Senate Hearings

Before the Committee on Appropriations

Disaster Assistance Pacific Northwest—Mount Saint Helens Eruption

Fiscal Year 1980

96th CONGRESS, FIRST SESSION

SPECIAL FISCAL YEAR 1980 SUPPLEMENTAL HEARING

DEPARTMENT OF AGRICULTURE
DEPARTMENT OF COMMERCE
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DISASTER ASSISTANCE PACIFIC NORTHWEST—MOUNT SAINT HELENS ERUPTION

HEARING

BEFORE THE

COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

NINETY-SIXTH CONGRESS

FIRST SESSION

Printed for the use of the Committee on Appropriations

Special Fiscal Year 1980 Supplemental Hearing

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CONTENTS

DISASTER ASSISTANCE FOR PACIFIC NORTHWEST

The Mount St. Helens Eruption

TUESDAY, JUNE 10, 1980

U.S. SENATE,
COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The committee met at 10:15 a.m., in room 235, Russell Senate Office Building, Hon. Warren G. Magnuson (chairman) presiding.

Present: Senators Magnuson, Burdick, Leahy, Young, McClure, Garn, and Schmitt.

Also present: Senator Henry Jackson; Representative Mike McCormack, Representative Don Bonker.

CONGRESSIONAL WITNESSES

INTRODUCTION OF MEMBERS AND WITNESSES

Senator MAGNUSON. The committee will come to order.

We have a lot of witnesses and we are going to be a little bit pressed for time. The Chair welcomes members of the Appropriations Committee here today, Senator Young, Senator Burdick, Senator Garn. Also, I asked members of the Washington congressional delegation to participate, and welcome them.

We have our Governor here, whom I also welcome.

The Chair has a short statement.

IMPACT ON NATION RESULTING FROM DISASTER

Disaster assistance for the Pacific Northwest is the subject of our hearing today. The eruption of Mount St. Helens on Sunday, May 18, was unprecedented. The impact has spread across the Nation and around the world at least one time. It was the most devastating and unique natural disaster in the history of our country. This disaster has raised great fears among the people throughout the Pacific Northwest.

It has imposed hardship and financial strain on citizens and tremendous financial burdens upon local and State governments. Some 4 weeks after the initial eruption, we still do not know the exact dimensions of the potential hazards in fiscal terms or in terms of any potential health hazards to people or to farm animals.

The President is in Seattle right now, and he will be meeting at home with Federal officials from some of the same agencies that are represented here today. He will be meeting with them in about 1 hour from now and getting their views, and we are going to get the views of the people back here.

Further, the President indicated he will request $820 million in additional disaster relief because of the Mount St. Helens eruption. That is the budget request that will be coming up, I hope, within the next 2 or 3 days. There was some trouble down at OMB in getting the exact estimates from the local people, some communications problems, but that has been cleared up.

I would stress that we can only address ourselves to the most immediate needs now, and we do not know what the ultimate cost is going to be. And the door is wide open for further appropriations for needs that might occur later on. And with this in mind—the $820 million I consider only a downpayment. It is the first installment, and the House committee has already approved some $898 million for seven agencies, and we have to wait for the House to act on this first, but we do not want to lose any time on this matter. By having the Senate committee move now, we will have it ready as soon as the House acts.

So with that, our hearings will be in two parts. The Governor of the State of Washington, along with her budget director, will testify about the fiscal impact of the Mount St. Helens disaster upon the State and other units of local government. And we have representatives from 11 Federal agencies who have the direct responsibility in the programs impacted by this disaster. And we are going to ask you all first to present your testimony and then we will begin with questions.

My colleague, Senator Jackson, must go. He wants to give a short statement today.

STATEMENT OF SENATOR HENRY JACKSON

Senator JACKSON. Mr. Chairman, I will be very brief.

Mr. Chairman, this hearing is an example of your ongoing leadership and concern for the communities impacted by the eruption of Mount St. Helens. I cannot overstate how important your attention to this emergency relief effort has been. I share the concern you have expressed for both the immediate energency needs of our State and the contingencies that Mount St. Helens may have in store for us.

Mr. Chairman, as I see it, we must address two problems today: First, we must make sure that proper attention is paid to what has happened. Second, we must make sure that we are prepared for what might happen in the future. I would echo the comments you made about the current financial requirements of Washington State's relief efforts. I would also recall the lengthy conversations you and I have had with other members of the delegation about our preparedness for future, unpredictable occurrences. We must be ready for the potential of more damage to health and safety. We must be ready for the potential of more physical damage as well. That is why I am pleased that you, Mr. Chairman, have called these agencies before the committee.

Mr. Chairman, it is essential that the Federal agencies testifying this morning emphasize their ongoing efforts to prepare for all contingencies. In so doing, I hope they will feel free to frankly express to us any funding concerns they may feel. Mount St. Helens has pulled no punches—I believe this committee wants to provide Federal agencies with enough stamina to absorb its blows.

Again, Mr. Chairman, I congratulate you and the members of the committee on convening this hearing, and I look forward to considering the testimony of your witnesses.

Mr. Chairman, as you know, I have other hearings going on right now that I must return to. I again thank you and I am delighted the Governor is here to represent the people of the State of Washington.

Senator MAGNUSON. It is suggested that we start with a brief summary from the Geological Survey to see what happened out there and then go to FEMA, and then I want to call on the Governor.

STATEMENT OF SENATOR HARRISON SCHMITT

Senator SCHMITT. Mr. Chairman, since I raised some issues in a subcommittee hearing the other day, could I make just a very brief statement?

Senator MAGNUSON. Yes.

Senator SCHMITT. About my concerns. I think the chairman should be complimented for calling this hearing to allow us at this very early stage, of defining the need of disaster relief funds to see the details of just what those funds are required to do. There has been some concern in my mind for a long time that our Federal disaster relief mechanism, as important as it is, does not provide for adequate, timely oversight by the Congress, as one might say the keepers of the Federal Treasury. This time is needed for adequate oversight into what is going to be done with these funds. Clearly, at times, immediate flexibility is required on the part of the executive branch to move in a disaster situation. At other times, we do have the opportunity to review the details of the projections for disaster funds. I just hope that this committee will always be willing to convene on a moment's notice in order to provide that kind of oversight needed to insure not only that adequate funds are available, but that the proper groundwork has been laid by the cognizant agencies to utilize the funds and not overexpend in some of these situations. I think this is particularly true in a year where we are trying diligently in this committee, under the leadership of the chairman and others, to hold down the Federal budget. However, in so doing, we must never sacrifice legitimate disaster needs within the various portions of the country, including the State of Washington and other Northwestern States where those needs are clearly identified by the agencies concerned.

I hope this will be the first of a series of hearings as we look at this and other disaster situations and maybe, Mr. Chairman, we can get into the habit of doing exactly what you are doing today, and that is calling the appropriate individuals here to see the justifications for various funding requests and in anticipation of reimbursements that may be required in the future.

I am happy to participate in these hearings with you, sir.

Senator MAGNUSON. This was a year of disasters. culminated by Mount St. Helens. I want to limit the committee's attention to natural disasters. I guess you would agree with me on that.

IMPROVEMENT OF NATURAL DISASTER PREDICTION CAPACITY

Senator SCHMITT. I would, and I would also reemphasize something this committee has been looking at for some time, that is the state of our ability to predict natural disasters. With the background I have in geology and other natural sciences, I would say, as I have said many times, that this Congress and this administration have been negligent in providing the necessary resources and the necessary guidance and the necessary emphasis to agencies like the U.S. Geological Survey, to rapidly implement a prediction capacity for events such as Mount St. Helens, such as the earthquakes at Mammoth Lakes, which, had they occurred in a more densely populated area, we would be sitting here talking about hundreds of thousands of casualties, not just the earthquake of 6.8 Richter magnitude.

I still feel we are very negligent in that area. We can do more with the science available in predicting these kinds of events. We have not done what we should. The White House has consistently resisted increased emphasis in those areas. I hope with this hearing and others we can begin to get their attention.

Senator MAGNUSON. It is awfully hard to anticipate disasters.

Senator SCHMITT. Mr. Chairman, what I am saying is we can do a great deal more than we have done in the past. We have the technology. It is being implemented elsewhere in the world. It is not perfect. There are still some questions of what you would do if, in fact, you were able to predict a major earthquake along the San Andreas Fault. You can imagine yourself. Let's say we could have given 24 hours' notice about this occurrence, what would you have done with that information? It doesn't mean you don't try to gather the information, and that is basically what seems to be the White House position.

Senator MAGNUSON. I wonder if the ranking Member of the committee, Mr. Young, would like to make a statement.

STATEMENT OF SENATOR MILTON YOUNG

Senator YOUNG. Mr. Chairman, I just want to share the concern of the delegation of the Congress from Washington, Governor Ray, and especially you, Mr. Chairman, over the disaster that has fallen on the State of Washington and the whole area. I am sure the committee will want to do everything that is appropriately possible and as expeditiously as possible to be helpful.

Senator MAGNUSON. Does the other Senator from North Dakota wish to make a statement?

STATEMENT OF SENATOR QUENTIN BURDICK

Senator BURDICK. We certainly want to do the same thing. Mr. Macy is here today and I would like to ask him some other questions besides this. You can be sure, Mr. Chairman, you have a sympathetic ear from North Dakota.

Senator GARN. Mr. Chairman, I have no statement. I came to listen and learn.

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

STATEMENT OF WILLIAM MENARD, DIRECTOR, U.S. GEOLOGICAL SURVEY

ACCOMPANIED BY:

DOYLE G. FREDERICK, ASSOCIATE DIRECTOR
ROBERT L. WESSON, ASSISTANT DIRECTOR—LAND RESOURCES
DALE BAJEMA, ASSISTANT DIRECTOR—PROGRAM ANALYSIS
DALLAS L. PECK, CHIEF GEOLOGIST
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ROBERT TILLING, CHIEF, OFFICE OF GEOCHEMISTRY AND GEOPHYSICS
WILLIAM D. BETTENBERG, DIRECTOR OF BUDGET, OFFICE OF THE SECRETARY

INTRODUCTION OF WITNESS

Senator MAGNUSON. We will hear first from Mr. William Menard, the Director of U.S. Geological Survey.

Mr. MENARD. Mr. Chairman, you asked that we focus on this one volcano——

Senator MAGNUSON. Would you take the microphone so people can hear in the back of the room?

Mr. MENARD. I am by profession a university professor, and I am used to people being able to hear me if I just shout.

It seems to me, Mr. Chairman, it might be fruitful, instead of just focusing on what has occurred, if I were to state something briefly on the basis we have for predicting what will occur because the budget estimates really are based on some sort of assumptions of what is going to happen. I have a presentation over here which I would be happy to give you. It is quite brief, as you ask. Would you like that?

Senator MAGNUSON. Go ahead, but be as brief as possible because we have so many witnesses.

VOLCANOES OF THE WORLD

Mr. MENARD. Mr. Chairman, active volcanoes are a worldwide phenomena. There are about 500 active in historical times. This actually shows you the distribution of earthquakes and the large plates that move around the Earth's crust. The question arises of whether we can predict volcanoes and earthquakes and our success in doing this is really quite different for the two. In many ways, we can tell just in the distribution what is going to happen in volcanoes. Around this so-called ring of fire, you get volcanoes of the type we have at Mount St. Helens.

They have highly viscous lava, gases can't get out, they tend to come up with explosions of the sort we had. In Hawaii, we have a totally different type. Those accustomed to looking at Hawaiian volcanoes see that gases get out, these are just characteristics of the way they form and where they are, so we have no doubt we can predict the kinds of lava and the general character of what will happen in here.

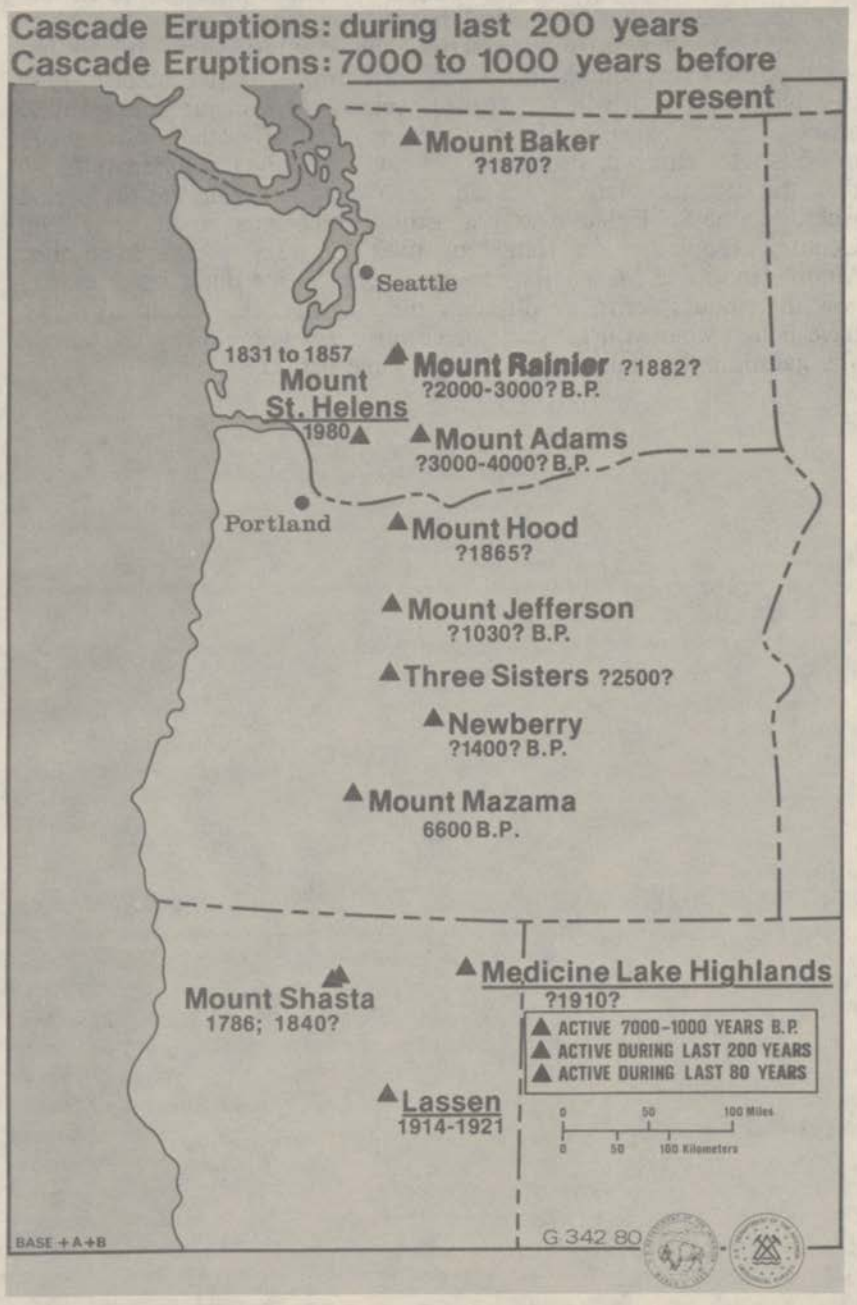
Actually, there is much more in the way of volcanic activity in the Alaskan region, in Anchorage, than there is in the Cascade, although they both present hazards.

What we know of volcanoes derives from the fact whenever these erupt, volcanologists swarm to the place and investigate it. In addition, there are permanent observatories in a number of places in the world. Japan is plagued by volcanoes. It has three permanent observatories for scientists to assemble and keep track of what is going on. We have one in Hawaii. There is one at Mount Etna, Vesuvius, another one in Italy, one in New Zealand.

[CHART 1]

VOLCANOES IN ALASKA

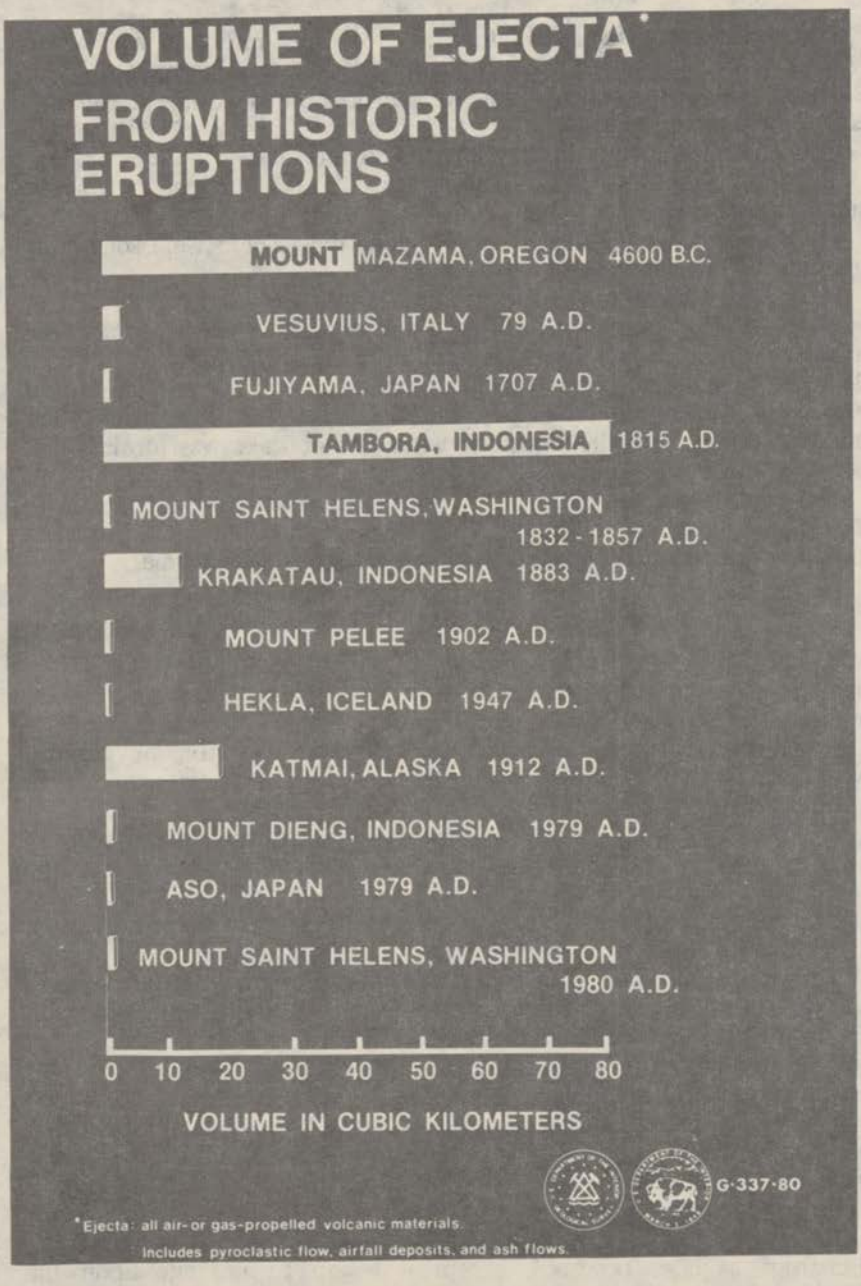
This shows the most recent eruptions in the Anchorage area. This region of the ocean basin is backing into the continent. The exact same thing is going on in the Cascades, but less intensively. We know very little about those eruptions because the total budget of the Geological Survey to investigate volcanoes is $1.1 million, of which $1 million goes to run the Observatory in Hawaii and $100,000 has gone for monitoring programs for about 20 years in the Cascades. That is why we know what we do.


Cascade Eruptions: during last 200 years
Cascade Eruptions: 7000 to 1000 years before present
Mount Baker
?1870?
Seattle
1831 to 1857
Mount St. Helens
1980
Mount Rainier ?1882?
?2000-3000? B.P.
Mount Adams
?3000-4000? B.P.
Portland
Mount Hood
?1865?
Mount Jefferson
?1030? B.P.
Three Sisters ?2500?
Newberry
?1400? B.P.
Mount Mazama
6600 B.P.
Medicine Lake Highlands
?1910?
Mount Shasta
1786; 1840?
Lassen
1914-1921
ACTIVE 7000-1000 YEARS B.P.
ACTIVE DURING LAST 200 YEARS
ACTIVE DURING LAST 80 YEARS
0 50 100 Miles
0 50 100 Kilometers
BASE + A + B
G 342 80

[CHART 2]

VOLCANOES IN THE CASCADES

These show the Cascade volcanoes, the principal peaks familiar more by pictures than their geological history for most people. The black indicates ones that have been active, almost all of them, in the last 6,000 years, which sounds like a very long time. The red indicates ones that have been active in the last 200 years, and a major question that arises is, once Mount St. Helens is active, is it likely other volcanoes in the Cascades also will become active and multiply the hazards? As to that, the data are relatively inadequate. We do know during the period when Mount St. Helens was last active, which was in the early 19th Century, and lasted for something over 25 years, at the same time Mount Hood and Mount Baker were active. So we don't know exactly why that should occur, we do know the only historical observations we have is that when you get a major eruption anywhere along this group, you get more than one erupting in the same period.



The volume of ash and pumice lapilli ejected by Mount St. Helens on Sunday, May 18, 1980, is estimated to be 1 cubic kilometer of material. On a worldwide scale, the volume of ejection from Mount St. Helens is average. The eruptions from Katmai, Alaska, 1912; Mount Mazama, Oreg., (6600 B.P.); and Krakatau, 1883 A.D. and Tambora, 1815 A.D., Indonesia, produced 10 to nearly 100 times as much ejecta.

[CHART 3]

COMPARISON OF VOLCANIC ACTIVITY

The other major factor we feed in from this information is when Mount St. Helens was last active, it stayed that way intermittently for 25 years. The only prudent thing we can do now is assume it will stay active for the same period.

This doesn't really go on very long, Mr. Chairman.

Senator Schmitt. Bill, were the Alaska volcanoes active simultaneously, also?

Mr. MENARD. Yes; I looked at that yesterday. There were something like four of them in 1 year.

Mount St. Helens may have had the largest economic effect of any volcanoes simply because things get more expensive when people close in on volcanoes. It was by no means the biggest ash eruption. Two of them in Indonesia in the last 200 years were far bigger and Mount Katmai in Alaska was far bigger. In the Cascades in prehistoric times, but something like 6,000 years ago when Crater Lake was formed, that eruption was bigger, too.

We have, therefore, no reason to believe that we have seen, even in the May 18 eruption, the biggest thing that could happen. On the other hand, it is the biggest thing that has happened for a long time.

PREDICTION OF VOLCANIC ACTIVITY

We are quite good at predicting a few things about volcanoes as opposed to earthquakes. These involve time scales. We can say there are going to be eruptions in here because we know how these plates of the earth are moving around and we know they keep on moving and we know, as I have showed you, that you have a whole sequence of eruptions in a chain together.

We also know what we can't tell is which volcano is going to erupt in a period of, let us say, 50 to 100 years. We just cannot predict that. We can predict quite well whether a volcano, often enough anyway, far better than earthquakes, whether a volcano is going to erupt next week or whether it is going to erupt tomorrow. On timing we are very good. What we are not good at is magnitude. We can say what the volcano will do when it blows up if we had a chance to study it. And Mount St. Helens we had had a chance to study.

Long before the big eruption, 2 months before, there were a few little earthquakes. We assembled people there. They began to study the volcano. We issued a warning saying that there was an increased hazard. We believed precautionary steps should be taken, people should be alerted there might be an eruption. I must say, by a bit of luck, it then occurred the same day. But those were small eruptions, steam puffing out, blowing ash, having some local effect, but not anything disastrous as later occurred, except it began to impinge upon the economic life in the area—in fact, the recreational uses of the area, it affected the logging, and so on.

As for the predictions, if there are going to be eruptions in other volcanoes in that area, I think because you almost always get earthquakes, that we would be able to issue alerts to cause people to

take the appropriate steps before something happened. The big eruptions have been preceded by earthquakes almost every time. They occurred with Vesuvius, when Pompei was destroyed, and so on.

