgh School of Public Health, and Tulane University School of Medicine served as discussants.

It was agreed that environmental samples of the ash should be measured as close as possible to the breathing zone to better assess human exposure. The need was also stressed for using standardized samples of the ash both for composition determination and for biological testing.

ERRATUM: CDC-Mount St. Helens Volcano Health Report #14, July 18, 1980, page 6, paragraph 2, lines 5 and 6: Delete "as much as 10 times the NIOSH recommended occupational standard." The sentence should read as follows: "The NIOSH approach to this evaluation involves . . . 2) an environmental survey of exposures to total and respirable dust and to respirable free silica characterized by job categories; . . . ."

CDC--Mount St. Helens Volcano Health Reports will be published once a week until further notice. Information in these reports represents the latest data reported to CDC; much of the information is preliminary in nature and subject to confirmation and change. It is distributed for the purpose of providing up-to-date health data from CDC and the many other groups involved in public health assessment. We hope to continue to receive relevant reports and data from others working on this problem.

Henry Falk, M.D., Peter J. Baxter, M.D., Roy Ing, M.D., Jean French, Ph.D., Clark W. Heath, Jr., M.D., Director, Chronic Diseases Division, Bureau of Epidemiology, CDC, Atlanta, Georgia. Robert Bernstein, M.D., James A. Merchant, M.D., Director, Division of Respiratory Disease Studies, NIOSH, CDC, Morgantown, West Virginia.

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