PREDICTION OF EVENTS AT MOUNT ST. HELENS

Mount St. Helens, we said with the kind of volcano it is and from the historical geological record which we have studied, we know two things are going to happen there. One is that if you have an eruption, it will blow out ash, which will go straight up, be caught in the wind and be blown downwind. We said in general from the study of the wind patterns and the ash that has come out, most of this ash will be going off to the East, which is what it did the first time, but a week later, of course, in the second larger eruption, the ash went off this way, to the Southwest. So you only have probabilities. Most of the time it goes one way, but the first eruption, the big one that covered the Central Eastern, Northeastern States, could just as well have gone toward—it had the possibility of going toward Seattle or Portland instead of the way it went.

The main thing we predicted were local effects. That derives from the fact you have this peak sticking up. You have a lot of gravitational energy. Things pour out of the top. Depending on how wet they are, geologists call them different things, which we need not trouble about. If they are very hot, you get a scorching effect. The flows can travel long distances. If they are colder, they don't tend to go so far. Since we had glaciers, snow and ice on top, you can get pure floods.

Naturally, they go down the valley. This is what we predicted would happen if you had an eruption. You had various sorts of hot dry things occurring at the top, mud flows, finally floods coming all the way down and hitting the rivers.

I went out between the beginning of the small eruption and the big one and I stood with our survey geologist on a spot up here and they pointed out to me where the first mud flow would hit the North Toutle River and that is where it hit. We really could predict in a general way what was going on. Even the blast had happened before.

I would say we are weakest on predicting blast because you have this enormous energy release and there is no basis for trying to pin it down. But it did occur where there had been a bulge. We have a long way to go on blast. We are better on what happens to the flows because we know what happened.

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Mount St. Helens has been an active volcano for at least the last 18,000 years. During the 19th century, there were numerous mudflows, a major pyroclastic eruption, the building of a dacite dome, and subsequent flat andesite flows. It is expected that 20th century eruptions of Mount St. Helens will follow a similar pattern which has started with major mudflows and pyroclastic eruptions.

[CHART 4]

ERUPTION OF MOUNT ST. HELENS

Here are the events of that day as shown on this chart. Everybody has seen them on television. In fact, this is going to be by far the best covered eruption on record. The whole north side of the volcano just collapsed in a spot we had been tracking. We assembled our geologists from various places mainly from Hawaii where we have our observatory. People here started using instruments they are accustomed to. The instruments are subtle tiltmeters and the like designed to pick up the very small changes in the Hawaiian volcano which allows us to know what is happening. Dr. Tilling, who used to be head of that observatory, told me there are occasions when Survey geologists are standing around waiting for the lava to break out of the ground. It can be tracked so well.

So we were tracking that bulge with subtle instruments and then suddenly somebody realized it was a very great feature, it had expanded

260 feet before we started looking at it with the right instrument. It was expanding 5 feet a day for days on end before it finally blew up and went off this way, blew down all the trees, and so on, and the vast degree of flow came down and converted, essentially regraded the Toutle River. It filled the whole confounded thing up by 20 or 30 feet. As a consequence, the river is now running on a new bed, totally above what it was. There were smaller flows that came down this way endangering reservoirs. Because we issued a report 2 years before and because the State officials have been informed and because local officials had been informed, they had already drawn down the reservoirs down here, to the extent we calculated the maximum flow coming down the volcano. What could have been a disaster from a flood overspilling a dam, or whatever going down toward the Columbia, that was diverted because we had issued warnings, we had already done the study 2 years before.

Mr. McCormack. The USGS stated about a cubic mile of the material was blown out. Presently is that a fair estimate?

Mr. Menard. I think it is a cubic kilometer, which is a good deal smaller. Yes, that is the last figure I heard.

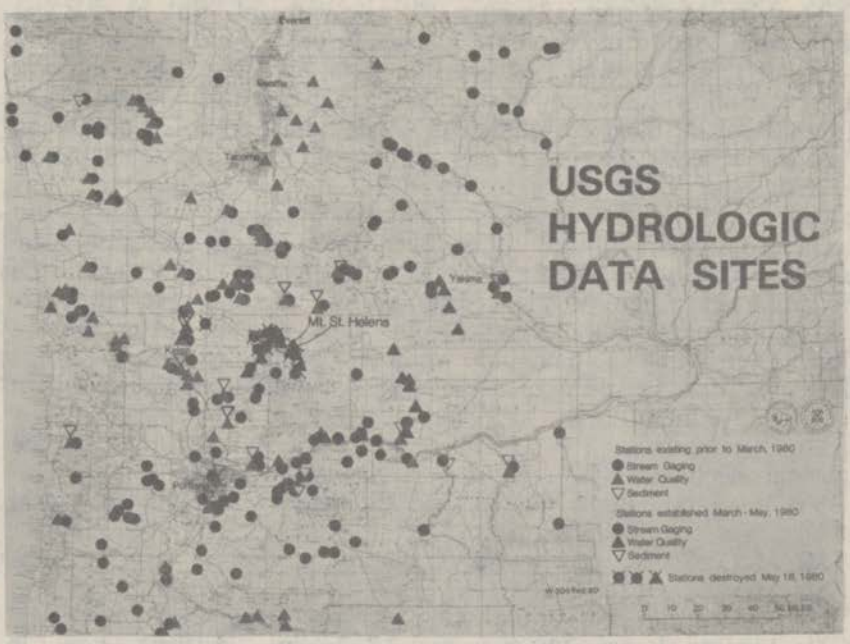
Mr. McCormack. What would the density be?

Mr. Menard. Of the ash?

Mr. McCormack. No, of the rock blown out, about 3?

Mr. Menard. It starts out at around 2.7, 2.8, in solid form. When it is liquid, it has all the gas in it and the density is less.

One of the major sorts of events that occurred hydrologically was the flooding as a consequence of the flows down the volcano, the melting of the glaciers, and so on.



The USGS maintains a nationwide network of water quality and stream-gaging stations. After the initial activity at Mount St. Helens, March 20, 1980, the Survey augmented the data stations at and around Mount St. Helens. Most of this new network was destroyed by the May 18, 1980, eruption.

[CHART 5]

MONITORING STREAMFLOW

This chart just shows our network of observation stations the Geological Survey runs, many of them cooperatively in this region. Black shows where we have permanent stations and red shows where in the early stages of the eruption, before the big blast, we moved in new observing equipment so if there were floods, we would be able to pick up the effect, so we would be able to measure the chemistry of the water, and so on. I am not sure you can see the X's, but that shows the one we moved in that no longer exists. It got destroyed by the volcano.

Now, if we can look at the last chart. What happened when the flow came down and hit the Toutle River, as I said, it regraded it. Part of it went down into the Cowlitz. Part of it went down all the way into the Columbia. This chart just shows the present situation in the Cowlitz River. It is a little complicated. The solid brown shows the normal elevation of the bottom of the river, miles upstream from Kelso, Washington. The blue lines shows how the river normally ran, a fairly small flow. The solid blue up here shows the sort of flood that can be anticipated coming down that river sometime in the matter of a few years. The shaded area is what happened when the material came down from the volcano, ran down the Toutle, made a left flank and ended up

in the Cowlitz. What it did was raise the bottom of the stream, of the river, but, of course, it didn't raise the surrounding countryside. So whereas the stream had had a place to run before, most of it has been filled in. So the ordinary flow of the river as shown by the red lines—this is the ordinary flow of the river—and it is barely above the bed—that is, there just isn't any space in that river valley anymore to contain the river. If there is a flood, an ordinary sort of expectable flood, it is going to flood the area.

Mr. Chairman, that completes my summary.

PREPARED STATEMENT AND JUSTIFICATION

Senator MAGNUSON. You can put the rest of the statement in the record, along with your budget justification.

[The information follows:]

PREPARED STATEMENT OF DR. WILLIAM MENARD, DIRECTOR

U.S. GEOLOGICAL SURVEY

Mr. Chairman and Members of the Committee:

I am privileged to appear before you today to discuss the fiscal year 1980 supplemental budget proposal for the Geological Survey. The request is for $4,000,000 for work related to the eruption of the Mt. St. Helens volcano and for California/Arizona floods and mudslides.

Preceded by a week of premonitory earthquake activity, Mt. St. Helens, in southwestern Washington about 50 miles northeast of Portland, Oregon, began to erupt on March 27, 1980. On May 18, a major explosive eruption occurred causing considerable loss of life, severe property damage in the immediate vicinity of the volcano, and damage caused by falling ash over large areas of the Pacific northwest. A week later another large eruption of rock and ash occurred causing ash falls in Portland, Oregon, and the Puget Sound areas. To date, more than $1.8 billion in property and crop damage, as well as deaths, injuries, and missing persons, have been caused by the eruption--lateral blast, mudflows, mudflow and avalanche induced flooding, and ash fall. The adverse socio-economic effects are expected to increase because the volcanic activity at Mt. St. Helens--as well as possible related activity at other Cascade volcanoes--can be expected to continue for months, years, or even decades.

The reawakening of Mt. St. Helens from more than a century of slumber (it last erupted in 1857) provided a pointed reminder that the volcanoes of the Cascade Range (Washington, Oregon, California) are merely dormant, not extinct. During the last eruptions of Mt. St. Helens, the volcano was intermittently active for more than two decades (1831-1857) during which time there was also volcanic activity at Mt. Baker, Mt. Rainier, and Mt. Hood. It is possible the current Mt. St. Helens eruption could signal the start of a similar cycle of eruptions.

Under the redelegated authority of the Disaster Relief Act of 1974 (P.L. 93-288), the Geological Survey is the lead Federal agency to provide reliable and timely warnings of volcanic hazards to State and local disaster agencies. Under our mandate, the Geological Survey must continue to closely monitor Mt. St. Helens and accelerate the acquisition and analysis of geologic, geophysical, geochemical, and hydrologic data in order to provide the day-to-day assessment of volcanic hazards in the immediate area of the volcano and in the surrounding area impacted by the resulting flooding and ash falls. This is the first major eruption of a volcano in the conterminous United States since Mt. Lassen, California, in 1914-1921, and the first to occur in the region since substantial population growth and urbanization of the Northwest. It is, therefore, the first to create such widespread destruction of the works of man in the region. It has provided the first opportunity for the Geological Survey to make an in-depth analysis of the eruptive processes and attendant hazards of an active volcano of the Cascade type. This information is necessary in order to develop the understanding required for prediction and contingency planning. The current eruption at Mt. St. Helens can be expected to last many years, if the 19th century activity of the volcano provides any analogy. Thus, the Geological Survey must continue to closely monitor Mt. St. Helens and accelerate the acquisition of geological, geochemical, and geophysical data in order to provide the day-to-day assessment of volcanic hazards to the Forest Service and other Federal agencies, as well as to the County and State agencies of Oregon and Washington. In addition to the monitoring, equipment destroyed in the eruption (tiltmeters, "dry-tilt" stations, electronic distance measurement devices, gas analyzers, trailers, etc.) must be replaced.

A wide variety of hydrologic data needs to be collected to analyze the current and intermediate-term effects of volcanic and seismic activity on the water resources of the area impacted by the eruptions of the Mt. St. Helens volcano. Activities to be undertaken in FY 1980 relate

mainly to continued flooding, sedimentation as it affects water quality, and navigation of the Cowlitz and Columbia Rivers, all having direct impact on human health, safety, and the economy.

Under the redelegated authority of the Disaster Relief Act of 1974, the Geological Survey is the lead Federal agency for providing reliable and timely warnings of volcanic hazards to State and local disaster agencies. The Survey needs to evaluate the response and effectiveness of its Mt. St. Helens hazards warnings. In addition, a special descriptive report will be prepared on the hazards resulting from the eruptions for the period beginning March 20, 1980, when premonitory earthquake activity started at Mt. St. Helens.

The Survey's budget contains no funds to support emergency-type studies of this nature. The Survey is currently providing, on an emergency basis, those services required to monitor the eruptions. Funds have been, and continue to be, redirected from related ongoing programs in the volcano, water-data collection, and other areas.

California/Arizona Floods and Mudslides

Funds are also being requested for work related to the recent floods and mudslides in California and Arizona.

The storms, floods, and mudslides of January through March 1980 in Arizona and California were an extreme natural event causing loss of lives and extensive, widespread economic losses. Measures for mitigating future losses of lives, property, and income during such events can be planned and designed through an understanding of the hydrologic and engineering geologic processes that occur and the likelihood of their future occurrence. Appropriate understanding of the processes, as well as assessment of future likelihoods, requires reliable observations and measurements of experienced events. Such information is the basis for judging risks to various planned developments, for designing protection works, for regulating land uses, and for other such measures that minimize the adverse impacts of extreme natural events.

The studies will be conducted in cooperation with State and local governments and with other Federal agencies such as the U.S. Army Corps of Engineers. Follow-on activity is planned by the Geological Survey to insure that the results of the investigations and analyses are transmitted to governmental and other interested agencies in a form that is directly applicable to land-use decisions.

Mr. Chairman, I would like to thank you for the opportunity to present the fiscal year 1980 supplemental budget request for the Geological Survey. I am prepared to answer your questions.

JUSTIFICATIONS

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Appropriation	FY 1980 Presently Available	FY 1980 Revised Estimate	FY 1980 Proposed Supplemental
Surveys, Investigations, and Research ---------	$452,055,000	$456,055,000	$+4,000,000

Surveys, Investigations, and Research
FY 1980

For an additional amount for "Surveys, Investigations, and Research," $4,000,000.

Summary of Requested Supplemental for Volcano Hazards and California/Arizona Floods and Mudslides
Fiscal Year 1980
(Dollars in thousands)

	Increase Requested
Volcano Hazards	
Geologic Studies	
Monitoring Mt. St. Helens	$ 1,100
Hydrologic Investigations	
Data Collection and Analysis (streams, lakes, reservoirs, ground water, and precipitation)-Mt. St. Helens	2,050
Earth Sciences Applications	130
TOTAL, Volcano Hazards	3,280
California/Arizona Floods and Mudslides	
Geologic and Mineral Resource Surveys and Mapping	320
Water Resources Investigations	400
TOTAL, Calif./Ariz. Floods and Mudslides	720
GRAND TOTAL	4,000

Mt. St. Helens Volcano
Justification of Program and Performance

Activity: Geologic and Mineral Resource Surveys and Mapping
Subactivity: Land Resource Surveys

(Dollar amounts in thousands)

		FY 1980 Approp. Enacted To Date	FY 1980 Revised Request	FY 1980 Proposed Supplemental
Volcano Hazards	$	1,078	4,358	+3,280
	(FTP)	(21)	(21)	(--)
All other programs	$	56,093	56,093	---
	(FTP)	(769)	(769)	---
Total requirements	$	57,171	60,451	+3,280
	(FTP)	(790)	(790)	(--)

Volcano Hazards

Authorization: 43 U.S.C. 31(a)

Objectives: The Geological Survey is the lead Federal agency for volcano hazards investigation. The principal objectives of this program are to provide up-to-date information, including hazards warning, to Federal and other government, Civil Defense, and Disaster Relief officials of possible impending eruptions and related hazards, such as mudflows, stream blockage-induced flooding, and forest fires.

Base Program: This objective is achieved by development of fundamental knowledge and understanding of volcanoes and volcanic phenomena and by the timely dissemination of such knowledge in a manner communicable to non-technically oriented government officials and the general public. To date the primary thrust of the program has been in Hawaii, where tens of thousands of residents and tourists can be threatened by volcanic activity. Modest efforts, in the form of individual research projects, have been made recently in the Cascade chain of California, Oregon, and Washington, where more than 15 active and dormant volcanoes occur.

Program activities include:

- o Continuous surveillance of Hawaii's Kilauea and Mauna Loa, two of the World's most active volcanoes.
- o Development and refinement of contingency plans with Hawaii State and County officials, should an eruption of Mauna Loa threaten the city of Hilo (about 30,000 population).
- o Investigations of the mobility and crystallization of lava, during eruptions as well as subsurface injections.

Recent accomplishments include:

- o Expansion of effort in volcanic gas monitoring as another means to detect premonitory signals of eruptions.
- o Acquisition of additional age determinations to improve understanding of Kilauea's prehistoric eruptive record and recurrence interval, as a basis of eruption prediction.

Need for Supplemental

Preceded by a week of premonitory earthquake activity, Mt. St. Helens, in southwestern Washington about 50 miles northeast of Portland, Oregon, began to erupt on March 27, 1980. A major explosive eruption, involving considerable loss of life and property occurred on May 18, and was followed a week later by another large eruption of rock and ash. To date, more than $1.8 billion dollars in property and crop damage, as well as deaths, injuries, and missing persons, have been caused by the eruption--lateral blast, mudflows, mudflow and avalanche induced flooding, and ash fall. The adverse socio-economic effects are expected to increase because the current volcanic activity can be expected to continue for months, years, or even decades.

The reawakening of the Cascade Volcano from more than a century of slumber (it last erupted in 1857) provided a pointed reminder that the volcanoes of the

Cascade Range (Washington, Oregon, California) are merely dormant, not extinct. At present, the eruptive activity continues with violent emission of steam, ash, occasional blocks (as large as several feet in diameter), and volcanic gas--typically rising 15,000-17,000 feet in altitude (on May 18, it climbed to 63,000 feet and on May 25, to 45,000 feet) alternating with intervals of relatively feeble activity confined within the summit crater vents. During the last eruptions of Mt. St. Helens, the volcano was intermittently active for more than two decades (1831-1857). It is possible the current eruption could signal the start of a similar cycle of eruptions.

Under the redelegated authority of the Disaster Relief Act of 1974 (P.L. 93-288), the Geological Survey is the lead Federal agency to provide reliable and timely warnings of volcanic hazards to State and local disaster agencies. Under our mandate, the Geological Survey must continue to closely monitor Mt. St. Helens and accelerate the acquisition and analysis of geologic, geophysical, geochemical, and hydrologic data in order to provide the day-to-day assessment of volcanic hazards. This is the first major eruption of a volcano in the conterminous United States since Mt. Lassen, California, in 1914-1921 and the first to occur in the region since substantial population growth and urbanization of the Northwest. It is therefore the first to create such widespread destruction of the works of man in the region. It has provided the first opportunity for the Geological Survey to make an in-depth analysis of the eruptive processes and attendant hazards of an active volcano of the Cascade type. This information is necessary in order to develop the understanding required for prediction and contingency planning.

Items of Increase and Funding Required

Monitoring of Mt. St. Helens -- ($+1,100,000)

The current eruption at Mt. St. Helens can be expected to last several years, or perhaps even decades, if the 19th century activity of the volcano provides any analogy. Thus, the Geological Survey must continue to closely monitor Mt. St. Helens and accelerate the acquisition of geological, geochemical, and geophysical data in order to provide the day-to-day assessment of volcanic hazards to the Forest Service and other Federal agencies, as well as to the County and State Agencies of Oregon and Washington. In addition to the monitoring, equipment destroyed in the eruption (tiltmeters, "dry-tilt" stations, electronic distance measurement devices, gas analyzers, trailers, etc.) must be replaced. A substantial part of the needed funds are for helicopter contracts, this being the only way to get to large parts of the region quickly and safely.

Data Collection and Analysis -- Streams, Lakes, Reservoirs, Ground Water, and Precipitation - Mt. St. Helens -- ($+2,050,000)

A wide variety of hydrologic data needs to be collected to analyze the current and intermediate-term effects of volcanic and seismic activity on the water resources of the area impacted by the eruptions of the Mt. St. Helens volcano. Activities to be undertaken in FY 1980 relate mainly to human health, safety, economic impact, and associated scientific and engineering studies including:

- o Sampling of surface water, ground water, and volcanic ash.
- o Measurement of fluvial and aeolian sedimentation.
- o Collection of precipitation data.
- o Measurement of streamflow, lake and reservoir storage, and aquatic biologic parameters.
- o Ground water investigations.
- o Rehabilitation and replacement of destroyed gaging structures and equipment will be carried out. Other stations, as needed, will be installed.
- o Specialized aerial photography for hydraulic and hydrologic investigations including sediment tracking and channel changes.
- o Chemical analyses, including trace elements of ground water, surface water, precipitation, and volcanic ash leachate; and concentration and particle-size analyses of fluvial and aeolian sediments.

Earth Sciences Applications -- ($+130,000)

Under the redelegated authority of the Disaster Relief Act of 1974, the Geological Survey is the lead Federal agency for providing reliable and timely warnings of volcanic hazards to State and local disaster agencies. Mt. St. Helens was the first major volcano eruption in the U.S. since the redelegation. The Survey needs to evaluate the response and effectiveness of its Mt. St. Helens Hazard Warnings. In addition, a special descriptive report will be prepared on the hazards resulting from the eruptions, for the period beginning March 20, 1980, when premonitory earthquake activity started at Mt. St. Helens.

Summary

The supplemental is needed for the Geological Survey to fulfill its responsibilities under the Disaster Relief Act of 1974 (P.L. 93-288). The needed work to maintain the required around-the-clock monitoring of Mt. St. Helens will be done in cooperation with scientists of the universities and other State institutions in Washington, Oregon, and California. Indeed, such cooperative work accomplished to date is proving to be well coordinated and highly successful. We anticipate such cooperation to continue as long as the current eruption of Mt. St. Helens which, from studies of its past behavior, seems likely to continue for many months, years, or even decades.

Object Classification Distribution: The object class detail for the increase is as follows:

Object Classification	Man-Years	Cost
Positions other than permanent	16	$ 257,000
Other personnel compensation	3	48,000
Total Compensation	19	305,000
Personnel benefits		31,000
Travel & transportation of persons		477,000
Transportation of things		213,000
Communication, utilities, and other rents		136,000
Standard level user charges		50,000
Printing and reproduction		137,000
Other services		1,208,000
Supplies and materials		345,000
Equipment		180,000
Grants		198,000
Grand total		$3,280,000

California Floods and Mudslides
Justification of Program and Performance

Activity: Water Resources Investigations
Subactivity: National Water Data System--Federal Program

(Dollar amounts in thousands)

		FY 1980 Approp. Enacted To Date	FY 1980 Revised Request	FY 1980 Proposed Supplemental
Data Col. & Analysis	$	15,608	16,008	+400
	(FTP)	(413)	(413)	---
All other Programs	$	31,472	31,472	---
	(FTP)	(441)	(441)	---
Total Requirements	$	47,080	47,480	+400
	(FTP)	(854)	(854)	---

Data Collection and Analysis

Authorization: 43 U.S.C. 31(a)

Objective: To collect, analyze, interpret, and make available data and information on the quantity, quality, and location of the Nation's ground and surface waters. Specific objectives include operation of surface- and ground-water data-collection networks with emphasis on information about water-short areas, urban complexes, lower river reaches, floods, droughts, and environmental concerns.

Base Program: The information is used by all segments of the water community. Many data have been and are being collected, yet there remain serious deficiencies in the geographical distribution and in the kinds of data obtained. This situation exists not only because of population growth and shifts and depletion of some local sources of water, but also because the development and management of water resources on a regional and national basis require more and better supporting data. The investigations are modified somewhat from year to year in response to the increasing and changing stresses on the Nation's water system.

Need for Supplemental: The storms, floods, and mudslides of January through March 1980 in Arizona and California were an extreme natural event causing loss of lives and extensive, widespread economic losses. Measures for mitigating future losses of lives, property, and income during such events can be planned and designed through an understanding of the hydrologic and geologic processes that occur and the likelihood of their future occurrence. Appropriate understanding of the processes, as well as assessment of future likelihoods, requires reliable observations and measurements of experienced events. Such information is the basis for judging risks to various planned developments, for designing protection works, for regulating land uses, and for other such measures that minimize the adverse impacts of extreme natural events.

Recognizing the unique and significant opportunities to document extreme storm impacts, the Geological Survey expended considerable effort during the January to March 1980 storms to observe and measure in the field the variables characterizing the events in California and Arizona. These field efforts are coordinated with and supplemented by efforts of other Federal, State, and local agencies. Because of the extreme magnitude and unusually long duration of the 1980 storms, the Geological Survey field efforts in California and Arizona greatly exceeded the funding normally expended annually on natural disasters documentation throughout the Nation.

In addition to observing and measuring data in the field during and immediately following the storms, there is a need to assemble the data and information collected by the Geological Survey and other agencies; to evaluate, collate, analyze, and interpret all pertinent information; and, finally, to provide the data and information in a usable format to planners, designers, engineers, and decision makers at all levels.

Specific activities accomplished and/or planned under this supplemental include:

Activity	Estimated Cost
1. Measurements of flood flows and sediment loads at existing gaging stations and at selected special sites of interest.	$175,000
2. Flood maps of inundated areas.	50,000
3. Documentation of post-flood channel changes and sediment loads.	90,000
4. Assessment of vulnerability of selected areas to sheet flows, channel migration, and channel development.	40,000
5. Evaluate reliability of current techniques for establishing flood-prone areas	45,000
	400,000

Object Classification Distribution: The object class detail for the increase is as follows:

Object Classification	Man-Years	Cost
Positions other than permanent	4	66,000
Other personnel compensation	1	15,000
Total Compensation	5	81,000
Personnel benefits		8,000
Travel & transportation of persons		67,000
Transportation of things		8,000
Communication, utilities, and other rents		6,000
Printing and reproduction		2,000
Other services		214,000
Supplies and materials		9,000
Equipment		5,000
Grand total		400,000

California Floods and Mudslides
Justification of Program and Performance

Activity: Geologic and Mineral Resource Surveys and Mapping
Subactivity: Land Resource Surveys

(Dollar amounts in thousands)

		FY 1980 Approp. Enacted to Date	FY 1980 Revised Request	FY 1980 Proposed Supplemental
Engineering Geology a/	$	1,229	1,549	+320
	(FTP)	(22)	(22)	---
All other programs	$	55,942	55,942	---
	(FTP)	(768)	(768)	---
Total requirements	$	57,171 a/	57,491	+320
	(FTP)	(790)	(790)	---

Engineering Geology

Authorization: 43 U.S.C. 31(a).

Objective: Improved techniques and methodologies to identify, delineate the distribution of, and measure the engineering behavior of Earth materials and geologic processes as they affect the works of man. Particular emphasis is directed to those materials and processes that pose ground failure hazards.

Base Program: The ongoing research program supports field and laboratory research on geologic processes that may result in ground failure hazards, techniques for measuring engineering properties and for predicting engineering behavior of Earth materials, and engineering-geologic mapping either to demonstrate how to apply new techniques and scientific advances or to support the activities of Federal agencies with major interests in the area of study.

The research program focuses on areal and classification inventories, process studies, causative studies, and predictive models, which provide information and analyses on landslides and other ground failure hazards of direct application to the work of other government and non-government engineers and scientists, and of direct or indirect application to land-use decisions by concerned Federal, State, and local officials. This research effort, though currently small, is the principal source of expertise to implement provisions of the Disaster Relief Act of 1974 concerning landslides, mudslides, and other ground failure hazards.

Ongoing activities include: a) studies to develop techniques to inventory and illustrate the relative susceptibility of slopes to failure by landslide, document the economic significance of landslides in particular areas, and to predict the location, site, and timing of future landslide activity; b) studies of subsidence in areas affected by extraction of subsurface fluids or solids; c) rock mechanics and soil mechanics investigations (including development of instrumentation) and case studies of rock and engineering soil types in regard to their behavior for a variety of uses including foundations and construction materials; and d) engineering geologic mapping of the Boston, Denver, and Salt Lake City areas, particularly in regard to geologic hazards.

Need for Supplemental: The base program does not include contingency funding for rapid-response investigations of extreme natural events such as the storm-related ground failures of January-March 1980 in California; however, those events offer unique and significant opportunities to document their character and distribution to evaluate the effectiveness of existing predictive models, and to develop improved perspectives on the hazards and their probability of recurrence.

a/ In the FY 1981 Budget Justification, Engineering Geology is included in a new element, Ground Failure and Construction Hazards.

b/ In the FY 1981 Budget Justification, the amount shown for Land Resource Surveys has been reduced by the shift of Coal Evnironmental Studies to Energy Resource Surveys.

The $320,000 increase in the Engineering Geology Program for FY 1980 will be utilized to develop an assessment and analysis of the disastrous "mudslides" that accompanied recent damaging (estimates exceed $500 million) storms in southern California and similar though less damaging events in the San Francisco Bay region. These "mudslides" actually consist of at least five distinctly different kinds of ground failures: 1) rockfalls from cliffs and road cuts; 2) rotational and translational landslides; 3) erosion by torrential streamflow; 4) debris flows generated by sheetwash from recently burned slopes; and 5) debris flows generated by soil slips from unburned slopes. Systematic regional studies are needed to develop predictive models, assess the probable extent of future recurrences, estimate risk, and identify effective mitigating measures.

The studies will be conducted in cooperation with State and local governments and with other Federal agencies such as the U.S. Army Corps of Engineers. Follow-on activity is planned by the USGS to insure that the results of the investigations and analyses are transmitted to governmental and other interested agencies in a form that is directly applicable to land-use decisions.

Ground failure events of the foregoing kinds are not restricted to southern California nor the Pacific Coast region. Similar events have caused damage and injury in the Rocky Mountain and Appalachian regions of the conterminous United States. Investigations of the southern California events, therefore, have a strong potential for technology transfer to other parts of the country.

Object Classification Distribution: The object class detail for the increase as follows:

Object Classification	Cost
Positions other than permanent	4,000
Travel and transportation of persons	75,000
Transportation of things	10,000
Other Services	201,000
Supplies and materials	30,000
Grand Total	$320,000

STANDARD FORM 300
July 1954, Bureau of the Budget
Circular No. A-11, Revised.
8000-101

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SURVEYS, INVESTIGATIONS, AND RESEARCH
PROGRAM AND FINANCING (Dollars in thousands)

Identification code 14-0804-1-1-306	19 80 [illegible]	19 80 [illegible]	19 80 [illegible]
	Presently Available	Revised Estimate	Proposed Supplemental
Program by activities:			
Direct program:			
3. Geologic and mineral resource surveys and mapping ----------	138,661	142,261	3,600
4. Water resources investigations	106,187	106,587	400
All other activities - No change ----------	207,207	207,207	--
Total, Direct Program --------	452,055	456,055	4,000
Reimbursable Program ---------	151,860	151,860	--
10.00 Total program costs, funded, obligations ----------	603,915	607,915	4,000
Financing:			
Offsetting collections from:			
11.00 Federal funds ----------	-83,366	-83,366	--
14.00 Non-Federal sources --------	-68,494	-68,494	--
40.00 Budget authority (appropriations)	452,055	456,055	4,000
Relation of obligations to outlays:			
71.00 Obligations incurred, net ----	452,055	456,055	4,000
Obligated balance, start of year			
72.40 Appropriation ----------	68,197	68,197	--
72.98 Fund balance ----------	17,847	17,847	--
Obligated balance, end of year			
74.40 Appropriation ----------	-88,087	-88,287	-200
74.98 Fund balance ----------	-17,847	-17,847	--
90.00 Outlays ----------	432,165	435,965	3,800

STANDARD FORM 304
May 1969, Bureau of the Budget
Circular No. A-11, Revised.
304-103

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SURVEYS, INVESTIGATIONS, AND RESEARCH

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code 14-0804-1-1-306	19 80 XXXXXX	1980 XXXXXX	19 80 XXXXXX
	Presently Available	Revised Estimate	Proposed Supplemental
Personnel compensation:			
11.1 Permanent positions	188,804	188,804	--
11.3 Positions other than permanent	36,272	36,599	327
11.5 Other personnel compensation	5,433	5,496	63
~~11.8 Special personal services payments~~			
Total personnel compensation	230,509	230,899	390
Personnel benefits:			
12.1 Civilian	23,311	23,350	39
13.0 Benefits for former personnel	14	14	--
21.0 Travel and transportation of persons	11,336	11,955	619
22.0 Transportation of things	3,499	3,730	231
23.1 Standard level user charges	23,522	23,572	50
~~23.0 Rent, communications, and utilities~~			
23.2 Comm., util., & other rent	16,018	16,160	142
24.0 Printing and reproduction	4,613	4,752	139
25.0 Other services	94,752	96,375	1,623
26.0 Supplies and materials	20,518	20,902	384
31.0 Equipment	20,524	20,709	185
~~32.0 Lands and structures~~			
~~33.0 Investments and loans~~			
41.0 Grants, subsidies, and contributions	3,366	3,564	198
42.0 Insurance claims and indemnities	73	73	--
~~43.0 Interest and dividends~~			
~~44.0 Refunds~~			
99.0 Total obligations	452,055	456,055	4,000

STANDARD FORM 300
July 1964, Bureau of the Budget
Circular No. A-11, Revised.
8000-101

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SURVEYS, INVESTIGATIONS, AND RESEARCH
PERSONNEL SUMMARY

Identification code 14-0804-1-1-306	1980 [illegible]	1980 [illegible]	1980 [illegible]
	Presently Available	Revised Estimate	Proposed Supplemental
Direct Program			
Total number of permanent positions --	7,824	7,824	--
Total compensable workyears ----------	10,280	10,304	24
Full-time equivalent of other positions ----------	(2,710)	(2,730)	(20)
Full-time equivalent of overtime and holiday hours ----------	(175)	(179)	(4)
Average ES salary ----------	$47,316	$47,316	--
Average GS grade ----------	10.14	10.14	--
Average GS salary ----------	$23,626	$23,626	--
Average salary of ungraded positions -	$21,496	$21,496	--

STANDARD FORM 306
July 1968, Bureau of the Budget
Circular No. A-11, Revised.
304-109

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSOLIDATED SCHEDULE OF PERMANENT POSITIONS PAID
FROM FUNDS AVAILABLE TO THE GEOLOGICAL SURVEY

DETAIL OF PERMANENT POSITIONS

	19 80 XXXX	1980 XXXXXX	1980 XXXXXX
	Presently Available	Revised Estimate	Proposed Supplemental
GRADE			
Executive Level V	1	1	--
Subtotal	1	1	--
ES-6	1	1	--
ES-5	6	6	-
ES-4	36	36	-
ES-3	4	4	--
ES-2	10	10	--
ES-1	--	--	--
Subtotal	57	57	--
GS-18	--	--	--
GS-17	4	4	--
GS-16	10	10	--
GS/GM-15	489	489	--
GS/GM-14	700	700	--
GS/GM-13	1,188	1,188	--
GS-12	1,436	1,436	--
GS-11	1,403	1,403	--
GS-10	191	191	--
GS-9	1,236	1,236	--
GS-8	252	252	--
GS-7	666	666	--
GS-6	492	492	--
GS-5	681	681	--
GS-4	349	349	--
GS-3	84	84	--
GS-2	7	7	--
GS-1	--	--	--
Subtotal	9,188	9,188	--

STANDARD FORM 306
July 1965, Bureau of the Budget
Circular No. A-11, Revised.
306-103

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSOLIDATED SCHEDULE OF PERMANENT POSITIONS PAID
FROM FUNDS AVAILABLE TO THE GEOLOGICAL SURVEY

DETAIL OF PERMANENT POSITIONS

	19 80 [illegible]	1980 [illegible]	1980 [illegible]
	Presently Available	Revised Estimate	Proposed Supplemental
Grades established by the Administrator, Agency for International Development: (75 Stat. 450)			
FC-13, $47,540 to $50,112	1	1	--
FC-12, $40,775 to $50,112	7	7	--
FC-11, $34,270 to $45,719	8	8	--
FC-10, $29,375 to $38,186	8	8	--
FC-9, $24,635 to $32,312	6	6	--
FC-8, $20,747 to $26,847	3	3	--
Subtotal	33	33	--
Ungraded	257	257	--
Total permanent positions	9,536	9,536	--
Unfilled positions, end of year	-20	-20	--
Total permanent employment, end of year	9,516	9,516	--

WARNING OF BLAST

Senator MAGNUSON. One thing I wanted to ask you, which is not clear to me, you suggest that you people had a few days' warning before the big blast, is that correct?

Mr. MENARD. We had. I should take the opportunity to express the remarkable cooperation we received from the Forest Service. We wouldn't have been able to do this work without the Forest Service supplying us with space, telephones, helicopters, every kind of logistic help, and so on. The Forest Service controls the roads there. It might be much better to hear the head of the Forest Service describe it. Essentially, from the beginning of the eruptions, we advised on, I believe, an hourly basis, which areas appeared to be safe for somebody to go into.

The roads were generally closed off. We lost one man, David Johnson, in that blast. I believe, if all the safety precautions had been in effect, he might have been the only person lost. He was at an observing station, but since all the types of flows you expect except the horizontal blast are down in valleys, the observing stations, where geological observatories ought to be, 1,400 feet above the base—the horizontal blast caught him——

Senator MAGNUSON. What I am getting at is, you had some prior warning before the big blast—how many days?

Mr. MENARD. We began issuing warnings, I think, 1½ months beforehand, but not on the magnitude—as I say, we can say when something is going to happen, but we can't say what scale.

ADEQUACY OF WARNINGS

Senator MAGNUSON. I understand that. But you strongly suggested something might happen about 1 month before.

Mr. MENARD. Yes. I mean, something was happening, Mr. Chairman. It wasn't a matter of suggesting. You could see the eruption going on. I may be giving you an impression that we knew there would be a big blast, which is not correct. What we knew was that the volcano was in eruption and we said it would erupt before it erupted and we said where things would happen, if they were going to happen, the sort of chart I showed you. What we did not say was there was a special hazard at the time of the big blast. As a matter of fact, many of our people had already gone home to try to catch up on some of their affairs that they had been doing before the eruption. Quite the reverse, we knew there was a hazard, we said the general character of it, we did not say that was a dangerous day.

Senator MAGNUSON. Why wasn't the area completely cleared of people, then? Was it lack of communication, or what?

Mr. MENARD. I don't think it could possibly have been any lack of communication with the Forest Service because we were absolutely physically locked together there using their facilities. It is not the responsibility of the Survey to take any steps to ameliorate or modify the hazard. It is our responsibility to do the scientific work and to inform FEMA and State officials and we did that.

Senator MAGNUSON. And you did?

Mr. MENARD. Yes.

Senator MAGNUSON. And that was 1 month preceding the big blast?

Mr. MENARD. Yes, sir.

Senator MAGNUSON. About 1 month. Then you continued on to give this information before the big blast; is that correct?

Mr. MENARD. Yes, bulletins were being issued on a daily basis, or if there were any point, more frequently. The volcano had pretty well died down, it was not blasting very much.

DISSEMINATION OF WARNING INFORMATION

Senator MAGNUSON. Was the imminent danger of the blast publicized a great deal?

Mr. MENARD. Oh yes. Actually, the report we issued 2 years ago spelled out what was going to happen and was communicated to State officials who were aware of it and that is the reason as soon as something began to happen at the volcano, the reservoirs were drawn down.

Senator MAGNUSON. I just wonder if there was a lack of communication at some level. I don't blame you people. You gave the information.

What disturbs me is that with all the publicity, the warnings, the fatality rate was so high. That's what concerns me. Why were these people allowed to remain in the area? You've indicated that you were aware that something was going to happen but you didn't know exactly when and it seems to me that at some point the immediate area should have been cleared and the blockades strictly enforced.

It's a moot issue now. Granted, many lives were saved but far too many were not. What can be done to prevent something like this happening should the volcano erupt again?

Governor RAY. Mr. Chairman, if I may, I am prepared to speak to that point.

Senator MAGNUSON. Now wait until I finish.

Mr. MENARD. Mr. Chairman, we were predicting that the volcano would behave the way it was doing, which we could observe. It was swelling up in this one spot. If we had thought there would be an explosion out of that spot, we would have said so. We did not say so. We said it had happened before in the historical records. If we thought there was going to be an explosion, we wouldn't have had our man there.

Senator MAGNUSON. But you did feel the possibility, the strong possibility of a major eruption; did you not?

Mr. MENARD. Yes, but as far as when precisely, that we had not predicted, and couldn't.

Senator SCHMITT. Would the chairman yield for a followup?

Senator MAGNUSON. Yes.

Senator SCHMITT. Bill, the thing that I don't understand, though, is that when the Survey realized the high rate of swelling, there was expressed concern by some of the scientists that the north side of the mountain was being gravitationally unstable. In that condition, would it

have been appropriate to increase the urgency of the alert in any way? Because once you lost the north side of the mountain, that may well be what triggered the actual violent explosion, as the magna became less covered and began to vesiculate.

Mr. MENARD. I went out there, talked to people, getting daily bulletins, we were all very concerned. The chief geologist used to be the head of the observatory in Hawaii. The deputy chief geologist used to be the head of the observatory in Hawaii. The present Chief of the Office that is responsible for this program used to be the head of the observatory in Hawaii. We were all monitoring this in every way we could and I received no indication that we expected that blast to occur.

Senator SCHMITT. What I am getting at is, hopefully we learn from our experiences. There are people in the Survey who know a great deal about gravitationally unstable situations, including your volcanologists, I believe.

I am just wondering if you started to see that same situation develop today, say, on the south side, and there was some indication that might be happening, although I understand that has died down somewhat, would you take a somewhat different view of a gravitationally unstable slope on that mountain?

Mr. MENARD. Well, we certainly would. I stood there with Crandall and said, "This is where the flow will hit," and that is where it hit. We flew down in the helicopter. There was a valley there. It was obvious that was the way it was going to go. You could practically see the swelling. It had cracks in it. It was quite obvious what it was doing. We certainly have learned, and I am sure would be much more alarmed in the future for the potential of a dome of that sort.

SUBMITTED QUESTIONS

Senator MAGNUSON. Thank you for appearing today, Mr. Menard, and for your expert testimony. We do have additional questions which we will ask you to answer for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for responses subsequent to the hearing:]

Questions Submitted by Chairman Magnuson

Survey Expenditures to Date for Eruption

Question. What has been the Survey's expenses to date in connection with the Mt. St. Helens eruption, and will you be able to cover them with this supplemental without impairing other ongoing programs?

Answer. The Survey's expenses to date in connection with the Mt. St. Helens eruption total $1,319,000. If the requested supplemental is approved, it will cover most of these expenditures without impairing other ongoing programs.

Expenditures for Balance of Year

Question. How much of the supplemental request is directed to expenses for the balance of the fiscal year? Will your estimated costs be substantially affected if there are any further eruptions?

Answer. Estimated expenses for the balance of the year for the Survey are approximately $1,961,000. If further eruptions of Mt. St. Helens do not exceed the intensity of the May 25th and June 12th eruptions in this fiscal year, then the estimated cost to carry out these studies will not be substantially affected. Should an eruption occur at any of the other Cascade volcanoes during this fiscal year, then the presently estimated cost would be substantially affected.

Number of People Working at Mt. St. Helens

Question. How many people do you have at work on the Mt. St. Helens problems both directly and under contract? How will this manpower be augmented by the supplemental request?

Answer. The Survey has between 60 and 70 people directly involved in the activity at Mt. St. Helens. Considerably more people are assigned to assist as the emergency demands. This manpower will not be appreciably augmented by this supplemental request.

Cost of Equipment Lost in Eruption

Question. What is the total cost of your equipment that was destroyed in the eruption, and how long do you anticipate it will take to have the replacements in place and operating so that you can have some confidence in your ability to detect any renewed volcanic activity.

Answer. The estimated cost of equipment that was destroyed in the eruption was $335,800. Some of the vital instruments needed to continuously monitor the activity at Mt. St. Helens have already been replaced so that we can adequately maintain our ability to detect an imminent eruption. These replacements were obtained from other parts of this and other ongoing programs, not directly related to the Cascade studies. Because of the replacements these other programs are not adequately prepared to perform the necessary monitoring in their area.

Hydrologic Effects of Eruption

Question. One of the biggest jobs confronting us now is to survey the total extent of damage inflicted by the volcano, and the Survey is budgeting slightly more than $2 million for analyzing the effects on streams, lakes, reservoirs, and ground water. When do you expect the Survey will be able to come up with any substantial information in this essential area?

Answer. Results of hydrologic impact from the Mt. St. Helens eruption will be developed and released as rapidly as possible. A series of brief reports, each on a different aspect of hydrology, will be released by early fall, 1980. Significant information from these investigations will be released continuously, on an interim basis, as soon as they are developed.

More detailed reports on the impact of the volcano on the hydrology of the Northwest will be released as they are completed--these reports will require from one to three years to complete depending on the complexity and need for temporal data. Here again, significant findings will be released as soon as they are documented, and will not wait for final report completion.

Question. Do you have any preliminary assessment at this time of the hydrologic situation in the various bodies of water impacted by the volcano?

Answer. The Toutle River (North and South Forks) is destroyed biologically, and choked by sediment and debris. The lower Cowlitz River has suffered great biologic damage, and sediment deposition has reduced the channel capacity by 85 percent. Muddy River has been choked with mudflow debris and reportedly destroyed biologically. Other streams draining Mt. St. Helens have suffered similar damage on a small to moderate scale. Numerous lakes east of the mountain are reportedly turbid from ash fallout--and the turbidity does not settle out. Fish kills from gill abrasion and blockage produced by the sharp glass-like ash particles has been reported in several places.

Some occurrences of irrigation pump and sprinkler head damage have been reported.

Continuing Eruption of Mt. St. Helens

Question. You have noted in your justification that Mt. St. Helens' volcanic activity could continue for many months, even decades. In your judgement, what are the chances that this activity will continue for as long as two decades, as it did in the last century?

Answer. Based on detailed geologic studies of Mt. St. Helens, which indicated the time duration of some of its previous eruptions, there is a finite probability that the present activity could sustain for as long as twenty years.

Volcano Observatory

Question. Do you have any plans to establish some kind of observatory while Mt. St. Helens is active? Do you perhaps have some joint facility in mind in cooperation with the Forest Service? Does the supplemental request for monitoring contain any funds at all for establishing some kind of observatory?

Answer. Whether or not Mt. St. Helens remains physically active in the immediate future, the Geological Survey plans to establish a Cascade Volcano Facility to not only monitor and study in detail all aspects and ramifications of the recent eruptions in a cost-effective manner, but also for establishing a central base for coordinating planned investigations of other potentially hazardous volcanoes in the Cascade Range. The actual site and detailed specifications of such a facility have not yet been determined. The Survey will coordinate with the Forest Service in the planning process for the facility. The present supplemental request does not contain any funds for the establishment of the planned facility.

Capability to Predict Future Eruptions

Question. The suddenness and violence of the Mt. St. Helens eruption appears to have caught just about everyone off guard, including the Survey. From this experience, do you hope to attain any reasonable ability to detect the likelihood of a major eruption in advance?

Answer. The events of the past month at Mt. St. Helens, during which time many types of geophysical and geochemical data were and are presently being acquired, will provide the necessary foundation from which we plan to build and sharpen our predictive capabilities. The Geological Survey has gained more than forty years experience in studying the characteristics and processes related to Hawaiian volcano eruptions. These intensive studies have led to a fairly high level of predictive capability on our part. Because of the contrasting geologic setting of the Cascade volcanoes, we can not readily extrapolate many of our findings from Hawaiian volcanoes to those of the Mt. St. Helens type in the Pacific northwest. Further, the fact that no previous eruptions in the Cascades have occured in modern times has not afforded the opportunity to characterize the mode of these eruptions in a quantitative manner.

Contracting for Helicopter Services

Question. How much of your request will involve contracting for helicopter services? How much is that for expenses to date and how much for anticipated costs for the balance of the year?

Answer. The request includes a total amount of $560,000 for helicopter services. Of that amount, $262,000 is for expenses to date, and $298,000 is the anticipated cost for the balance of the fiscal year.

Cost of Equipment

Question. Please supply for the record your best available estimates for total equipment costs and indicate how much of that is for replacing destroyed equipment.

Answer. Equipment costs related to our involvement at Mt. St. Helens is estimated at $393,000, of which $335,800 is for replacement of destroyed equipment and $57,200 is for new equipment purchases. To cover these costs $180,000 was requested in the FY 1980 supplemental and the remaining costs will be requested in FY 1981.

Contracting for Hydrologic Data

Question. How much of your hydrologic data needs will be covered by contracting and how much will be performed directly by the Survey?

Answer. About 25 percent by contractor and 75 percent by Survey personnel.

Funding for Contracts and Grants

Question. Of your total supplemental request, $198,000 is for grants, subsidies, and contributions. What is this funding for exactly?

Answer. The $198,000 is designated primarily for new grants and extensions of existing grants with the University of Washington for carrying out seismic monitoring and real-time computations of the epicenters and hypocenters of earthquakes in the Mt. St. Helens region.

Source of Funding to Date

Question. Please supply for the record the details of how the Survey has financed its activities at Mt. St. Helens to date, indicating which regular ongoing programs were tapped for the funding. Also indicate how much of this initial unbudgeted expense will be reimbursed by the supplemental request.

Answer. The National Mapping Division has used funds from its Quadrangle Mapping and Revision, Orthophotoquads and Small Scale and Special Mapping programs. No supplemental funds are being requested to reimburse those expenses. Geologic and Mineral Resource Surveys and Mapping has used funds from the Volcano Hazards, Geothermal, Earthquakes and other programs. These costs are reimbursed fully by the supplemental request. The Water Resources Investigations activity has used funds from the Federal-State Cooperative program and other Federal agency programs. Land Information and Analysis has used funds from its Land Resource Data Analysis program. All of these costs will be reimbursed by the supplemental request.

Use of Personnel at Mt. St. Helens

Question. Your supplemental request includes only 24 additional work years of employment. Considering your monitoring and data collection and analysis responsibilities, why isn't your request more job intensive?

Answer. The Survey's activities in connection with the Mt. St. Helens eruption are people intensive. But since there was no time to hire additional personnel, manpower has been drawn from other programs. This was manpower for which the Survey already had received salary funds. If necessary, vacancies that occur in other programs will be filled with personnel that can be utilized at Mt. St. Helens. The supplemental only reflects additional overtime and additional manyears of effort performed by existing other than permanent personnel.

FY 1981 Funding

Question. Some supplemental estimates for Mt. St. Helens provided for funds to remain available beyond the end of fiscal year. Would funding availability, say through fiscal year 1981, be helpful?

Answer. Yes, since these programs will carry over into fiscal year 1981 and beyond, funding through fiscal year 1981 would be most helpful.

Question. Based on the known situation at this time, do you have any estimate of your fiscal year 1981 funding needs in connection with the Mt. St. Helens volcanic activity?

Answer. We are currently working with the Administration to develop a F.Y. 1981 budget amendment. We anticipate that this amendment will be forwarded to the Congress in the very near future.

NONDEPARTMENTAL WITNESSES

STATE OF WASHINGTON

STATEMENT OF HON. DIXIE LEE RAY, GOVERNOR OF THE STATE OF WASHINGTON

Senator MAGNUSON. Governor, do you want to testify ahead of time?

Governor RAY. Whenever it is convenient, sir. Would you like me to respond to this point, or should I go ahead with the other things I plan to say?

Thank you. Let me start by saying I certainly support the statements made already by members of your committee and by Senator Jackson. We in the State of Washington are deeply grateful for this opportunity. We cannot say enough thanks to you, Mr. Chairman, for your interest and support and for the concern all over the country for the events that have occurred in our State. We have had two eruptions. Those eruptions would have been far more costly in terms of human life and damage had we not had the timely warnings from the U.S. Geological Survey.

Dr. Menard, to you and your colleagues, and especially to Dr. Crandall, the State owes a very deep debt of gratitude. We were warned and kept informed from the moment the first eruptive activity took place back, I believe, in March and kept in touch with Dr. Crandall, for whom I have the utmost of respect for his considered judgment, as we discussed what steps ought to be taken. It gave us an opportunity to put together a disaster plan as best we could involving the things that might happen as a result of any kind of eruption, not knowing when that eruption might take place exactly in time and not knowing exactly whether it would be in terms of a blast, mud flows, ash flows, or what have you. But we were warned of all the different possible consequences and tried to have a general plan which was put into effect and, I believe as a result of that, many, many lives were saved, particularly when it became evident that there was this bulling on the north side. It was becoming gravitationally unstable. The discussions with Dr. Crandall and his colleagues led to my issuance of April 30, 19 days before the blast, of an executive order bringing the power of the State to bear, declaring a red zone of exclusion in the areas of highest potential hazard and a so-called blue zone where there was some possible difficulty.

ROAD CONTROL

Together with the Forest Service that controls the roads and access through the Gifford Pinchot National Forest, mainly to the east of the mountains, working with the counties controlling the roads entering the

mountain area from the north and west sides and the State highways involved, we set up a system of roadblocks and excluded people from the areas of greatest potential hazard. This was a period then of a little better than 2 weeks before the actual eruption and, as Dr. Menard has said, a few days before the actual eruption everything quieted down.

I can assure you, Mr. Chairman, it was with great difficulty that the local law officials, sheriffs, State officials kept people from going around the roadblocks, breaking through them, and so on.

PROTESTS FROM PROPERTY OWNERS

We had many, many protests from local property owners, people who had vacation cabins in the Spirit Lake area, so on. Indeed, with the advice, consulting again with the geologists, I felt on May 17 it would be safe to escort a few people in to remove some of their belongings. We had planned a second escorted excursion into the Spirit Lake area on May 18, but fortunately the mountain blew early enough on Sunday morning so that that had not taken place. Had it taken place, we would have that greater loss of life.

LOSS OF LIFE

Loss of life did occur due to the quite unpredictable nature of the lateral blast that went out into areas which we had believed to be of less high potential hazard, and some of the deaths that occurred were as a result of that. Some of them were also a result of people who entered the area of hazard by evading roadblocks and were in areas where they ought not to have been.

Even so, given that kind of loss of life and enormous loss of wildlife, I think we can say we have had a remarkable geological occurrence there, with a great potential for hazard and a relatively small loss of life.

LOSS OF RESOURCES

On the other hand, loss of other resources and further economic impact is very great. That, of course, is one of the things we are here to try to clarify. I think we can put the results of the impact of the two eruptions into three major categories. First, those things that are the result of the blast itself and the pyroclastic flow of which others came simultaneously or shortly after the actual eruption. This affected timber over a very wide area. It affected a number of people's lives, wildlife, so on.

MUD FALL

Second, there was the mud flow into the Toutle, running into the Columbia which has had an extraordinary effect, even on the depth of the channel of the Columbia River itself, and extensive dredging operations are needed to restore navigation, both on the Columbia and Cowlitz. Towns and homes along the way have also been impacted as have roads and bridges. Many bridges were wiped out, many roads interrupted by that extensive mud flow.

ASH FALL

The third category is the ash fall. Again, it was quite clear that ash fall would occur should there be an eruption. No one could predict, I think not even the National Weather Service with all their computers and knowledge could predict where the winds would be blowing and with what intensity on the particular day in which the ash was put into the atmosphere.

And so the ash fall is the one thing that there has been no monitoring experience with in this country. A great deal of concern has been raised because of the ash fall and much of it very real. It has affected roads and highways, the major interstate highway, State and county roads. It has affected towns and individual homes. It has had an effect on water and sewage systems, agriculture and livestock; and one of the things, of course, is a concern about the effect of the ash on human health.

I am very happy to report to you, Mr. Chairman, this morning that our most recent information verified, as I was in your office talking by telephone to Mr. Leo Blustadt, the dean of the dean of the veterinary college, where the most extensive analyses of ash and ash content and the effects upon animal life, which would include humans as well, has been carried out, together in cooperation with the Batelle Laboratories. We can say the early concerns with respect to possible human health effects of the ash have not been substantiated, and careful analysis of the ash, examination of both poultry, birds, and all manner of domestic animal life shows that the ash is not a health hazard. Less than 1 percent of the ash content is the crystalline-type material which could lead to something like silicosis. The medical opinion at the present time, based upon careful surveys of all of the effects, examination of lung tissues from animals who have been very highly exposed and comparison of this ash contact with the known material that does cause silicosis leads to the medical opinion that it would take an enormously heavy exposure over several decades of time for there to be any hazard of the development of silicosis or permanent lung damage or lung effects.

The ash is dusty, and for that reason it has a nuisance effect but it is not, in fact, the health hazard that many had feared.

CONDITION OF STATE AFTER ERUPTION

One of the most broad impacts that this eruption has had on the State of Washington, and one that does not immediately come to mind, has been in the perception the people have of what the State is now like. Our State is the smallest geographically of any State west of the Mississippi River. It has, except for California, as large a population as most of those States, a population of about 4 million people. The State has not been covered by ash. We are not a Pompeii; 20 percent of the State has been affected by it. The economic impact, particularly on machinery and air-conditioning, all that type of equipment, is very great and will take a great deal of effort and money to recover from this.

But the State, as a whole, is not in a geological sense wiped out nor devastated. It is still a beautiful State with many opportunities for recreation and vacations and resort areas and conventions that are totally untouched by the eruption itself. As Governor, I have to express a strong concern with the perception that has been quite widely accepted, that it would be unsafe to visit Washington State. A very large hunk of our economy, and something that will help us very much to recover economically from this disaster, therefore, I hope eases the need for other assistance, would be to assure people that conventions and tourists' facilities and visits to parts of the State, other than the immediate vicinity of Mount St. Helens and the immediate downwind area where the ash fall was most severe, as I say less than 20 percent of the State, is something which we would welcome and encourage.

We do not know, of course, what is going to happen in the future. Just as we were warned in March that the mountain could erupt, we are warned now that its activity is not finished. Therefore, I have amended my executive order and established an area roughly 20 miles in radius around the mountain as an exclusion area and for entry into that area other than for the scientific personnel and others who need to be there for means of studying the mountain and for law enforcement, anyone entering that area must have a permit. This is being enforced by the Washington State Patrol and by the local law enforcement areas.

There is some resistance to it, particularly by those who have their homes in this area who feel they should be allowed to go in there. There is a fine line of judgment that must be exercised between forcing people away from their homes for a danger that may or may not occur and for protection of human life in establishing this exclusion area. But we are guided by the judgment of the U.S. Geological Survey and agree with Dr. Crandall and others that the high potential hazard still exists, but mainly close to the mountain; and, therefore, we believe that the State is exercising its proper authority in this exclusion area.

On a longer term effect, one thing you can be sure of, come the rainy season this winter, we will undoubtedly experience larger floods because of the change of the contour of the mountains and particularly on the north side the denuded areas which will be subject to high erosion we can depend upon a substantial flooding. Other than that, we will continue to be in close coordination with the Forest Survey and Geological Survey as to preparations, keeping them in a State of readiness and alertness for any other possible event. Thank you very much.

Senator MAGNUSON. I understand that you did try and keep people away from the area before this happened.

Governor RAY. Yes.

Senator MAGNUSON. But some of them wouldn't pay attention to it. You are to be commended for that. All I was trying to do is what Senator Schmitt pointed out. As long as we can get some early warnings on these things, it ought to be communicated and we ought to enforce it as best we can. You can't tell exactly, I understand that.

We have a vote, an important vote, over in the Senate. So we will recess for 15 minutes, after which time John Macy will testify, and then the Governor can go into her figures afterward.

[A brief recess was taken.]

FEDERAL EMERGENCY MANAGEMENT AGENCY

STATEMENT OF JOHN MACY, DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY

FEMA ACTIVITIES IN DISASTER

Senator MAGNUSON. The committee will come to order.

Sorry we were delayed, but we had a couple votes over there instead of one.

I think we ought to proceed and hear from John Macy at this time. He can give us an overview of what the Federal Government activity has been and what you anticipate it is going to be. I imagine the President is hearing now from your people at home.

Mr. MACY. He is, indeed.

Senator MAGNUSON. Right this minute.

PREPARED STATEMENT

Mr. MACY. Thank you, Mr. Chairman, members of the committee, Governor Ray, I will not use my statement and I will try to be as brief as the statement would have been had I used it. I will request, however, that it be placed in the record.

Senator MAGNUSON. It will be inserted in the record at this point.

[The statement follows:]

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PREPARED STATEMENT OF JOHN W. MACY, JR., DIRECTOR

FEDERAL EMERGENCY MANAGEMENT AGENCY

When I became Director of the Federal Emergency Management Agency, I was told by the old hands that each disaster was different, each incident presented new problems. Certainly, the activity of the past month bears that out - the agency is presently concerned with undocumented aliens from Cuba, chemical contamination at Love Canal, and the Mount St. Helens volcano, as well as the more standard fare of tornado and flood disasters.

The agency's regional office in Seattle, and Headquarters here in Washington, D.C., had been monitoring the Mount St. Helens situation since mid-March when the first noticeable seismic activity was detected. Thus, when the major eruptions occurred on May 18th and 19th, there was no surprise.

Early Sunday morning, May 18, Mount St. Helens volcano erupted with phenomenal force, giving a demonstration of the awesome power of nature. Smoke, volcanic ash, steam and earth were thrown miles into the air. Two cubic miles of earth disappeared from the north face of the mountain. It is estimated that the force released when the eruption took place was equal to ten nuclear bombs. Rail passengers south of Portland, Oregon, were shaken awake by the force of the blast. Visibility was reduced to zero. The ash cloud blanketed the forest for over fifteen miles. Steamy, muddy sludge spilled down the mountain and destroyed the river basins of the Cowlitz and Toutle rivers. Winds aloft carried the ash in a fan shaped arc over the eastern portions of Washington State and on into Idaho.

Neale Chaney, FEMA Regional Director in Seattle, began coordinating Federal activities in support of the immediate relief operation. State and local Civil Defense Directors, with the Red Cross, set plans into action for evacuation, food and shelters. The State Department of Emergency Services closed roads in a unified effort with the U.S. Forest Service.

By May 20, the Red Cross was reporting over 5,000 stranded travelers throughout the States of Washington and Idaho. The U.S. Geological Survey continued to monitor the uncertain situation.

Already, the Corps of Engineers was dredging the lower Columbia River where the channel had been silted and traffic brought to a stop. The Department of Agriculture was beginning to survey the impact of the ash fall on crops and livestock throughout the affected States.

A new threat had developed with the fear of a dam break at Spirit Lake. This danger was monitored carefully by the local officials as well as the National Weather Service. The greatest potential for destruction still lay with the volcano, evidenced by the second eruption a week later. Unfortunately, this serious threat remains with us to this date and the behavior of the mountain is under close scientific scrutiny.

On May 21, President Carter, in response to a request from Governor Ray, declared a major disaster and flew to that area for a first-hand inspection and for supervision of the Federal programs he had activated. His declaration made available a wide range of Federal disaster assistance and a comprehensively coordinated effort to bring relief to disaster victims.

Mr. Robert Stevens, FEMA Director in San Francisco, was named Federal Coordinating Officer. Under his direction, and in collaboration with State and local officials, a Disaster Field Office in Vancouver, and Disaster Assistance Centers in Kelso, Yakima, Moses Lake, Spokane, and Ritzville have been established; additional centers are opened whenever and wherever a need is identified.

A public information service has been provided to keep the public fully informed. The FCO and headquarters are providing regular reports to Members of Congress and other public officials regarding recovery progress. The entire FEMA staff and skills resources are available to the Federal Coordinating Officer in meeting response requirements.

To carry out direct response activity, the FCO is coordinating the work of more than a dozen other Federal agencies. Some of these agencies are operating under the authority and direct assignments of FEMA; others are operating under their own authority. In both instances, their efforts are coordinated by the FCO to assure a consistent Federal effort without duplication.

The Mount St. Helens volcano disaster has resulted in some unique problems, particularly with regard to volcanic ash. These problems are difficult to solve inasmuch as they have not been encountered previously in the contiguous United States. The volcanic ash poses many questions for which answers do not currently exist. As answers, or even partial answers are found, it is vitally important to advise everyone who may be affected.

At the direction of President Carter and Governor Ray, a Technical Information Network was established -- its purpose is to direct and coordinate the collection and dissemination of scientific and technical information about the volcanic eruption and its effects on people and their environment. The first bulletins issued dealt with the nature of Mount St. Helens ash and driving and vehicle maintenance in heavy ash areas. This information was widely disseminated throughout the impacted areas.

Due to the volcanic ash, there was an emergency need for surgical masks. Because of the potential importance of these masks to the public health, we swept aside red tape and delay to secure large quantities of masks at Federal expense. These were made available to Washington and Idaho for distribution to the counties and communities needing them. Should the volcano erupt again, we have a sufficient stockpile to meet any added requirements.

More specifically, Federal agencies are performing or will be performing the following tasks:

Small Business Administration

Disaster business loans, home and personal property loans and economic injury loans.

Department of Defense

Corps of Engineers floodfighting activities and emergency flood control measures, and the cleaning and dredging of navigable waterways.

Department of Agriculture

Disaster loans (FmHA), conservation programs (SCS), agricultural stabilization programs (ASCS), research (SEA), crop insurance claims (FCIC), food stamps (FNS), and forest service programs (FS).

Department of Transportation

Highway repairs and restoration (FHWA), repair and replacement of air navigational aids (FAA), air sampling flights and laboratory studies (FAA), and the patrol of navigable waterways (USCG).

Department of Health and Human Services

Aid to dependent children; death benefits and disability payments (SSA); assistance for the elderly (AOA); data collection and the analysis of samples to determine the effect on health (PHS); medicaid and medicare payments (HCFA).

Department of Commerce

Satellite observations, plume tracking, cloud sampling and forecasting (NOAA); grants for business development (EDA); and infrastructure studies and planning guidance (Pac. NW Regional Action Planning Commission).

Department of Interior

Leadership in the Mount St. Helens Technical Network for the collection, analysis, and dissemination of scientific information on effects of eruption, ash fall and flow (USGS); monitoring of seismic activity (USGS); overtime, vehicle, and equipment repair (NPS, F&W).

Department of Labor

Summer employment for clean-up activities (CETA).

Environmental Protection Agency

Overflights to collect air samples and the analysis of air, water, and soil samples to determine the effects of ash pollution on the environment.

National Science Foundation

Research projects in the scientific and academic community to further knowledge of the effects of volcanic eruptions.

General Services Administration

Administrative support, vehicle maintenance and replacement.

S. Postal Service

Repair or replacement of damaged vehicles, machinery, and facilities.

National Aeronautics & Space Administration

U2 overflights and satellite operations for the collection of high altitude samples and photographic documentation on effects of eruption.

Many of these Federal activities will be performed without cost to State and local governments.

FEMA's work will not end with these emergency services or short-term relief. When the rebuilding begins, care will be given to environmental impact, protection of consumers, and, perhaps most importantly, attention will be paid to hazard mitigation measures so as to eliminate or reduce the impact of a future disaster occurrence.

At present, FEMA faces a funding difficulty with the President's Disaster Relief Program. On December 6, 1979, a supplemental appropriation for Fiscal Year 1980 was requested for $314 million. This became necessary because of severe weather conditions which affected the eastern portion of the nation in September and October 1979.

Several weeks ago, a second supplemental appropriation of $225 million was requested due to severe storms and flooding in the western portion of the nation.

Events have not been kind to the American people in the last year. Nearly every section of the nation has been dealt a severe blow. Disasters disrupt the normal functioning of governments and communities and adversely affect individuals and families. Because events have severely taxed the financial resources of FEMA and other agencies, it is only possible to meet the immediate human needs of disaster victims. Public assistance funding, such as repair of public facilities, is receiving conditional approval contingent on the availability of funds. Clearly the need for additional funding is great. We are close to a point where even human needs will not be met.

OVERVIEW OF FEMA'S RESPONSIBILITIES

There is a great deal to report with respect to Federal activities in connection with the disaster at Mount St. Helens. I will not endeavor to match the eloquence of Governor Ray with the description of what occurred nor the testimony of Dr. Menard with respect to the scientific aspects but, instead, talk about the administrative aspects of the disaster in terms of the responsibility of the Federal Emergency Management Agency.

That responsibility came into play fully when Governor Ray requested the President declare a disaster in the State of Washington as a result of the eruption and with the President's approval the same day of that request, and the designation of the Federal Emergency Management Agency as the coordinator of Federal activities and as the partner with the State in dealing with the response and recovery activities throughout the area that was affected.

The immediate steps were the designation of a Federal Coordinating Officer, Robert Stevens, and a meeting with the representatives of the various agencies that had a part to play in dealing with the disaster and with the Director of Emergency Operations from the State of Washington in order to have as a complete collaboration as possible.

Headquarters was established in Vancouver on May 21. Subsequently, there were disaster assistance centers established in six other locations throughout the State where there had been significant damage. These centers were available to the citizens who had losses that could be met by the provisions of the Federal Government's disaster assistance programs.

Senator MAGNUSON. And these were FEMA offices.

Mr. MACY. These were FEMA offices with the participation of the State Representatives and the other Government agencies. FEMA established those offices and provided disaster——

LINE OF COMMUNICATIONS

Senator MAGNUSON. The line of communications.

Mr. MACY. Some of those centers have been or will be shortly closed down because the volume of business has been reduced and it would be possible to take care of the needs through mobile units that will visit various communities.

In response to the President's request and Governor Ray's agreement, we established a technical network of experts under Dr. Wesson of the USGS to provide information of a technical nature to citizens who were affected by the results of the eruption, and they prepared a series of——

Senator MAGNUSON. Let's follow this line. A person that's been damaged or a citizen of the State would come in to the FEMA office and he may be talking about an SBA loan under the Emergency Disaster Act. Then your officer would refer him to SBA.

Mr. MACY. That is correct.

Senator MAGNUSON. Or he may have a forestry problem, or flooding, then you would refer them to the Engineers.

Mr. MACY. Refer them to the agency who has responsibility.

Senator MAGNUSON. It is a clearing house.

Mr. MACY. Yes.

Senator MAGNUSON. You did a big business.

Mr. MACY. Yes; we had a significant number of citizens who came to each of these offices.

We have had about 4,000 of them visit the offices up to the present time. We are finding, Mr. Chairman, that there is a great need for assistance for small businesses. This has been an area of damage and I am sure you will hear more about that from the representative of SBA. But we were particularly concerned about the information with respect to health conditions. As a result, we issued bulletins of a technical nature related to health problems and we worked with the State in obtaining a sufficient supply of surgical masks. Some 810,000 surgical masks were obtained and distributed through the counties, to citizens in order to protect health.

I was pleased to hear from Governor Ray that the medical advice now is that there is not a danger of silicosis but the availability of the mask was a precaution to provide for those who wish to use that as a breathing filter.

Senator MAGNUSON. And you collected 810,000 masks.

DISASTER RELIEF FUND

Mr. MACY. 810,000 masks, largely due to assistance from the Department of Defense and the Public Health Service, and the manufacturer of those masks.

Another problem that came up with frequency was the difficulty in the maintenance of internal combustion engines because of the ash and the necessity to provide additional filters in order to provide longer serviceability of those vehicles. One of the bulletins that was released gave guidance to vehicle operators as to how to deal with such equipment under those conditions.

Other programs were those that you will hear about from my colleagues who are here at the table. For example, the Corps of Engineers was active in reviewing the flood potential in the river basins that were affected by the eruption, but even more importantly, they were involved in dredging the Columbia River in order to permit navigation to be restored in that important channel.

The activities of the Federal Government were made known to the citizens through a variety of news releases and posters and information through the media.

As a result, we believe that there has been knowledge obtained by those that are affected and that progress toward recovery is moving ahead.

As far as the expenditures are concerned, Mr. Chairman, the Federal Emergency Management Agency receives funds from the President's Disaster Relief Fund. It is the fund that will need to be replenished to cover the costs accrued by FEMA itself or by other agencies on assignments from FEMA. That is in addition to the increased expenditures of individual departments in pursuing programs under

their own authority, such as the Corps of Engineers, the Small Business Administration, and the Department of Agriculture. In the proposal from the President, there are separate items for each of those departments. These items are listed in the document that is before you.

You will notice that the amount for FEMA is $86 million out of a total of $918 million that is in the President's request. Those funds are primarily to meet the needs of the agency under the President's Disaster Relief Fund in providing individual and family grants, providing funds for public assistance in connection with public buildings of various kinds. You will note the larger requests are those of the Corps of Engineers for the dredging and flood survey and flood fighting at $215 million and the amount for the Small Business Administration for $430 million.

I would like to say, Mr. Chairman, that there is serious need for a replenishment of the President's Disaster Relief Fund. There are two previous requests from the President that are before the Congress at the present time. One was a request for $314 million that was submitted in January to cover the very heavy disaster expenses that occurred as a result of storms in the Eastern part of the country last fall, which resulted in expenditures in excess of the appropriation for 1980 within a 2-month period.

The second request submitted in May is for $225 million, which largely covers flooding and other disaster conditions that prevailed in the West, particularly in California and Arizona. The $86 million that is in the statement before you in connection with Mount St. Helens is the third increment for that fund since the original appropriation for fiscal year 1980.

I stress that these expenditure estimates are based on very preliminary judgments with respect to the actual cost for the Federal part in the recovery from Mount St. Helens, but we believe, and I know my colleagues in the other agencies believe, that this is the best estimate available at the present time and represents the administration's request at a level of $918 million for this very significant emergency.

DISASTER SUPPLEMENTAL

Senator MAGNUSON. This would be suggested in a supplemental.

Mr. MACY. Yes, sir.

Senator MAGNUSON. And a supplemental is for 1980 fiscal year. We will have to go over these items again with the agencies when we markup the 1981 budget, and then the estimates may be firmer. It may be more. We will have a better chance to take a good look at it.

This is actually an emergency, literally an emergency fund, isn't it?

Mr. MACY. That is right.

Senator MAGNUSON. Literally.

Mr. MACY. The action taken by the Congress to provide a fund to meet the Federal needs that occur when there is a natural or manmade disaster and clearly this particular event is definitely covered by that statute.

Senator MAGNUSON. You are coordinating your efforts, you are still firm on coordination with the State people, with the local people and within yourselves.

Mr. MACY. That is right, among the agencies of the Federal Government. This does not mean that FEMA is in command or exercises managerial direction over the agencies, but it is there to bring them together so that there is a mutual and consistent approach by all of the Federal agencies in carrying out their——

Senator MAGNUSON. That was the original purpose of putting together all of the agencies that dealt with disasters and emergencies under one head. It used to be that the Defense Department, Civilian Defense was the big agency involved in disasters. And we put them all together so that you can coordinate your efforts. I want to compliment you on how you have taken hold of this thing quickly because we are going to move next week on this, I hope.

Mr. MACY. I hope so, too, Mr. Chairman.

Senator MAGNUSON. We are going to move quickly, as quickly as we can. If it hadn't been for our budgetary impasse, we would have moved much more quickly. But I understand the House is now working on that. I still want this understood, and I am sure you understand, that this is a downpayment?

Mr. MACY. Yes, and we intend to keep this committee and the Appropriations Committee in the House informed as we have additional information with respect to the costs necessary in order to achieve the Federal share of recovery.

Senator MAGNUSON. Do you have a question?

Senator BURDICK. Yes, Mr. Chairman.

Senator MAGNUSON. The Senator from North Dakota has a question.

RENEWAL OF PUBLIC LAW 93-288

Senator BURDICK. Mr. Macy, you are aware that the Disaster Act has not been renewed, it will expire in October, and that the Environmental and Public Works Committee has been in touch with you since the action taken to declare disaster by virtue of the Cubans.

Quite frankly, I thought you strained a point in including a social disaster when the act has historically and every other way limited these funds for physical disasters. Reading of the act gives us the opinion that that is exactly what it is.

Now, we would like to know, if it is the administration's intent to embrace physical disasters and/or social disasters in the future. I have written the Vice President, I have talked to your people. Could we have an opinion on that one of these days?

CUBAN EMERGENCY

Mr. Macy. You will have a response, Senator Burdick. I am fully aware of your views on this matter. A conclusion was reached in the case of the Cuban refugee situation that this did fall within the scope of the legislation because it represented a burden on the State of Florida in excess of its own capacity and, therefore, this fund was an

appropriate means for supplementing the State's expenditures with respect to this matter. However, I am aware of your view and certainly that is under consideration.

I should add that there will be within the next few days a separate proposal coming forward to the Congress with respect to the necessary expenditures via FEMA and other Government agencies in connection with the Cuban emergency. I am not privy at this time to just what that figure will be, but certainly I will be available and other Government officials will be available to answer questions with respect to that submission.

Senator BURDICK. Will that be another claim on the disaster fund, then?

Mr. MACY. This would be another claim on the disaster fund as a supplement to the supplements that are already before you.

Senator BURDICK. It has been rumored it is around $250 million, is that correct?

Mr. MACY. The initial estimate is that the total cost to the Federal Government will be in the neighborhood of $300 million.

Senator BURDICK. $300 million.

Mr. MACY. The entire amount, however, would not be chargeable against the President's Disaster Relief Fund because several of the 12 agencies involved in that operation have performed functions that are regularly theirs under statute and their increased appropriation needs are included in that initial estimated figure that has been released.

Senator BURDICK. What the committee is concerned about, Mr. Macy, is in view of the Cuban decision, there isn't much else that couldn't be declared a natural disaster under that fund.

Mr. MACY. I could conjure up quite a few.

Senator BURDICK. I am sure you could. But historically and every other way we have always used this for physical disasters, for things that happened in Washington and North Dakota.

So you will have an answer for us shortly, I hope?

Mr. MACY. Yes, we will have a response for you in the early future.

Senator MCCLURE. Would my colleague yield?

Senator BURDICK. I yield.

LEGISLATIVE INTENT OF PUBLIC LAW 93-288

Senator MCCLURE. To imply that any expenditure that is unexpected and beyond the capability of a State to meet falls within the disaster fund legislation, it seems to me to be a calculated diversion of legislative intent. I share with my colleague the concern that he has expressed. I am not at all certain that the Congress is going to go along with that new theory of administration of an old law. That isn't to say the Congress would not respond to the concern that the State of Florida has, as a result of the actions taken in Havana and in Washington, D.C., but just to simply say that we have got a disaster fund, and this is a disaster now and we will spend some money out of it, seems to me to be perilously close to the misappropriation of public funds.

Mr. MACY. No; I should have extended my definition to say within the stated purposes of the fund, where it is a supplement to resources made available by State and local government.

Senator MCCLURE. I understand that, but there are a lot of times States find themselves unable to meet unexpected expenditures that are not covered by the disaster relief fund.

Mr. MACY. That is true, and there are quite a number of instances where Governors make request for use of the fund and the judgment is that it does not qualify.

Senator MCCLURE. That is another question for another hearing.

Senator BURDICK. I agree with my colleague that we are not fighting the need down in Florida. The question is, is this the place for it? Historically, and every other way, we have dealt only with physical disasters in the past. We will be awaiting your comments.

Senator MAGNUSON. We are trying to keep separate the natural disasters as vis-a-vis the social disasters. I am hopeful in this process if we could keep Mount St. Helens, and maybe two or three other disasters, I guess the one at Grand Island, Nebr., was serious, to keep them separate, if you fellows would help us, from the refugee problem, which has no bearing on these immediate proceedings to begin with.

Mr. MACY. Mr. Chairman, you were speaking of the Grand Island, Nebr., disaster. That reminds me that I have an appointment to leave Andrews Air Force Base at 12:30 to join the President at Grand Island, Nebr., to review the conditions. If you would excuse me in a moment or two, I would appreciate it.

Senator MAGNUSON. We will abide by your wishes. Do you have just a quick question?

Mr. MCCORMACK. Yes, I do.

Mr. Macy, how long will the communities that have been impacted, who have used their local funds for cleanup, be able to receive funds from FEMA after the President signs the bill into law? How long will it take?

Mr. MACY. I am not in a position to predict that with any precision, but we are organizing our administrative and financial processes in order to expedite not only those payments, but payments due to other State and local governments for other emergencies. So all I can do is assure you as soon as the funds are available, we will expedite that process.

Senator MAGNUSON. I want to get this in quick. Excuse me. How do you envision that will be done? Suppose FEMA gets its appropriation, are you going to distribute that by grant to the local communities?

How are you going to do it? Are you going to go through the State?

Mr. MACY. We will go through the State. We will review with the State the various expenditures and there will be the payment made based upon a determination of what the Federal Government's share is and what the cost for the particular recovery action might be.

Senator MAGNUSON. I am sure Congressman McCormack and I are thinking of the same thing. We are thinking about the local communities, the county commissioner, the city.

Mr. MCCORMACK. That is right.

Senator MAGNUSON. Is it going to go through a lot of agencies and somebody is always peeling something off the top? It never gets down to the right people half the time.

Mr. MACY. We want to make sure there is a minimum peel of that kind and to make certain those——

Senator MAGNUSON. There shouldn't be any peel at all. It should get down to them.

ECONOMIC IMPACT OF MOUNT ST. HELENS

Senator MCCLURE. Mr. Chairman, would the Congressman yield for just a moment? We talked all morning about the effects upon the State of Washington. Of course, that is where the effects have been greatest. But I certainly would be remiss if I did not mention the fact that the agency is present in northern Idaho, and we appreciate that presence. There has been an impact there and we have similar problems that many others in the State of Washington have, although certainly not as severe as the most severe in the State of Washington. But I want to second what the Governor said a moment ago, and that is the disaster will be much worse unless somehow we get across, through the media, to the people of this country, that the entire State hasn't been wiped out. One of the greatest disasters is a continuing one to our tourist industry where there is no need for that damage. They perhaps will find it very, very difficult to reach out to all of those within the tourism industry who have had conventions canceled, fishing trips that are set aside, the loss of a cash industry that has a very short timeframe in northern Idaho.

Somehow we have to get across to the people of Idaho and to the Nation that it is still a nice place to visit and that unless Mount St. Helens does it again, there is no danger to their health. There was a story that there were 12 million fish killed in north Idaho. So far the fish and game department haven't been able to find one killed. If there are any fish up there being killed, it is by fishermen.

Senator MAGNUSON. Well, that is good news.

Senator MCCLURE. We would kind of like to have the fishermen come and take some of those fish. That continuing disaster is going to be a harder one to get to, and the administrative agencies are going to have an extremely difficult time dealing with the indirect effects of that kind of publicity.

Mr. MACY. I agree with you completely and one of the points that comes up in connection with every disaster is the tendency to overstate the extent of the disaster. We find we can almost always divide the estimated cost by at least three in getting close to what the actual amount is.

We certainly want to assist in the recovery that is necessary as quickly as possible and withdraw and not spend any more Federal funds than are absolutely necessary.

Senator MCCLURE. I understand that. I just hope if we can get the story out that the real problem is behind us with respect to most of the area, that we have got to clean up, there is no reason why people

cannot travel in there, there is no reason they cannot come there for vacations, there is no reason why conventions have to be canceled, then we will have minimized your job and minimized the drain on the Federal Treasury, as well as minimized the effect upon the local economy.

Mr. MACY. May I add the funds necessary under the declaration in the State of Idaho are also included in the agency that I referred to.

Senator MCCLURE. I am aware of that. I noticed the Director of Transportation, State of Idaho, is here, and I am sure he has an interest in how we are going to get all that stuff off our highways.

Mr. MCCORMACK. Mr. Macy, may I continue this line of questioning for 1 more minute? Do I understand you will be working with the State and communities perhaps even in advance of the law being signed by the President in determining the amount of Federal funding that may be going to local cities and towns in the impacted areas?

Mr. MACY. In fact, Mr. McCormack, I would hope that is already underway at the present time. When the appropriation is enacted, we will be able to start processing immediately.

Senator MAGNUSON. The President does not have to sign any laws.

Mr. MCCORMACK. I am talking about the appropriations.

Senator MAGNUSON. Just so he doesn't veto the appropriation bill.

FEDERAL/STATE AGREEMENT

Mr. MCCORMACK. I trust there will be no binding contractual obligation upon the State at this time for any percentage that the local government must pay, but this will be negotiated out in the future knowing in advance this is an incomplete and temporary estimate of the costs.

Mr. MACY. The agreement with the State called for a division of 75 Federal, 25 State and local. Governor Ray has asked that that be reconsidered and it is in the process of reconsideration at the present time, the view being that this is a partnership in financing and that there should be an appropriate share from State and local government to accompany the Federal funds that are invested.

Senator MAGNUSON. If the local people performed their obligation up to the hilt, can't that be used as a local contribution?

Mr. MACY. That will be viewed as part of the consideration in determining——

Senator MAGNUSON. Because some of the counties and some of the cities, their budget, they have used up their full budget. They are going to have to get some more money.

Mr. MCCORMACK. Mr. Chairman, I have only one quick question. I notice the Farmers Home Administration is not listed on the list of specific agencies included in the appropriation request. I am curious to know if FHA has adequate funding to handle the emergency at the present time or where that funding will come from if not?

Mr. Thornton. Certainly in the case of our emergency farm lending activity, that is a program that has open-ended funding. That is to say, whatever the need is, we have authority, standing authority to meet that need.

Mr. McCormack. You have a line of credit with the Treasury?

Mr. Thornton. That is right.

Mr. McCormack. Mr. Macy, then, would you like to have a line of credit with the Treasury the same way with all of FEMA?

Mr. Macy. I prefer the present arrangement.

Mr. McCormack. Thank you.

Thank you, Mr. Chairman.

Senator Magnuson. Don.

APPLICATION PROCESS

Mr. Bonker. First, I would like to take the opportunity to commend you, Mr. Macy, and the other agency heads who are represented here for a truly extraordinary job.

I have one concern, and one question. My concern is that despite efficiency, with which the processing centers were established and service provided to people who are victims of the disaster, my concern is that once those forms are filled out, nobody knows what happens. It gets into the normal process and at a townhall meeting where many people had attended, they expressed their concern that there were no replies or responses or answers to questions like when will this be approved, or if it is going to be approved, and how long will it take for the money to be forthcoming because these people need to plan? The people who are on the spot, while they were courteous and helpful to that question, would say, "We have no idea whatsoever." So I think the system fails at that point. I don't know if you can respond to it because I think once it gets into the agencies, we just don't know what happens.

Mr. Macy. To some extent this is attributable to the appropriations problem that we have been discussing.

Mr. McCormack. I understand.

Mr. Macy. Not only is FEMA at a point where resources are very low, but the same is the case for the Small Business Administration and other agencies as well. I think with the degree of caution for which the bureaucracy is noted, they are very careful about making any commitments that cannot be financed.

As far as the second point is concerned, certainly there is a tendency to feel that once the initial form has been prepared, that is the answer. In my view, it is not, that is just the beginning, and we need to work with the agencies, and we intend to do so, to insure the consummation of the action initiated by the applications comes forward with the necessary speed to meet the needs of the people who are suffering from these conditions.

NATIONAL FLOOD INSURANCE PROGRAM

Mr. Bonker. I really think that followup is essential. We need to appropriate money for the agencies to do their work as well. My question concerns the national flood control insurance program.

The people of Cowlitz County, through their local government, is in the process of securing regular, if I can call it insurance, for that area. Now the river alinement has been changed, and we have seen rather

graphically what has happened and how vulnerable that area is to future flooding. In that process, there has to be a 90-day appeal period which can only begin after maps have been provided by FEMA.

The people there are frightened that if they do not have the insurance, they are going to be real victims come October if flooding does occur.

They wanted me to work with the Senator to attach a rider which would do away with the 90 day appeal period. I just don't think we will have any success in doing that, but if your agency could supply those food control maps by July 1, we could go through the 90 day waiting period and have that regular insurance in place to provide maximum protection to the citizens, the residents along the river. I wonder if this is an unfair question, but if you could provide us with some assurance that you could expedite the preparation of those maps and try to get them to Cowlitz County around July 1 to July 15, so we could extend the coverage to the people in that area.

Mr. MACY. I pledge to do that. You might be interested to know that since the volcano, we have 677 policies that have been written for people in that area. We are also in the process of receiving claims. So far 127 for $1.8 million of estimated damage.

Mr. BONKER. And you can have the maps—it usually takes 4 months now; we are trying to reduce it to 1.

Mr. MACY. I will give you a report and give the committee a report on the status of the maps for all of the areas that are affected by Mount St. Helens.

Mr. BONKER. Thank you so much.

Senator MAGNUSON. The Senator from North Dakota.

LOAN RATE

Senator YOUNG. Farmers Home has been charging, I think, 14-percent interest on money which is now available at around 9 percent. What are you going to charge the borrowers out there? Have you changed your loan rate?

Mr. THORNTON. No, we have currently pending a rate change which we hope to announce this week. In the case of the emergency farm lending activity alluded to earlier, there is really three pieces to that loan package, if you will. That portion which goes to cover actual production of physical losses can be made at 5 percent loan rate. Over and above that for operating credit or for what they call adjusting farming operation, currently for the emergency natural disaster program is 14 percent. We are recommending that be adjusted down.

Senator YOUNG. Why hasn't that been done sooner? The Senate Agriculture Committee had a hearing this morning which I could not attend in which they brought up this very subject, why you are charging 14 percent when you should be charging only the 9.

Mr. THORNTON. Our statutory requirements require us to take into account the Treasury cost of borrowings, which have gone down. On the other hand, we do not get the official quotes of the U.S. Treasury until the end of the month, which we had just gotten, and we immediately went forward with our recommendations.

Senator LEAHY. If the Senator would yield, I conducted those hearings and they told me as a result of those hearings, the rate may be adjusted by today, at the end of the week at the latest.

I should also point out while they get the Treasury report at the end of the month, HUD was able to do it in mid-May.

Mr. THORNTON. They have a different formula.

SUBMITTED QUESTIONS

Mr. MACY. Mr. Chairman, would you excuse me?

Senator MAGNUSON. You can be excused.

Mr. MACY. If there are further questions for me——

Senator MAGNUSON. We will submit them to you in writing.

Governor, do you want to testify now or do you want to pursue this?

Governor RAY. I have made my general statement. Further than that, we would like to testify with some precision on the State's economic situation, what has been extended, perhaps that better wait.

Senator MAGNUSON. I would appreciate it.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

64-529 O - 80 - 5

Questions Submitted by Chairman Magnuson

Question: Could you briefly outline what principal role FEMA is playing in the aftermath of the eruption.

Answer: FEMA's principal activities following the Presidential declaration of this major disaster have been divided into two principal areas. They are:

A. Coordination. Through the efforts of Mr. Robert Stevens, Federal Coordinating Officer, FEMA has been coordinating the activities of all Federal agencies, whether they are acting under their own authority or under Mission Assignments from FEMA, in the response and recovery efforts.

1. All major Federal agencies operating under authority have identified liaison officers who are located with the Federal Coordinator in Vancouver. To facilitate close working relations with the emergency officials of the State of Washington, this office has become a Federal-State emergency center. American National Red Cross, representing all volunteer agencies, has a liaison office located in the same office. Mr. Stevens has a daily Federal-State-volunteer agency meeting to review the progress that has been made during the day and to discuss any problems which may have surfaced.

2. Since May 24th, under the direction of the FCO, Disaster Assistance Centers have been functioning in various locations throughout the States of Washington and Idaho where individuals who have been adversely affected by the disaster can come and get information on and make application for the various types of assistance that is available from Federal and State sources. These centers have been located in Kelso, Spokane, Ritzville, Moses Lake, Yakima, Colfax, Connell, Centralia, and the Randle in the State of Washington, and in St. Maries, Moscow and Coeur d'Alene in Idaho. More than 6,1000 people (5,504 in Washington; 604 in Idaho) have registered at three centers through June 14, 1980.

The types of assistance available include:

a. low interest loans from Small Business Administration or Farmers Home Administration;

b. application for temporary housing;

c. information on claiming casualty losses from the Internal Revenue Service;

d. applications for grants from the Individual and Family Grant Program;

e. applications and information on the ASCS Emergency Conservation Measures Program and the Crop Subsidy Program;

f. applications for disaster and unemployment assistance and job placement interviews from the Department of Labor;

g. advice on filing insurance claims from either Flood Insurance Administration or the State Insurance Commissioner's Office;

h. applications for immediate assistance from either the American National Red Cross or the Salvation Army.

3. Toll-free "Hotlines" have been in operation since May 23rd. Individual citizens or businessmen, who have questions regarding the type of assistance available or how it may be obtained, can call these hotline numbers toll-free from anywhere in the States of Washington, Idaho and Oregon. Over 5,000 individual calls have been received.

4. Under FCO direction, a joint information center for news dissemination to the media has been established. There is an automatic Broadcast Feed which is capable of disseminating current information to the electronic media on a twenty-four hour a day basis. The messages on this ABF are changed frequently and deal with all aspects of the Disaster Response and Recovery Program as well as the activities on the volcano. One or more daily press briefings are held with up to seven television stations and thirty to thirty-five radio and print media representatives attending regularly. This center is manned twenty-four hours a day to meet the intense media interest.

5. A Technical Information Network has been formed to publish bulletins on scientific subjects helpful to the general public. Thus far, eighteen bulletins have been published and distributed to a mailing list of more than 1,000 interested parties, including Members of Congress, the governors of the involved States, elected officials of local governments and the scientific community at large. This Network is staffed by scientists from many different disciplines and agencies, including the Center for Disease Control, National Institute of Occupational Safety and Health, Environmental and Protection Agency, U.S. Geological Survey, and the Department of Transportation. In addition, they draw much of their information from scientific community at large with particular inputs from scientists from the universities in the affected area.

6. A satellite office was opened in Spokane. This outreach effort was supplemented with FEMA representatives who have been traveling throughout the ash-impacted area talking with representatives of local governments and involved citizens to ascertain their specific needs and problems.

B. FEMA's second major role is in the administration of the authorities provided under the Disaster Relief Act of 1974 (PL 93-288). These responsibilities have been exercised by the Regional Director in Seattle and include the following activities:

1. Temporary housing - through June 14, 1980, they have identified some 286 families that are eligible for some type of temporary housing. In addition, there are 53 applications that are being processed for an eligibility determination. As of that date, some 121 families have been assisted. Eighty-eight families have been provided temporary housing in existing resources. Thirty-three families are in motels. The other families are living with friends or relatives pending the location of more permanent type

accommodations. These housing requirements are in the vicinity of the Toutle and Cowlitz Rivers, the area that suffered serious impact from the flooding following the May 18 eruption.

2. Assisting the State in the administration of the Individual and Family Grant Program. Although it is a State-administered program, FEMA provides technical assistance to the State in an effort to expedite the processing of applications. Through June 14, the State of Washington has received 1004 applications for this program. The State of Idaho did not request the implementation of this program.

3. Assistance to local governments under Section 306, 402 and 419 of Public Law 93-288. FEMA has the responsibility of reimbursing local governments for eligible costs in repairing and restoring damaged public facilities as well as reimbursing them for certain eligible costs incurred in taking emergency action. In the State of Washington, seven applicant briefings have been conducted to inform local governments as to the procedures to follow in applying for Federal assistance. At these meetings detailed instructions have been given as to eligibility costs incurred, recordkeeping and other procedural details. Similar meetings were held in the State of Idaho. For the past week, 45 different teams of Federal-State engineers have been visiting damaged areas throughout the States making estimates of the eligible costs. These damage surveys will be completed within the next four to five weeks.

4. FEMA has directed other Federal agencies to provide support to State and local governments in many different ways. The Department of Defense provided vital helicopter support to the State and sheriffs in support of the search and rescue mission. In addition, technical assistance was provided to several local governments in the procurement of equipment required to restore essential utilities.

Question: Health Effects: Supply of Masks for the Public: I understand that one of the major issues between FEMA and the State has been the availability of protective masks for residents in the affected areas. I am told that the State has been concerned about being reimbursed for these masks by the Federal Government and FEMA in particular. What specific steps have you taken to resolve this problem in the areas affected by the build-up of the volcanic ash? (You might ask Dr. Faygee of the Center for Disease Control if the masks are still necessary.)

Answer: FEMA has procured in excess of one million masks which have been made available to local governments. Two hundred thousands of these were delivered to Lewiston, Idaho; 810,000 were delivered to Madigan General Hospital for distribution to impacted areas. The respective States have been responsible for the distribution.

Early last week the States were advised that inasmuch as an adequate supply of masks are now in the commerical pipeline, local governments should obtain the masks through normal commercial sources. There were many commercial outlets where the general public could

obtain these masks and that accordingly, the local governments should only distribute masks to their employees and contractors who were working in the heavy ash area. Masks are eligible for Federal reimbursement. This applies to masks which State and local governments have purchased directly as well as those that have been distributed to them from Federal sources.

At this point, 450,000 masks are in the Federal inventory in the States of Washington and Idaho; 200,000 are located at Madigan General Hospital, 200,000 are located in Fort Vancouver, Washington (they were moved early Friday morning following the third eruption) and 50,000 are in Idaho. These stocks are being maintained for emergency distribution if required by future eruptions.

Up to 50,000 masks will be provided from this inventory to the Public Health Service for distribution to migrant workers in Eastern Washington to ensure adequate protection during work in the ash covered fields.

The Tehnical Information Network has issued several bulletins on the use of masks. In general, they urge they be worn any time an individual is working in or driving through a "heavy ash area." Those individuals who have a medical history of respiratory problems are urged to be particularly diligent about wearing masks.

Question: Could you tell us what measures you have taken to assist local governments in securing the proper equipment to help in the clean up operation following the eruption?

Answer: FEMA has provided technical assistance from experienced Corps of Engineers procurement officers to the cities of Yakima and Ritzville. They have located all of the required equipment needed for the cleanup operations within a radius of 100 miles. In addition, the U.S. Forest Service has made available a tank truck to the City of Morton on a loan basis until the City can acquire a piece of equipment on its own. A water purification unit was located for the City of Toutle though they chose not to utilize it. In general, all requests for assistance have been met for local governments through the State Coordinating Officers. Several requests for the use of military equipment have been denied when commercial equipment was readily available.

Question: What measures are you now taking to alert people and to control "rumors" and quell what has been labeled as "media hype" about the condition of the volcano; and to provide the public with easy access to responsible public officials who can answer their questions about disaster assistance and other related matters?

How many calls are you having on the hotline?

Answer: The Disaster Information Center provides denial or confirmation of any rumors that comes to its attention. Whenever someone believes that an event has taken place, the Information Center immediately calls the University of Washington Seismegraphic Station and the U.S. Forest Service, which checks by spotter plane. If there is an indication from those two sources that an event

has taken place there is an immediate attempt on the part of the U.S. Geological Survey to provide an interpretation of the event. This information is then released to the media at the Volcanic Information Center. Any required warning is given to the local governments through U.S. Forest Service Command Center.

The Disaster Hot Line is the primary means of answering the questions raised by the public. This number has been televised, announced on radio, and has been given to local, State, and Federal officials as a point of access. If questions delivered on the Disaster Hot Line cannot be answered by the personnel manning that line, the name and phone number of the individual is recorded and the answers provided by the appropriate informed source. Four thousand four hundred forty-nine calls have been received on the Washington Disaster Hot Line up to this date.

In addition to the rumor control activities of the Volcano Information Center, the Technical Information Bulletins include the best information available from the experts on the effects of the volcano, such as the health effects of volcanic ash on people and animals.

Question: Obviously, the major health and public hazard caused by the eruption has been the build-up of ash in cities, on crops, and on major traffic arteries in the area. I believe that it would be important to get on the record this morning as much detail as we can as to what specific actions FEMA is taking or has taken to deal with the ash problem. What steps have you taken to clean up the ash? What is FEMA's timetable for completing the clean up operation? And what specific plans do you have for disposing of the ash once it has been removed from roads, highways, and other public facilities?

Answer: The responses to previous questions have explained in some detail what action FEMA has taken with regard to the problems related to ash fallout. In general, a supply of masks has been assured, local governments have been assisted in obtaining the equipment necessary to remove the ash, and have been advised about the process for securing reimbursement of their eligible costs. Damage survey teams are working throughout the impacted areas assessing damages.

The responsibility for the removal of the ash lies with State and local governments. If there were a situation where it was clearly beyond the ability of the State and/or local governments to remove the ash, FEMA would request another Federal agency to do that work. Such requests have not been necessary.

Based on reports received from around the State, the ash cleanup from roads, streets and essential public facilities is progressing rapidly. The work will be completed within four or five weeks. It should be understood, however, that the eruption of Mount St. Helens represents a change in the environment of the impacted area. There is no feasible means of removing all of the ash. It will remain a problem for a long period of time even if there are no more substantial eruptions.

Local governments have been instructed to locate adequate disposal sites and to cover these disposal sites with dirt and/or other material to keep it from being blown away.

Question: Local Government Compensation - Mr. Macy, many of the cities and counties which provided emergency services in response to the eruption of Mount St. Helens are now facing very serious financial problems. In fact, I understand some local governments may be forced to cut back on services unless they are compensated for their relief efforts in the very near future. What steps are being taken to assure that these local governments are promptly compensated for their disaster relief efforts?

Answer: Due to the present lack of funds, FEMA is unable to assist local governments with their financial problems in the public assistance efforts. FEMA's limited funds have been earmarked to provide essential assistance to meet urgent human needs - assistance to individuals such as temporary housing, the Individual and Family Grant Program, and the Disaster Unemployment Assistance Program on this and other disasters.

Question: Compensation Coverage - Specifically, which items and services provided by local governments in response to the eruption will they be compensated for?

Answer: It is difficult, if not impossible, to provide a complete listing of those items and services for which local governments will be reimbursed. Basically they will be reimbursed, in accordance with established FEMA regulations, for those costs incurred in repairing and restoring damaged public facilities to their predisaster functional capacity. This includes the removal of ash-debris from roads and streets for which local governments are responsible, it includes certain other emergency costs such as overtime for law enforcement officers, the costs of masks and the costs of feeding and sheltering the several thousand stranded travelers. It should not be assumed, however, that the Federal Government will reimburse the State and local government for all costs arising from this disaster. In the Disaster Relief Act of 1974 and its legislative history, the Congress has made it abundantly clear that it intends that Federal assistance supplement the efforts and resources of State and local governments.

Questions Submitted by Senator Burdick

Question: Will the Administration request such funds as a separate line item, and under what authority will those funds be requested?

Answer: Requests for additional funds required to respond to the influx of Cuban aliens will be identified, within each agency's request. The authority for the requests will be the authorities under which those agencies are presently engaged in operations; in most cases they are the authorities under which the agencies normally operate. Funds to reimburse agencies for services which they are providing under the authority of the Disaster Relief Act will be requested by the Federal Emergency Management Agency.

Question: Given the enormous unpredictable expenditures associated with natural disasters alone (witness the reason we are here today) do you consider it advisable to expand coverage under the Disaster Relief

Act to any and all emergencies be they social or economic for instance rather than natural?

Answer: In any emergency situation, we are more concerned with the impact than the cause. Several criteria must be met:

a. There must be an obvious and immediate need.

b. The situation must be beyond State and local capability.

c. The Governor of the affected State must make a request for a Presidential declaration of the emergency.

It is instructive to note that none of these criteria relate to cause, only to immediate effect. All of these criteria must be met for the authority of the Disaster Relief Act to be exercised. Normally these criteria are best met by natural occurrences. However, there have been and will likely be incidents which are properly included under the definition "other catastrophes" and which also meet these criteria where the invocation of the Disaster Relief Act is appropriate. Clearly, most social or economic situations do not fall into the realm of the Disaster Relief Act. For instance, chronic urban problems can, are, and should be handled under other authorities and other programs.

Question: If the Administration wishes to expand the authority of the Act what specific legislative proposals will be brought forward to achieve that end?

Answer: At this time, there are no proposals to expand the authority of the Act which have been submitted by the Administration to the Congress. There has been legislation proposed by Congressman Trent Lott. His bill, HR 6643, would expand the Act's assistance authorities to include non-profit museums, libraries, zoos, physical fitness, and historical facilities.

In addition, there have been some discussions about possible legislative amendments which would either change financial arrangements on existing authorities or expand eligibility requirements to include public assistance projects not envisioned as part of the original Act. As yet, none of the proposals have been forwarded by the Administration.

Question: What do you estimate the total expenditures under the Disaster Relief Act will amount to by the end of FY 1980?

Answer: As of May 31, 1980, FEMA has obligations of $265,340,000 against the President's Disaster Relief Fund. In addition, estimates of requirements for declared disasters, emergencies and fire suppression grants now total $543,466,000. Potential declarations add $105,600,000 to the remaining requirements for open disasters (more than half of the actual requirements for potential declarations will be carried forward against the FY 1981 appropriation). The total estimated requirements for the remainder of FY 1980 are therefore $649,066,000. Please note that this amount does not include any requirements for the Florida Emergency, EM 3079, as the result of the influx of undocumented aliens for which the President has proposed an additional $245 million for FEMA.

Question: What costs for services and/or direct expenditures have been associated with the President's declaration for areas of Florida affected by the first influx of Cuban refugees?

Answer: Through June 7, 1980, the following amounts, reported as having been committed by the agencies concerned, are subject to reimbursement by FEMA when appropriate supporting documentation is presented and funds are available ($ in millions):

Department of Defense	$51.0
General Services Administration	12.9
Florida (State and local governments)	2.6
Red Cross, Salvation Army	2.5
U. S. Park Police	0.6
Subtotal	$69.6
FEMA	1.6
Total Estimate	$71.2

Question: What total Federal costs do you expect will be incurred on behalf of the refugees?

Answer: The President has forwarded a supplemental request of $381.7 million in 1980 to provide resources for emergency food, shelter and medical care, transport and resettlement of the aliens, in addition to increased administrative activities resulting from the rapid influx into Key West.

Estimates for 1981 are not yet available. The total costs incurred on behalf of the Cuban aliens will also depend in part on the final determination of their legal status, which will, in turn, determine their eligibility for various social service programs.

Question: If the Administration wishes to abide by existing Congressional intent on the limits of the Act, what legislative proposals would you suggest to clarify those limits?

Answer: Surely the Administration wishes and intends to abide by the Congressional intent as indicated by the Disaster Relief Act. Further, there are no proposals underway to expand that authority beyond the present intent. To date, the language of the Act has provided the necessary authority to act in circumstances meeting the established criteria.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Center for Disease Control

STATEMENT OF DR. WILLIAM FOEGE, DIRECTOR, CENTER FOR DISEASE CONTROL, DHHS

HEALTH SITUATION

Senator Magnuson. Health is a very important item. This is No. 1 priority. We got ahold of the Director of the Center for Disease Control who is here, Dr. Foege. He immediately went into action and sent some people out there to work with the State health people.

PREPARED STATEMENT

Before hearing Dr. Foege, we will place his prepared statement in the record.

[The statement follows:]

PREPARED STATEMENT OF WILLIAM H. FOEGE, M.D., DIRECTOR

CENTER FOR DISEASE CONTROL

Mr. Chairman, Senators:

I would like to review the recent activities of the Public Health Service (PHS) related to the eruption of Mount St. Helens and provide our assessment of future needs and studies.

The Department of Health and Human Services has been involved from the beginning when Dr. Donald Fredrickson, Director of the National Institutues of Health, represented the Department in the party that accompanied the President on his site visit last month to Mount St. Helens.

Starting Monday, May 19, 1980, epidemiologists at CDC had regular contact with state health departments in Washington, Idaho and Montana; on Wednesday, May 21, 1980, the Washington State Department of Social and Health Services invited CDC participation in an epidemiologic evaluation of potential health effects related to the volcanic eruption. The CDC field team in Washington has included physicians and public health advisors from the Bureaus of Epidemiology and State Services, and physicians and industrial hygienists from the National Institute for Occupational Safety and Health.

The volcanic ashfalls of May 18 and May 25, 1980, have not been associated with elevated levels of toxic elements or fumes of public health concern. However, because of the high levels of total suspended particulates in the air, the appreciable respirable fraction of this ash, the persistence of the ash in the environment, and the presence of free crystalline silica in the ash (even though at a relatively low percentage of 4-6% in first analyses), the CDC has been concerned about the possibility of short- and long-term respiratory effects, particularly in high-risk groups in the population. These include workers with prolonged exposure to high dust levels (such as clean-up workers and loggers), and potentially sensitive groups in the population (such as those with previous chronic respiratory disorders).

Our field unit has worked closely with the Washington State Health Department, and the Mount St. Helens Technical Information Network at the Federal Coordinating

Center in Vancouver, Washington. We have also consulted with and discussed plans for future studies with the State Health Department, University of Washington School of Public Health, the Washington Lung Association, groups of pediatricians and others within the affected areas.

The main PHS activities to date have included:

1. CDC rapidly instituted an emergency hospital surveillance network, which is currently being redesigned and expanded, in a joint effort with the State Health Department, into a longer term hospital surveillance for a variety of respiratory and other disorders. Initial impressions were that mucous membrane and respiratory irritation did occur after exposure to ash, but there had not been increased reports of acute, severe, ash-related, respiratory disorders. However, firm conclusions cannot be made until we have carefully evaluated a statistically valid data base from our surveillance network for periods before and after the ashfall and for similar periods in previous years. For example, in a field study last week in Moses Lake, an area with heavy ashfall, we reviewed hospital admissions data for respiratory diseases; there were 4 admissions in the 2 weeks prior to the May 18 eruption, and 12 during the succeeding 2 weeks. The reasons for this are as yet uncertain, but only by evaluating such data in detail for the widely affected areas will we be able to draw firm conclusions about the incidence of ash-related respiratory disorders.

2. Analyses of volcanic ash for free (crystalline) silica content, and industrial hygiene monitoring of respirable dust exposure to determine the potential risk from silicosis. At the free silica content of 4-6% in initial samples analyzed by NIOSH, we feel it is important to evaluate the risk for silicosis in workers exposed to high concentrations of fine particles for prolonged periods. We do not consider it likely that there would be a risk of silicosis in the general population at these concentrations. Plans are now being developed by NIOSH for detailed investigations of clean-up workers, and of workers in the logging industry.

3. 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. FDA will conduct animal feeding studies if indicated by the analytical findings.

4. Regular issuance of a twice weekly Mount St. Helens Volcano Health Report to summarize the status of CDC studies, and review for public health agencies, pertinent data from EPA, FDA, USGS, and others.

5. Detailed discussions with pulmonary physicians, pediatricians, public health scientists and others, to develop protocols for studies of high-risk groups. We view this an an essential part of our work because of the need for sustained local activity to carry out the long-term studies which are needed. Plans which have been discussed include the identification and followup of a cohort of individuals with chronic respiratory disorders, a review of effects in children with asthma and other respiratory disorders, a longitudal study of effects in people residing in the most heavily impacted areas, and experimental studies on the effects in animals of breathing the volcanic ash from Mount St. Helens.

In the last period of volcanic activity at Mount St. Helens, reportedly there were a number of significant eruptions between 1831 and 1856. As Mount St. Helens comes out of its dormant period of over a century, we should attempt to learn as much as we can now about potential health effects, so that we will be more knowledgeable and better prepared for handling future eruptions, should they occur.

WORK OF CENTER AT DISASTER SITE

Senator MAGNUSON. Your State Health Director was in the other day and he complimented the work of the Center for Disease Control. There was a little lack of communication, he thought, but that was all right. You can't tell us, I know, exactly, but you have made a lot of tests out there and you have spotted a lot of people in different places. I wish you could briefly tell us about the health situation. Because this is of prime importance to all of us.

Dr. FOEGE. Thank you, Mr. Chairman.

CDC ACTIVITIES AND FINDINGS

Dr. FOEGE. We have been working with the State Health Department, with the University of Washington, with the Thoracic Society, and the Lung Association, and the findings are as follows: Our initial surveillance system of 49 hospitals in general showed fairly minor health problems'. People were complaining of mucous membrane problems, and respiratory problems but we have recently gone into some of the areas that had the highest ash reported. We did our first house-to-house survey in Moses Lake and we found that in those areas, in Moses Lake, particularly, during the 2 weeks following the eruption, they had about a 35-percent increase in emergency room visits and about a 5.5 percent increase in hospital admissions.

The problem in being able to evaluate that is that many physicians closed their offices during that period of time and asked people to use the emergency room. So we have had to go back and look at actual records. We found that while there was a decrease in conditions when people could choose the time at which they went to the hospital, there was an increase in motor vehicle injuries, falls that people were experiencing as they tried to clean the roofs of their houses, and an increase in respiratory problems. I should hasten to add the increase in respiratory problems is something one could expect from having so many particulates in the air, it should not be confused with the statements made by the Governor on silicosis. This is a different problem.

HEALTH EFFECTS

We are now going into other areas and we have, Mr. Chairman, a total of 15 people working with the State Health Department now. We are going into other areas to evaluate the health effects. In general, the Governor's statement is correct that there is a lower hazard than what we had anticipated, and particularly we do not see a danger for the general population with silicosis.

On the other hand, we are concerned by certain occupational groups, cleanup workers, people who are working in the timber industry, and we are sending people this week to begin working with Weyerhauser to look at the actual respiratory exposure to free silica while the workers are working in the field. We will be doing a study of timber workers, their exposures and the health effects.

We are also, because we believe it the prudent thing to do, developing with the State health department and the University of Washington, some long-term studies. It is intended at this time that there will be some long-term studies in three or four communities where about a thousand people will be selected and followed for a period of time. Heavy emphasis will be placed on children in those communities to see if there are any measurable health effects on children.

We are also, with the Thoracic Society and the Lung Association, developing registries of adults with chronic respiratory problems. These people will be followed to see if there is a change in their health condition, and we are also developing registries of children with known asthma to see if there is a problem there.

In looking at the volcanic ash, there is a difference in the amount of free silica from sample to sample and we have taken many samples now from different areas to see how great this variation is, but in general the free silica is less than what people had anticipated earlier.

There have not been problems with heavy metals or other toxic substances in the ash. We are currently doing studies on the cytotoxicity of the ash, we are looking at the problem of mutagenesis, whether ash causes interference with normal defense mechanisms and what happens with tracheal inhalation in animals, a series of studies that will extend over a period of time.

DISTRIBUTION OF INFORMATION

In addition, we are summarizing the material on a two times a week basis and this information is being distributed by the FEMA Center in Vancouver. Because we are aware of what happened during the 1831–55 period, namely, that there were a series of eruptions, we have felt it is important to institute long-term studies at this point so that we do not, in fact, make a statement too early on what the long-term health effects are.

Nonetheless, I would repeat that our feeling is that for the general population, silicosis is not a concern that people need have.

Thank you, Mr. Chairman.

COMMUNICATION PROBLEM

Senator MAGNUSON. We want to compliment you on your quick action and the fact you are working with the State and county health people. They said there was a little problem of communication to begin with, but everyone was a little bit confused anyway. That apparently has been solved, has it not?

Dr. FOEGE. I think the problem was the invitation actually came from Dr. Taylor, the State Epidemiologist who is in Seattle, rather than from Olympia. I think there is a daily briefing of all of the people involved in the health aspects, and I think the communication problems have been solved.

Senator MAGNUSON. Do you want to ask a question?

Mr. MCCORMACK. I have no questions. I simply congratulate the Doctor on the outstanding work they have done.

ASH-RELATED PROBLEMS

Mr. BONKER. I, too, would like to commend the Doctor and his agency. Most of the attention, as it relates to ash, has been on the east side of the mountain. But Morton is located very close to the mountain on the west side and people there have very special problems and grave concerns about health-related impacts of the ash. The schools have closed down, as many have. We have been unable to establish a monitoring station there, or any special attention. It is not really a question, but a request that you not overlook the ash-related problems on the west side of the mountain.

Dr. FOEGE. I think that is a very good point. We have been monitoring in Longview and Vancouver. I should also mention that when I talked about the State of Washington, we do have people monitoring in Oregon, Idaho, and Montana. We also have been dealing with Kaiser and other groups in order to have populations available if there is another eruption, and if the ash goes in different directions. We will already in advance have planned who we will look at. But your point is a good one.

FEMA BULLETINS

Mr. BONKER. I think it would also be a good idea you send information out of the FEMA office as a press release. I think it would be terribly important if FEMA bulletins went to local officials, to mayors. When I was in Morton, I met with school officials who seemed to represent the agency most involved in cleanup and so forth, especially as it relates to health. I would send bulletins directly to school districts so they receive some attention. That ash in Morton, incidentally, is coarse and seems to be heavier than what we found in Kelso and Longview. You shouldn't overlook a community that is that close to the mountain.

HEALTH QUESTIONS

Senator MAGNUSON. If I was a citizen of Mosses Lake, and I had a health question, I may not have a health problem but I have a health question, how would I get that information now?

Dr. FOEGE. At the present time, Mr. Chairman, we have been working with the State health department and the county health departments, and in Moses Lake, I think if a person would start with the county health department and only if the question cannot be answered there, go to the State health department, I think this is the most efficient way to get answers.

FACE MASKS

Senator MAGNUSON. How much protection do face masks provide from any possible health effects from the ash?

Dr. FOEGE. I am not sure I can answer that. There are many studies now on protective devices for miners that we know how much protection this will provide with the kind of exposures in mines. This particular ash turns out to be so fine in many areas that I am not sure

we know the answer to your question at the present time, how good face masks will be. We think it is the prudent thing——

Senator MAGNUSON. Do you recommend people wear a face mask?

Dr. FOEGE. We recommend people wear a face mask in high exposure situations, that is, if they are doing cleanup work with ash, or if they are working in the timber industry.

Senator MAGNUSON. Or if they are working cleaning up the ash?

Dr. FOEGE. That is right.

FUNDING OF OPERATION

Senator MAGNUSON. You are not listed in the President's request. This is one example why I say this is going to be a continuing operation, and the extra money you are spending, and you are spending much of your budget, we are going to have to put that in the regular HEW bill, rather than listed here in the emergency supplemental. You may have to be listed as an emergency, but you are using a lot of people.

I suppose you are taking them from other jobs and using them. We will consider that, not necessarily in a supplemental, but when we get your appropriation. That is a good example of why this is going to be a continuing operation. The Department of Agriculture is going to have some extra money. I can name—oh, and the Engineers, you are going to go on dredging for a long time, aren't you?

General HEIBERG. Yes, sir.

Senator MAGNUSON. We might have to put some more of that in your regular appropriation. That is coming along fast. We only have 1 month before we start marking up the bill, we hope. The House is working very swiftly on it.

SUBMITTED QUESTIONS

Thank you, Dr. Foege. We do have some additional questions which we will ask be answered for the record.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Questions Submitted by Chairman Magnuson

HEALTH IMPACT

Question: What impact has this volcano had on the health of the people in the region?

Answer: Surveillance data from 21 hospitals in Washington show an increase in emergency room visits and hospital admissions for pulmonary problems in the more heavily affected areas of Eastern Washington. The increases correlate with the amount of ashfall in these areas. In Western Washington, hospital admissions for pulmonary problems did not increase, although in the most heavily affected areas (e.g. Centralia), there was an increase in emergency room visits for pulmonary problems.

CDC will be analyzing hospital records in the more heavily affected areas to determine the specific diagnoses, severity, and persistence of the pulmonary problems recorded, and to determine to what extent the increased number of hospital admissions occurred in workers, children, and other high-risk groups.

Detailed discussions are now underway with the Washington State Department of Social & Health Services and local hospitals on a longer-term, more detailed hospital surveillance system. We are also working with the University of Washington School of Public Health to develop protocols for evaluating high-risk groups in the general population. The National Institute for Occupational Safety and Health (NIOSH), CDC, is developing a study, to begin shortly, of Weyerhauser timber workers to document exposures and possibly health effects.

Question: Is there any long-term impact from the silica?

Answer: Exposure to high concentrations of respirable free silica for prolonged periods can lead to the development of the industrial disease, silicosis. Preliminary analyses of the volcanic ash by NIOSH demonstrate a free silica content of about 5%; some other laboratories have had even lower proportions of free silica. At these concentrations it is unlikely that there would be a risk of silicosis among the general population. NIOSH, however, is still concerned about the potential for silicosis among workers heavily exposed to high concentrations (e.g., cleanup workers and timber workers) and will, therefore, be conducting detailed studies of these groups.

QUALITY OF AIR

Question: How about the quality of the air now?

Answer: Levels of total suspended particulates in the air, monitored by EPA, have decreased dramatically after the initial ashfalls. There are, however, continuing concerns in local areas with heavy ashfall and persistence of the ash in the environment, where vehicular traffic and other activities continue to resuspend settled materials.

INFORMATION DISTRIBUTION

Question: What are you doing to ensure that people are kept informed?

Answer: The CDC is issuing twice-weekly Mount St. Helens Volcano Health Reports which are being distributed widely to Federal and State agencies and to physicians and others in Washington State. These reports are also being reprinted and reissued by FEMA to their mailing list for Mount St. Helens Technical Information Bulletins. We also have continuing and close contacts with the State health department and with a number of county health departments. Moreover, CDC staff have participated in joint briefings of the press and meetings with local community groups.

Question: If Iwere a citizen, say in Moses Lake, and I had a health question, how could I get the information?

Answer: Health questions should be directed to the county health department. CDC field physicians working with the State health department will serve as back-up for questions which cannot be answered at the local level. We believe that the regular health reports which we are issuing will provide local health departments with the background information which they need.

FACE MASKS

Question: How much protection do face masks provide from any possible health risk from the ash?

Answer: A list of NIOSH approved face masks for protection from dust was issued by the Washington State Department of Social and Health Services. This statement was prepared jointly with CDC. These masks should be worn by workers with high exposure to respirable dust; the approval is based on testing and past experience of NIOSH. Surgical face masks are inadequate for prevention of dust exposure, but may be of benefit in minimizing acute irritation to sensitive individuals in the general population.

FUNDING OF ACTIVITIES

Question: Why is it that no start-up funds are available for a study of biological effects of the ash on humans and animals?

Answer: CDC representatives will be in Washington during the week of June 23 to meet with officials of the Washington State Department of Social and Health Services and the University of Washington School of Public Health to explore mechanisms for CDC to fund three studies during FY 1980. The three studies are:

1. Redesign and expand the existing hospital surveillance into longer-term hospital surveillance for a variety of respiratory and other disorders.

2. Identify and follow-up of a cohort of persons who suffer chronic respiratory disorders to determine if exposure to volcanic dust adversely affects these patients.

3. Establish and follow-up on a cohort of asthmatic children to explore the relationship between dust exposure and the course of asthma.

These three studies will cost approximately $200,000. In addition, laboratory studies have been started in house by NIOSH to evaluate the radiological effects of the ash in animal systems, and the previously mentioned Weyerhauser timber workers.

Question: Where is CDC getting the additional funds to support your people in the State? What is the cost of this?

Answer: CDC is diverting human resources and funds from other ongoing important activities to support our efforts in Washington and other States affected by the eruptions.

We currently estimate our FY 1980 costs to be approximately $610,000.

Question: Do you expect to request a supplemental? Where in your budget would you put additional funds?

Answer: We do not expect to request a supplemental for FY 80.

BIOLOGICAL EFFECTS

Question: What is NIEHS doing in terms of research on the effects of the volcano to human health?

Answer: NIEHS through its Environmental Health Science (HHS) Centers is conducting some research relating to the health effects associated with the volcanic eruptions from Mt. St. Helens. This work includes analysis of volcanic ash content, examination of lung tissue from victims of the explosion, planning of long-term animal and short-term in vitro studies to assess possible chronic health effects, and evaluation of different type face masks to determine their effectiveness.

The analysis of ash is being done on bulk samples from the different eruptions. A physical characterization of the material is being developed and some of the samples are being fractionated to separate out respirable elements. Long-term animal studies using this respirable material are being planned to assess lung effects. In vitro studies have been initiated to examine the possible breakdown of membrane tissue due to ash particles. A study on lung macrophages is being planned which will investigate the effect of ash particles on the lung's defense system.

Lungs from some of the victims of the volcanic eruption are being examined. An analysis of lung tissue is being planned. Ash found in the lungs will be chemically analyzed and compared with the bulk ash samples to determine the composition of the respirable portions. Efforts are being made to develop a work history on these victims whose lungs are being examined.

A pilot study is underway to check the fluoride content in material from the original explosion. Researchers are also looking at the effects of the eruptions on livestock and the atmosphere. If the volcanic activity has increased atmospheric acidification, an increase in the acid content of fish may be seen. Fish tissue is being analyzed to assess this possibility.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF MAJ. GEN. E. R. HEIBERG, DIRECTOR OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS

MAINTENANCE OF NAVIGATION CHANNELS

Senator MAGNUSON. Let's go to the Army Engineers. Tell us what you are doing. I know what you are doing, but tell us again.

General HEIBERG. Thank you, Mr. Chairman. Our portion of the supplemental totals $215 million, as Mr. Macy mentioned, for the activities associated with the Mount St. Helens disaster.

The corps involvement in the Federal response to the disaster stems chiefly from two of our responsibilities. First, the maintenance of the navigation channels, and second, protection of the communities from severe flood threats. In addition, our field elements are always available to work under FEMA's leadership to respond to natural disasters.

As you know, the eruption caused massive amounts of material to move into the two branches of the Toutle and Cowlitz Rivers, and down into the Columbia River. This material severely degraded the flood-carrying capacity at all three of those rivers and completely blocked naviation on the Columbia River.

Portland Harbor, which is the largest harbor directly affected, is the west coast's fourth largest seaport in terms of tonnage. Since the primary purpose of the work is for navigation on the Columbia River, this activity, at an estimated cost of $45 million, would be funded under our "Operation and Maintenance, General" account. The work we propose on the Cowlitz and Toutle Rivers is primarily in the interest of flood control. Consequently, this work, which we estimate will cost about $170 million, would be charged to our "Flood Control and Coastal Emergencies" account.

COLUMBIA RIVER

First, sir, let me talk about the Columbia River. Following the eruption, the navigation channel shoaled to a controlling depth of only 14 feet and the bar formed at the confluence of the Cowlitz and Columbia Rivers was over 9 miles long. Oceangoing vessels in the Portland-Vancouver area were trapped above the bar and all commercial navigation was brought to a standstill. We immediately diverted our three Federal west coast seagoing hopper dredges to the Columbia and have managed to restore a pilot channel with those three vessels, which permits vessels drawing less than 34 feet to cross the bar at high tide.

We have removed 1.5 million cubic yards of material from the shoal and placed it downstream where it will not interfere with navigation.

Much remains to be done on the Columbia River. Today, the shoal in the Columbia River has a volume of 55 million cubic yards, of which we must remove 22 million cubic yards, or about 40 percent of it, to restore the navigation channel and provide adequate river capacity. The daily capacity of our three hopper dredges that I mentioned, and three contract pipeline dredges that we now have on the site, totals about 150,000 cubic yards a day. By the end of this month, we expect to have two more contract dredges on the site and hope to have a channel which will allow vessels up to 39 foot draft to cross the bar at high tide. Removal of the material in the Columbia River will cost about $45 million this year. We have already diverted $10 million from other high priority projects to get started on the work and we may need to divert some more to keep it going, but these funds should be restored to avoid unacceptable impacts later this year on the donor projects elsewhere.

COWLITZ RIVER

Sir, I would like to move up to the Cowlitz River.

The material from Mount St. Helens severely reduced the floodway—

Senator MAGNUSON. I know you are working on the Columbia River, but don't you have to go up the Cowlitz River?

General HEIBERG. Yes, sir, we will.

Senator MAGNUSON. You have to go up quite a way.

General HEIBERG. We have to go up to the confluence with the Toutle to do what we must do.

Senator MAGNUSON. That is what we are interested in now.

General HEIBERG. The channel is almost completely clogged with debris. The river's reduced capacity presents an extremely hazardous flood threat to Longview, Kelso, Castle Rock, and smaller communities along the river. We have not yet developed a completed plan for alleviation of this flood threat. The most promising plan, based on our preliminary analysis, appears to be restoring the river's flood-carrying capacity by removing the material in the channels and by providing several settling basins to catch additional material which will otherwise create future problems.

This plan also would prevent material now in the Cowlitz from moving down river into the Columbia River. Restoration of the Cowlitz River channel capacities would require removal of about 25 million cubic yards of debris at a cost of about $122 million. That is a large expense per cubic yard——

Senator MAGNUSON. In other words, your estimate of the expense of putting the Cowlitz River back in shape is more than that of getting the Columbia River back to normal?

General HEIBERG. That is exactly right.

Senator MAGNUSON. More than doubled?

General HEIBERG. Yes, sir. The problem is we have to put that material somewhere and we anticipate we are going to have to move it a great deal of distance; whereas in the Columbia, we do have a couple

of existing disposal sites so we can put the disposal material close at hand, and the expense is not driven up on the Columbia. Convenient disposal sites are not available, obviously, on the Cowlitz, it is a shallow stream and we have to put the dredge material somewhere on land.

We have not yet been able to get started on restoration of the Cowlitz since this effort is going to require dredges at least in the lower reach, the lower part down toward the Kelso end of the confluence of the Cowlitz and Columbia. We will have one dredge on site this week and we hope to have six contract dredges working on the Cowlitz by the end of August, about another 1½ months.

One of the problems facing us is that the material from Mount St. Helens is extremely abrasive and we expect it to be very hard on dredging plants. We estimate, for example, that pumps are going to wear out at about twice the normal rate.

TOUTLE RIVER

We also have a problem, sir, as we all know, on the Toutle River. I would like to move up the Toutle River next.

That basin has been completely reconfigured, as has been noted here, by the eruption. It is unrecognizable, particularly in the upper reaches. We understand that the volume of debris in this basin could approximate about a cubic kilometer. We tried to figure out how to put the cubic kilometer into terms that we could sort of grasp. The cubic kilometer, if you started it here at the Capitol and moved it toward the Lincoln Memorial, would be the height of the Washington Monument and would go from the White House, on one side, and the Tidal Basin on the other. I am not suggesting we do that, sir.

Senator MAGNUSON. There are some people who would like to have that done.

DEBRIS RETAINING STRUCTURES

General HEIBERG. Our concern with the Toutle River is to keep this massive amount of material from moving into the Cowlitz and Columbia Rivers. Our preliminary plan to accomplish this objective is to construct five debris restraining structures. We deliberately chose that term "debris restraining structures." These will not be dams, these will be structures to slow down the debris, at key points in the Toutle Basin, at an estimated cost of about $48 million. Let me also emphasize, sir, this is our preliminary plan. We think this is the solution, but we are not ready to say this is the final answer yet. This work is not yet started, but we expect we can be well along by the end of September. These debris restraining structures will be temporary, with an expected life of about 5 years.

EXCEPTION TO REGULATORY REQUIREMENTS

The appropriation language accompanying our requested supplemental would grant us temporary relief from the regulatory requirements of the Federal Water Pollution Control Act of 1972 as well as section 10 of the River and Harbor Act of 1899. This exception

would allow us to continue the emergency activities we now have under way until we are able to bring these activities into compliance——

Senator MAGNUSON. You want to be exempt from pollution control for the emergency?

General HEIBERG. For the emergency, yes, sir.

Senator MAGNUSON. That is very important, otherwise—I noticed over in Moses Lake, the dumping of this ash too close to Moses Lake and the pollution guys come in and say, "You can't dump it there, you cannot take it off the streets and put it there." This exemption is very important for you people.

General HEIBERG. I completely agree with you, sir. Although we are looking for this exemption, we will still continue to do what we are required to do, but we need time to do that.

CORPS RESOURCES FOR EMERGENCY WORK

Senator MAGNUSON. Does the corps have sufficient manpower and equipment—I know equipment is the problem, getting the dredges—available to enable you to meet the emergency needs?

General HEIBERG. Yes, we have about 375 of our corps people today working on the response to the Mount St. Helens disaster. If we need them from around the country, we will ship them in.

The equipment is problematical. The contract dredges had to be mobilized. They were spread all over the west coast. They are coming in. It takes a little while to get them mobilized and they have to be moved over by tugs and put into position, and we have to find disposal areas.

Senator MAGNUSON. In some cases the contract dredgers had to be taken off of the work they were doing in order to respond to this emergency.

General HEIBERG. Exactly. The seagoing dredges all came off active projects important to the west coast elsewhere.

RESTORATION OF COLUMBIA AND COWLITZ RIVERS

Senator MAGNUSON. Congressman Bonker.

Mr. BONKER. The corps has just performed magnificently in the Cowlitz and Columbia Rivers. I really appreciate the fine work you are doing. There are two misperceptions that should be corrected, and this may be the opportunity. One is the corps had attached a higher priority to the Columbia than the Cowlitz. I know that is not the case, but since you had dredging equipment in place in the Columbia, that was a rumor that circulated.

Is it not true that the dredging equipment that is required in the Cowlitz is of a different type and required a greater distance and effort to get the equipment in place than one will find on the Columbia?

General HEIBERG. Yes, that is right. The fact we were able to respond immediately on the Columbia was, quite frankly, because we had our three seagoing hopper dredges no further away than steaming distances. We pulled them up and moved them over. We need special equipment on the Cowlitz, although we can use pipeline dredges on the lower

stretch toward Kelso and Longview, and we are moving them in there, we had issued the notice to proceed to bring those pipeline dredges over within a few days after the disaster.

Representative BONKER. By and large you are using hopper dredges in the Columbia——

General HEIBERG. As we are bringing the pipeline dredges in, we are also using some of those in the Columbia because they are more appropriate to the remaining work we have. The hopper dredges were very effective in putting the pilot channel in to get the worst of the problem alleviated. Removing the rest of the material from the Columbia River is a job which should be done by pipeline dredges.

Mr. BONKER. Second, it has been indicated in Cowlitz County that work would be terminated within 8 or 10 days unless Congress acted on a supplemental appropriations bill. I was informed by Colonel Connell that you had sufficient funds in Public Law 99 to continue the work uninterrupted on the Cowlitz.

General HEIBERG. Sir, I will assure you we will continue to do the work as long as we have money available in the various funds available to the corps. Of course, we need this appropriation, the supplemental appropriation. As far as the short-term situation, we will continue to do the work we must to do what we have to do.

SCHEDULE FOR RESTORATION OF COWLITZ RIVER

Mr. BONKER. One final question.

Can you assure or can you give us some expectation that the dredging work in the Cowlitz will be complete in time to relieve any pressure of flooding which will come with increased precipitation in the fall? It is a tremendous concern to the people along the river and in the communities there that it is going to take an extraordinary feat.

Senator, it usually takes 15 to 20 years for the corps to go through the necessary studies, reports, funding, and so forth, to complete a job of this magnitude. But you are saying you can, in effect, complete the project within 4, 5, or 6 months.

General HEIBERG. Sir, we are aiming toward the October-November time period when the danger of floods rises. I believe we will be able to find the solutions and the disposal areas, and I know we can get the equipment in in order to do the bulk of the work on the Cowlitz by that period of time.

I cannot give you that assurance on the retention works I mentioned on the Toutle. That is a slightly different situation. That is not directly involved with flooding in the Cowlitz floodplain. That work might take us longer to get the right answer and get the equipment in. As I am sure all you all know, it is very difficult to get equipment into the Toutle now because the transportation system there has been pretty well demolished.

Mr. BONKER. Thank you, gentlemen.

Thank you, Mr. Chairman.

Senator MAGNUSON. What about the Forest Service?

REGULATORY REQUIREMENTS

Governor RAY. Excuse me, Mr. Chairman, may I make one statement about the corps?

Senator MAGNUSON. Yes, go ahead.

Governor RAY. I am aware of the problem with the disposal and was interested to hear your comment there. I also had some conversations with our own department of ecology in the State and we will be happy to work with you to try to find places available that are closer by so as to cut down both that time and expense of having to take disposal a great distance.

The same thing is true with respect to the statement that was made about Moses Lake, and the disposal of materials close to the lake. The department of ecology is well aware of the need to find places to put these materials right away and there is no danger of any action being taken against Moses Lake for that. The department is willing to put aside some of the necessary requirements under our State environmental protection laws just as soon as we are convinced there is not an immediate detrimental impact.

Senator MAGNUSON. I was going to ask that, too, because he is talking about an exemption from the Federal law and the State has a tougher ecology law than we have.

I was glad to hear you make that statement, the State is willing to grant exemptions and give waivers.

Mr. BONKER. Yes.

General HEIBERG. I appreciate your remarks, Governor Ray. We need to have the officials, both State and local, to work closely with us in order to find those areas.

I would like to make one other point about this material, though. It is not all bad. I would almost like to use dredge soil, rather than dredge spoil. I have seen what the volcanic nature of this soil can do. I hope we can find some areas where it will be a big plus where we put it.

ADDITIONAL QUESTIONS FOR THE RECORD

Senator MAGNUSON. We thank you for this report. We will be talking to you later. I will be talking to you about further appropriations.

I have some additional questions and Senator Hatfield has submitted some questions. Would you answer them for the record?

General HEIBERG. Yes, sir.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Questions Submitted by Chairman Magnuson

Question 1. What losses and impacts have the ports experienced due to the Channel closure?

Answer. It is too early to fully evaluate the economic losses resulting from closure of the Columbia River navigation channel. A recent study of Oregon Ports indicated that closure of the Port of Portland would cause a loss of about $4 million per day to the community. Similarly, closure of the Port of Vancouver would cause losses of about $1 million to that community. The Port of Portland has estimated that they suffered actual net losses between $3.5 and $5 million.

Question 2. Why is the restoration work on the river channel so costly?

Answer. A substantial portion of the material deposited in the Columbia River consists primarily of heavy, coarse sand and gravels. This material is difficult to dig and pump. Also, mobilization of the large number of contract dredges on an emergency basis, some from remote locations, will tend to increase the cost of the work. However, the primary reason why this effort will cost about $45 million, is that a vast quantity of material, now estimated at about 22 million cubic yards, must be removed from the river.

Question 3. What impact will the emergency work have on your other necessary workload in the Pacific Northwest, particularly dredging of other projects?

Answer. The mobilization of the Corps hopper dredge fleet is expected to have minimal impact. Restoration of project dimenisions at Coos Bay will be delayed and full project dimensions will not be achieved at Yaquina Bay this year. At this time, the mobilization of the pipeline dredges is not expected to have any major impact in the Pacific Northwest.

Question 4. Will this program cause additional impacts on your Fiscal Year 1981 dredging program in the Columbia River channel project?

Answer. The activity we now have underway will not increase our Fiscal Year 1981 requirements. However, the massive amount of material which has been deposited in the Toutle, Cowlitz and Columbia Rivers will continue to erode over time, and there is little doubt that our dredging requirements on the Columbia River in FY 1981 will be substantially higher than our historical average. We do not have specific estimates of the additional requirements at this time.

Question 5. What damages would occur if the levee systems are overtopped?

Answer. It is currently estimated that damages could reach $1 billion in the Longview-Kelso area and $300 million in the upper reaches of the Cowlitz River.

Question 6. I understand that the Engineers out our way believe that it is urgent for this work to be completed as fast as possible. Why is the completion of the proposed work considered to be in the urgent category, as compared with other restoration and rehabilization work?

Answer. The Cowlitz River channel is almost completely clogged with material from Mount St. Helens. Even relatively common flood events could overtop the existing levee systems in the Cowlitz basin and cause catastrophic damages, both to human lives and property. The next rainy season will start in October or November, and it is vital to restore a more adequate channel capacity by that time.

Question 7. Are these settlement basins the same structures I have heard referred to as dams?

Answer. No. The settlement basins are holes we plan to dredge in the Cowlitz River's bed to catch material being transported down the river. The debris restraining structures that we are considering for the Toutle River Basin have been referred to as dams by some people.

Question 8. Can you give a general description of these structures?

Answer. The debris restraining structures that we are considering would have dumped rock fill embankments about 30-feet high, with timber or gabion spillways. They would not have impervious cores, and would function only to retard debris migration from the Toutle River basin.

Question 9. Are they permanent structures?

Answer. No they would be temporary structures. We estimate they would be needed for about five years, until the Toutle River basin stabilizes. When stabilization of the areas above these structures occurs, they should be removed.

Question 10. Briefly, let me state that the reports of the effectiveness of the Corps of Engineers I have been receiving have been quite encouraging. I had the opportunity recently to talk to the manager of the Port of Kalama, located at Mile 72 of the Columbia, about the constructive use of sludge dredged from the conjested river. The Port of Kalama is in the process of building up the north port area, and would be very interested in working with the Corps to accept sludge. Has the Corps explored the possibilities of constructive dumping elsewhere on the Columbia? What steps are being taken to work with local communities to use the byproducts of this disaster productively?

Answer. The Corps of Engineers is studying the use of many sites for the deposit of dredged material, including the Port of Kalama's North Port area. The Port has started to prepare an Environmental Impact Statement on the use of the area. They are working with the resource agencies to address environmental concerns. However, no conclusions have yet been reached on the use of this site or other such sites in the area.

Question 11. In addition to dredging to allow ships to move through the Columbia and other rivers, is the Corps removing debris in order to prevent the snagging of fish nets?

Answer. The Corps does not expect to remove debris for the sole purpose of preventing damage to fishnets. Only a limited amount of wood debris is present in the Columbia River deposit. However, large quantities of debris have accumulated on Corps pile dike structures. This material could cause damage to the dikes, and if it breaks free might damage fish nets. An investigation is underway to determine if the material should be removed and how best to accomplish its removal and disposal.

Question 12. The Supplemental Budget Request totals $215 million for the Corps of Engineers for emergency activities associated with the Mount St. Helens disaster. Are the amounts requested based on completed engineering surveys and cost estimates for all emergency and restoration activities identified to date?

Answer. The amounts requested are based on the engineering surveys that we have been able to make to date. Definitive plans for restoration activities on the Cowlitz and Toutle Rivers have not yet been finalized. The cost estimates are the best estimates we can develop at this time, and are based on implementation of the plans and concepts which currently appear to offer the greatest prospects of satisfactorily resolving the flood control and navigation problems caused by the eruption of Mount St. Helens.

Question 13. Is it your testimony here this morning that the requested amounts are adequate to meet the needs and requirements that have been identified to date?

Answer. Yes, sir, the amounts requested are our current estimates of the total amounts that we can effectively use.

Question 14. Do you have the necessary legislative authority to carry out the recommended engineering plans for restoration and rehabilitation.

Answer. Our Counsel has found that we have adequate authority for all the activities we currently plan or are considering. Most of these activities are similar in concept to what we have done in other major disaster relief operations. One aspect of what we may do, that is somewhat unusual, is to provide some structures, or features, such as debris restraining structures on the Toutle River or settlement basins on the Cowlitz River, which would require a continuing commitment of funds in future years to maintain their effectiveness until the river basins stabilize. If the most promising plans currently under consideration are adopted in their entirety, we estimate that there would be a continuing requirement for about the next five years, of about $7.5 million a year, to retain the debris trapping effectiveness of these structures. There would also be a requirement to remove some of these structures once they had served their purpose and the river basins had stabilized.

Question 15. An amount of $45 million is requested to restore navigation on the Columbia River. What is the general plan for restoring this vital navigation project to conditions that existed prior to the eruption?

Answer. The Corps' three west coast hopper dredges cut a 200-foot wide pilot channel through the shoal to restore limited navigation. The Port of Portland's pipeline dredge OREGON, and contract pipeline dredges, are being used to dredge a 300-foot wide channel parallel and adjacent to the pilot channel. When this channel reaches nearly full depth, navigation will be switched to this channel and the original pilot channel will be widened and deepened. Dredging will then continue until the full authorized 600-foot wide, 40-foot deep channel is achieved on or about 30 November 1981.

Question 16. How many dredges are now working and what is the current status of navigation on the river?

Answer. Currently, the Corps' three west coast based hopper dredges, the Port of Portlands pipeline dredge and two industry pipeline dredges. On 6 June vessels up to 33 feet 11 inches draft were allowed to pass through the 200-foot wide pilot channel on high tide.

Question 17. When is it expected to have a channel that will take care of most normal traffic?

Answer. Dredging of the 200-foot channel south of the centerline will continue through June with an increasing depth available. It is anticipated that by 30 June the 300-foot channel being dredged north of the centerline by pipeline dredges, will be available. This 300-foot channel is expected to accommodate vessels with drafts up to 38 feet 8 inches beginning 1 July and will accommodate normal traffic.

Question 18. Where are you depositing the large quantity of material removed from the navigation channel?

Answer. The Corps of Engineers hopper dredges are disposing of the material in deep areas of the Columbia River outside the navigation channel. The majority of the material to be removed by pipeline dredges will be disposed of on Cottonwood and Howard Islands with a portion of the material to be disposed of on the Oregon shore downstream from the Longview Bridge. In order to stabilize the Columbia River navigation channel in the reach immediately upstream from the Longview Bridge, consideration is being given to construction of an island south of the navigation channel opposite the Port of Longview turning basin. Other alternatives are also under consideration for disposal of a portion of the material to be dredged.

Question 19. When do you expect to have full restoration of the navigation project?

Answer. It is anticipated that the 40-foot by 600-foot channel will be re-established by 30 November 1980, with additional dredging in the area south of the navigation channel extending into about 30 March 1981.

Question 20. What has been the impact on the Cowlitz and Toutle River Basins because of the eruption?

Answer. The impact on the Cowlitz and Toutle Rivers as a result of the eruption is that the hydraulic capabilities of both rivers have been reduced substantially. In the upper Cowlitz River, general carrying capability had been reduced from 70,000 cfs to less than 13,000. This reduction makes the danger from flood threat during the coming winter months severe. The total flood plain environment of the Toutle was destroyed.

Question 21. What is the proposed plan of work in the basins and what is the estimated cost of the proposed work by segment or feature?

Answer. No definitive plans have yet been adopted. Our cost estimates are based on the most promising plan which provides that for the reach of the Cowlitz River from the mouth to mile 7, 10 million cubic yards of material, at an estimated cost of $50 million, would be removed. From mile 7 to mile 25, 15 million cubic yards of material would be removed, including excavation of four settlement basins. We currently estimate that work in this reach would cost $71.5 million. In the Toutle basin, we are considering construction of five debris restraining structures at a cost of $48.5 million.

Question 22. When will the work start?

Answer. Work will commence on the lower reach of the Cowlitz River on 12 June.

Question 23. Why has this work not started as early as that in the Columbia River?

Answer. Suitable government equipment for the Columbia River 40-foot channel was immediately available. This was not the case for the Cowlitz River. Detailed surveys were needed in the upper Cowlitz in order to have data to evaluate alternative solutions appropriate for the area. Hopper dredges being utilize on the Columbia River are not capable of operating in the Cowlitz River. Flood threats on the Cowlitz River are lessening as we go into the dry part of the year. The October/November time frame is the serious flood threat on this river.

Question 24. What is the purpose of the settlement basins?

Answer. The settlement basins will trap the material before it moves on downstream and will make it easier to utilize land based equipment for its removal.

Question 25. Where will you dispose of the material from the Cowlitz and Toutle River Basins?

Answer. The Corps of Engineers staff in consultation with resource agencies are identifying all possible sites available for disposal of the material to be dredged from the Cowlitz River. Those

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providing the best technical solution with the least long-term environmental impact will be selected. Numerous land owners along the river have volunteered their property as disposal sites. Current plans for the Toutle River do not involve dredging.

Question 26. You state that exception to regulatory requirements will be included in the appropriation language request. Briefly explain why this exception is needed.

Answer. Without this exception provision for emergency activities, it might be contended that the Government is in violation of the law. During emergency situations standard processing procedures that might include public notices, comment periods, and public hearings would be waived to prevent unacceptable hazard to life or severe loss of property if time is taken to follow normal procudures. It is important to note, however, that although an exception is proposed, accelerated and abbreviated procedures will be expeditiously initiated and coordinated with appropriate Federal and State agancies.

Questions Submitted by Senator Hatfield

Question 1. When did the blockage of the Columbia River occur?

Answer. The Corps of Engineers became aware of the blockage when the HOEGH MASCOT grounded in the navigation channel in the Longview, Washington, area on the morning of 19 May.

Question 2. What was your reaction upon learning of the blockage?

Answer. Upon learning of the blockage, the Corps immediately ordered our three west coast hopper dredges to proceed to the shoal area. In addition, a survey boat was ordered to the area to determine the magnitude of the blockage. The hopper dredge BIDDLE arrived in the area on the evening of 19 May. The PACIFIC arrived from Coos Bay on 21 May and the HARDING from Eureka, CA on 22 May.

Question 3. Was the BIDDLE able to dredge in the channel when it first arrived?

Answer. When the BIDDLE arrived at Longview, WA, late on 19 May, the river was full of wood debris, and the BIDDLE was forced to retire to a protected anchorage area overnight. Dredging operations were begun on 20 May.

Question 4. How have you utilized your dredges to restore navigation?

Answer. The three hopper dredges have been utilized to dredge a pilot channel 200 feet wide through the 9-mile plug. Initially, the shoal was too shallow for the BIDDLE and the HARDING to work effectively, consequently the PACIFIC dredged a channel through which these larger dredges could follow and deepen. By 23 May these three dredges had managed to restore partial navigation. On 6 June, the hopper dredges had deepened the pilot channel sufficiently to provide for passage at high tide of vessels with drafts up to 33 feet 11 inches. Dredging of additional depth will continue through June.

Question 5. How many ships were trapped in the Columbia above the plug at Longview?

Answer. Thirty-three vessels were trapped upstream of the plug.

Question 6. Do you have a record of ships whose passage through the Columbia was delayed as the result of the plug?

Answer. At the outset, the U. S. Coast Guard limited passage to vessels having a controlling draft of 12 feet or less. The first commercial ships, aside from tug and barge traffic, passed through the channel on 23 May 80. A list of vessels passing the block is as follows:

VESSEL PASSAGE
PAST THE COLUMBIA SHOAL AT MILE 68

Date	Controlling Draft (Ft)	Vessel Passage Up	Down	Total
23 May 1980		1	3	4
24		1	-	1
25		1	2	3
26		1	-	1
27		2	1	3
28		2	-	2
29		3	-	3
30		3	1	4
31		3	2	5
1 June 1980		2	3	5
2		4	3	7
3		9	4	13
4		-	7	7
5	33' 4"	7	4	11
6	33' 11"*	5	5	10**
7	33' 0"*	0	5	5**
8 (projected)	33' 0"*	7	3	10**
9 (projected)	33" 7"*	3	1	4**

*Changes in tide result in decreased controlling draft allowed by U.S. Coast Guard. As of 9 June, two vessels, the LUCINA (requiring a 34-foot draft) and the TERRESA (requiring a 36-foot draft) are ready to leave but remain trapped up river until 12 June and 18 June, respectively.

**Require final verification from the Columbia River pilots.

Question 7. How soon after dredging was initiated did you pass the first ship?

Answer. Dredging was initiated on the morning of 20 May and vessel traffic began moving through the 200-foot pilot channel on 23 May.

Question 8. How much material must be removed to restore the Columbia River navigation channel?

Answer. The prism of the authorized 600-foot wide 40-foot deep navigation channel contains approximately 14 million cubic yards of material. In order to provide an acceptable and stable cross-section, an additional 8 million cubic yards also will have to be removed.

Question 9. At what estimated cost?

Answer. It is currently estimated that removal of the 22 million cubic yards of material will cost $45 million.

Question 10. How much additional material, at what estimated cost, will be required for removal to restore the Columbia's flood capacity?

Answer. The removal of the 22 million cubic yards of material to restore the navigation channel will provide an adequate channel for the Columbia River's flood flows.

Question 11. Have you identified disposal sites for all this material and met all regulatory requirements for its disposal? What are these sites and the capacity of each?

Answer. The Corps hopper dredges are disposing of the material in deep areas of the Columbia River outside the navigation channel. The majority of the material to be removed by pipeline dredges will be disposed of on Cottonwood and Howard Islands with a portion of the material to be disposed of on the Oregon shore downstream from the Longview Bridge. The Cottonwood-Howard Island site has a capacity of about 20 million cubic yards. In order to stabilize the Columbia River navigation channel in the reach immediately upstream from the Longview Bridge, consideration is being given to the construction of an island south of the navigation channel opposite the Port of Longview turning basin. The Corps of Engineers is working with the project sponsors to evaluate these and other alternatives.

Question 12. I understand that the Corps' hopper dredges, lacking pump-out capacity, are having to drop their loads elsewhere in the river. Do you anticipate there will be a need to re-handle this material and eventually dispose of it elsewhere?

Answer. The hopper dredges are depositing the material in deep water areas adjacent to the Oregon shore. Most of the material is being placed a sufficient distance from the navigation channel that it will not be a problem. It is anticipated that some of the material deposited by the hopper dredges will have to be removed again by a pipeline dredge.

Question 13. I understand the need to mobilize Corps hopper dredges to undertake emergency dredging work. Your response was very rapid and timely. However, this seems like an enormous amount of material to be dredged by three hopper dredges. Can they alone undertake such a task?

Answer. Restoration of the Columbia River Channel is most appropriately a pipeline dredging job. The hopper dredges have been used to open the pilot channel and restore partial navigation. The majority of the material will be removed by private industry pipeline dredges and the Port of Portland's pipeline dredge OREGON.

Question 14. Are these industry dredges normally regionally located?

Answer. All industry dredges currently committed to the Columbia River are from the West Coast.

Question 15. Are all of those dredges at the dredging site in Longview, Washington?

Answer. The Port of Portlands dredge OREGON started work on 23 May. On 6 June, Western Pacific's dredge McCURDY started work and their dredge WASHINGTON started on 9 June. Three additional pipeline dredges have been committed under the contract with Western Pacific.

Question 16. What is the reason for the delay?

Answer. The Corps entered into a contract with Western Pacific on 23 May. Three of the dredges had to be mobilized from Puget Sound and two from Long Beach, California. These cutterhead dredges are not self-propelled. A tug is required to move them. Since some must be moved considerable distances at sea, a significant amount of time is required to prepare for the movement of these dredges. Further, cutterhead dredges have considerable amounts of auxiliary equipment such as shore pipe, floating pontoon pipe, and/or barges, etc., required to support the operation of a cutterhead dredge. All of this equipment, depending upon the specific nature of the dredging work, must be transported also. This takes time.

Question 17. Can you provide for the record the date of the Industry dredges were ordered and the date they began work on the job?

Answer. The following table provides the mobilization schedule of Industry dredges.

Dredge	Contract Date	To Proceed Date	Start Work Date
McCURDY	23 May	23 May	6 June
WASHINGTON	23 May	23 May	9 June
JOHN FRANKS	23 May	10 August	23 August
MISSOURI	23 May	29 May	19 June
OLLIE RIEDEL	23 May	6 June	23 June

Question 18. Were other Corps and Industry dredges from other regions of the country considered for this work?

Answer. Contact was made with several major dredge-owning companies with dredges located along the Gulf Coast and the East Coast. The National Association of Dredging Contractors was also contacted for information. Generally the preparation and transport of a large cutterhead dredge required for the Columbia River would require 45 to 60 days to travel from the Gulf through the Panama Canal and thence up the Pacific Coast to the Columbia River. The 60-day mobilization seems to be the most realistic time requirement. The Corps, of course, has no cutterhead dredges along the East, Gulf, or Pacific Coast areas. Both Industry and Corps hopper dredges were considered. However, these dredges would require 2½ to 3 weeks to mobilize from the Gulf and East Coast to the Columbia River. Further, two of our hopper dredges--the GOETHALS and the LANGFITT--were engaged in emergency dredging on the Mississippi at the time Columbia navigation was blocked and are still engaged in essential dredging on the Southwest Passes of the Mississippi River.

Question 19. Can you use more dredges?

Answer. Not at the present time. There is but a limited space in which to work. We believe that with the dredges presently on the scene and currently being mobilized to the area, we have enough dredges to complete the work in a timely manner and without unnecessary interference with each other's activities and the passage of vessel traffic past the dredging site. Actually the Corps hopper dredges will not remain at the Longview shoal until the Columbia is restored. The small class PACIFIC is scheduled to depart 14 June 1980. The two medium class dredges--BIDDLE and HARDING--are scheduled for departure by 4 July 1980.

DEPARTMENT OF AGRICULTURE

U.S. Forest Service

STATEMENT OF MAX PETERSON, CHIEF, U.S. FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Senator MAGNUSON. The Forest Service had a great deal to do with this.

For the benefit of those who don't know, most of the land around Mount St. Helens was Forest Service land. The State had some lands. It is a national forest, the Gifford Pinchot National Forest, and the State has some lands up there.

Mr. PETERSON. Yes, sir.

Senator MAGNUSON. Were there any private lands?

Mr. PETERSON. Yes, I will use a map to describe this for the committee. I will go over the land ownership with you. It is about 50 percent National Forest within the devastated area and about 50 percent private lands.

PREPARED STATEMENT

Mr. Chairman, in the interest of time, since you have my statement, perhaps it could be entered in the record.

Senator MAGNUSON. We will put your complete statement in the record. Then just comment on it as you see fit.

[The statement follows:]

PREPARED STATEMENT OF R. MAX PETERSON, CHIEF, FOREST SERVICE

Mr. Chairman and members of the committee, we appreciate the opportunity to appear before this committee and share with you the information we have gathered concerning the damage to national forest system lands and the surrounding areas caused by the Mount St. Helens volcano eruption.

A brief chronology of events will place the situation in perspective:

March 20.—First earthquake reported by University of Washington Seismic Center. The Forest Service closed the mountain to all use and occupancy above the timberline.

March 27.—First eruption of steam and ash.

April 18—35,000 acres of Gifford Pinchot National Forest designated as Mount St. Helens Geological Area.

May 18.—Major explosive eruption. Closed the entire forest to entry without permit.

May 19 to present.—Intermittent emissions of steam and ash.

Throughout this period, we have been working closely with the U.S. Geological Survey, State agencies, local government units and others.

The Mount St. Helens eruption killed 24 people. An additional 54 are still reported missing. Over 96,000 acres of land were devastated. This includes 51,200 acres of national forest system land, 7,000 acres of State land and 38,000 acres of private land. Timber losses on the national forest are estimated at 800 million board feet of high quality timber with a value exceeding $100 million. All lodging operations on the forest

have been halted until safety and clean-up needs can be assessed. However, we anticipate that much of this can be salvaged. Other resource losses include:

Lakes, 169 moderately damaged to destroyed, over 3,000 surface areas involved.

Streams, over 3,400 miles moderately damaged to destroyed.

Big game killed—estimate—2,000 blacktail deer, 300 elk, 30 black bear, and 12 mountain goats.

Heavy anadramous fisheries damage due to high water temperature, floods, mud and debris flow.

Developed recreation sites—27 destroyed.

In addition, we have had extensive damage to roads, bridges, trails, administrative facilities, and private improvements under special use permits. Many property corners, controlling corners and posted boundary lines were obliterated.

The volcano activity has required that we conduct an ongoing, extensive public safety and impact evaluation program. In cooperation with local law enforcement ogranizations, we have placed guards on at least 80 access points to the area. This must be continued until the danger period ends. Heavy tourism and many scientific studies are predicted throughout the active life of the volcano. There are immediate plans for two mobile visitor centers. Temporary exhibits are now being constructed. By the end of summer, other visitor sites will be located and prepared if volcanic activity permits. Damage assessment work required for necessary immediate access, and the preparation of rehabilitation plans cannot be done within the current 1980 appropriation.

The immediate need to respond to the devastation is a comprehensive resource assessment. The Pacific Northwest region has formed an interdisciplinary team to analyze and plan for the total area impacted by the eruption, including non-Federal lands. They will look to the short and long-range needs. From this assessment, an action plan will be developed for necessary protection, utilization and rehabilitation of the resources. Some of the devastated area may be left in its current state, other areas can be salvaged and made productive again. To conduct this assessment, access to the area must be improved. The installation of temporary bridges and a program of dust abatement is needed to open sections of the transportation system.

Mr. Chairman, this concludes my opening remarks. I would be pleased to answer whatever questions you might have or furnish additional information you may desire.

AFFECTED LAND HOLDINGS

Mr. PETERSON. As you already pointed out, Mr. Chairman, Mount St. Helens is in the Gifford Pinchot National Forest. The map here shows Mount St. Helens in the center. The area to the northwest shows the mud flows down the two forks of the Toutle River. The blue line shows what we are calling the devastated area, which includes almost 100,000 acres of devastated area. Of that, approximately half is national forest land. About 7,000 acres of State land, State of Washington, and around 40,000 acres of private land.

I would like to return, if I could, Mr. Chairman, to the chronology of what happened before the volcano erupted so we have in mind a picture of the events that led up to this. Some 2 years ahead of the eruption, the U.S. Geological Survey published a booklet called "Potential Hazards of Future Eruptions of Mount St. Helens Volcano". We used this publication at that time and became concerned about where campgrounds were located, where public access to the area might lie, and where people might be staying in the forest.

Senator MAGNUSON. That was a document that wasn't read very well, was it?

Mr. PETERSON. It was read very much by our local people and by the State people. But, of course, two problems that Dr. Menard pointed out, it is difficult to predict within plus or minus 10 years when some

of these things will happen and also the magnitude of the events are difficult to predict. On March 20, the first earth quakes in the Mount St. Helens area were reported by the University of Washington Seismic Center. The Forest Service, on that day, closed the mountain to all use and occupancy above the timberline, based on this report.

CONTINGENCY PLAN

On March 27, there was the first eruption of steam and ash. On that same day there was additional closure of areas by both the Forest Service and the State. On April 9, which is 6 weeks ahead of the major eruption, there was a major Mount St. Helens contingency plan developed which included the State of Washington, the sheriff's offices of the counties involved and so on.

You might like to see that for your record. In my view, this is the first case of preplanning, some 6 weeks ahead of the major eruption.

[The information follows:]

MT ST HELENS CONTINGENCY PLAN

MT. ST. HELENS - EMERGENCY COORDINATION CENTER
AND RELATED ACTIVITIES
CONTINGENCY PLAN

INTRODUCTION: On March 20, 1980, an earthquake measuring at 4.2 on the Richter Scale, was recorded as having its epicenter within Mt. St. Helens. Seismologists monitoring the quake recorded additional activity which gave early clues that some volcanic activity was possible at this location.

As quake activities continued, physical evidence of avalanches on the mountain became apparent and necessitated a Forest closure to protect forest users. Persons in the Spirit Lake area during this initial phase experienced the physical tremors caused by quakes and observed the movement of trees.

U.S. Geologic Survey (USGS) and the University of Washington (U of W) monitored the activities and advised the District Ranger and the Forest of their magnitude. The Forest was advised early by USGS that the nature and frequency of the quakes were often a forewarning of volcanic activities.

This early linkage betwen the USGS and Forest Service was of an informal nature initially until it became apparent that Mt. St. Helens was truly awakening from a 123 year period of dormancy.

To cope with the above situation eventuality, required the building of an effective team of various agencies and organizations, and developing the linkages necessary to provide a coordinated effort. It required identification of issues and concerns by various levels of Government at County, State and Federal levels, as well as private industry.

PURPOSE: The purpose of this document is to give a brief resume of the formulation of the Emergency Coordinating Center to define the interrelationship of this organization, and to serve as a contingency plan.

By describing the current working relationship and linkages, it will be the purpose of this narrative to establish direction for organization development to handle (1) a localized volcanic event which necessitates a high degree of logistical coordination in the movement of the general populus, and (2) the organization needed to handle a status quo or monitoring situation. This later situation recognizes the need to develop the mechanics for rapid mobilization of key individuals and agencies.

NARRATIVE: It is important to recognize that the information contained herein is biased by the writer's access to data,

working associates, and working knowledge from within the Emergency Coordinating Center. Thus, it may not reflect in depth the contributions being made by external support services which are contributing to the total effort. An example would be the contribution of the Department of Ecology which has been concerned and involved with monitoring the environment.

HISTORIC BACKGROUND: The initial efforts related to the volcanic activity began with the March 20, 1980 quake report. Informal communication was established early with the University of Washington and U.S. Geological Survey.

From March 20 through March 26, information was shared between the District Ranger, Forest Supervisor, Deputy, Forest PIO, and the Forest Disaster Coordinators and University of Washington and U.S. Geological Survey. This consisted of seismic data, its interpretation, and implications.

During this period, USFS made contacts with Mt. Baker-Snoqualmie personnel to take advantage of the experience they developed in 1976 when Mt. Baker bagan its volcanic activity. Their Contingency Plan was reviewed as a format to be considered as well as what they had learned in mobilizing their efforts.

Continuous quake activity began triggering avalanches at Mt. St. Helens. On Tuesday, March 25, 1980, an area closure was implemented which restricted all activities above timberline and essentially closed the mountain to the general public (Refer to Exhibit No. 1). Press coverage was given to inform the public of the avalanche conditions and the quake activities on the mountain. Coordination with the press was done through the Forest PIO.

During the day, the Forest Disaster Coordinator contacted key individuals and organizations and established a 0900 meeting in the SO Conference Room for March 26, 1980. The purpose of the meeting was to develop a framework from which a united and coordinated response could be made to emergency situations.

USGS informed us that Don Mullineaux would represent their agency at this important coordinating meeting. Don's 1978 Geological Survey Bulletin 1383-C which he co-authored with Dwight Crandell entitled, "Potential Hazards from Future Eruptions of Mount St. Helens Volcano, Washington" would give him unique qualifications to assess the current situation.

By evening, the District Ranger and his staff had developed a disaster evacuation plan and coordinated this activity with Skamania Sheriff, the Forest Supervisor and staff personnel. This plan was reviewed and approved by the Forest Supervisor (Refer to Exhibit No. 2).

FORMULATION OF THE EMERGENCY COORDINATION COMMITTEE: On Wednesday, March 26, 1980, the primary County, State and Federal agencies and key adjacent landowners met to review the current situation which, at that time, indicated increasing seismic recordings.

The purpose of this meeting was to develop a framework for an interagency contingency plan which would provide a coordinated response to an emergency.

The specific objectives of the meeting and participants are illustrated as Exhibit No. 3.

All present recognized the need to develop an organization which had direct interlinkage with prime response agencies such as Sheriffs Office, State Police, State Highway, Department of Emergency Services, Pacific Power and Light, Department of Natural Resources, Forest Service and County Commissioners.

The following specific concerns were generated during the meeting:

1. Traffic congestion problems on N90 and 504.
2. Air space traffic control.
3. Sightseeing problems - need help of media to cut this to a minimum.
4. Potential flooding was a major concern to PP&L and the need to have a maximum lead time possible.
5. General safety of personnel adjacent to area.
6. The complexity of the emergency decision related to volcanic activity.
7. Data flow - interagency communications.
8. Need to develop range of geologic indicators and volcanic characteristics that would indicate the severity and potentiality of volcanic hazards.

The consensus of the group was to formulate a core group and call it the Emergency Coordination Center which would be located at the Forest Supervisor's office. The Forest Service was recommended to take the lead role and key agencies would establish a hot line with 24 hour service to their respective units. It was imperative to have direct linkage with Skamania County and Cowlitz and Clark County Sheriff's Offices, Department of Emergency Services, Pacific Power and Light.

From this, generate a concept for manning to meet emergency conditions.

Specific arrangements were made during the meeting to establish control on Road 504 to Spirit Lake. The discussion involved the principal effected agencies: State Highway, State Patrol, Cowlitz and Skamania County and the St. Helens District Ranger.

Thus began the immediate need to control the general public through a coordinated effort.

An indepth discussion on the specific concerns, issues and recommendations which influence the composition and subsequent Emergency Coordination Center Organization and its function is available for review in the official files at the Gifford Pinchot Supervisor's Office.

ACTIVATION: At approximately 12:45, March 27, 1980, a report was received that an eruption had occurred and the mountain was volcanically active. The Forest then manned the Fire Dispatch room to coordinate activities. Initial efforts included a disaster coordinator, logistics, resource personnel to man

phones, etc. USGS began evaluation of the data as reports came in and consulted with the University of Washington regarding seismic activity.

At approximately 1:20, Ranger Johnson began evacuating the Ranger Station at Pine Creek. Dialogue was established with Skamania County, State Patrol. Cowlitz County established a roadblock east of Cougar about 1:50 p.m.

An air space closure was sought about 2:00 p.m. to restrict aircraft. The Forest Air Officer worked with FAA to resolve how the closure would be implemented.

Contacts were initiated to activate the ECC organization. Contacts were made with DES, Sheriff Officers, PP&L and hot lines were ordered for those organizations. That evening, the phones were installed.

The Public Information Officer began building an organization to respond to the media and numerous public concerns.

At approximately 6:20 Forest Supervisor Bob Tokarczyk assigned Paul Stenkamp as Director of the ECC with Ed Osmond assistant for the night shift.

Communications during the initial four hours was provided by news media and commercial aircraft.

It became apparent that a formal system of aerial observation and reporting was necessary to provide scientific data and hazard evaluation.

At 1705 the first reports were received from a Forest aircraft which gave detailed information on the nature and extent of the volcanic activity. Both a Forest Service air traffic coordinator and a U.S. Geologist were in the plane to give a first hand account of the activity.

Thus began a method to deal with aircraft security and control and scientific observations. On the ground, verbal transmissions were logged in an official record and most conversations taped. Evaluations were done by USGS and hazard assessments made.

Data received was recorded in an official log. A situation update sheet was developed which summarized key events. It was necessary for a Geologist to review prior to routing so as to be sure the accurate data was presented.

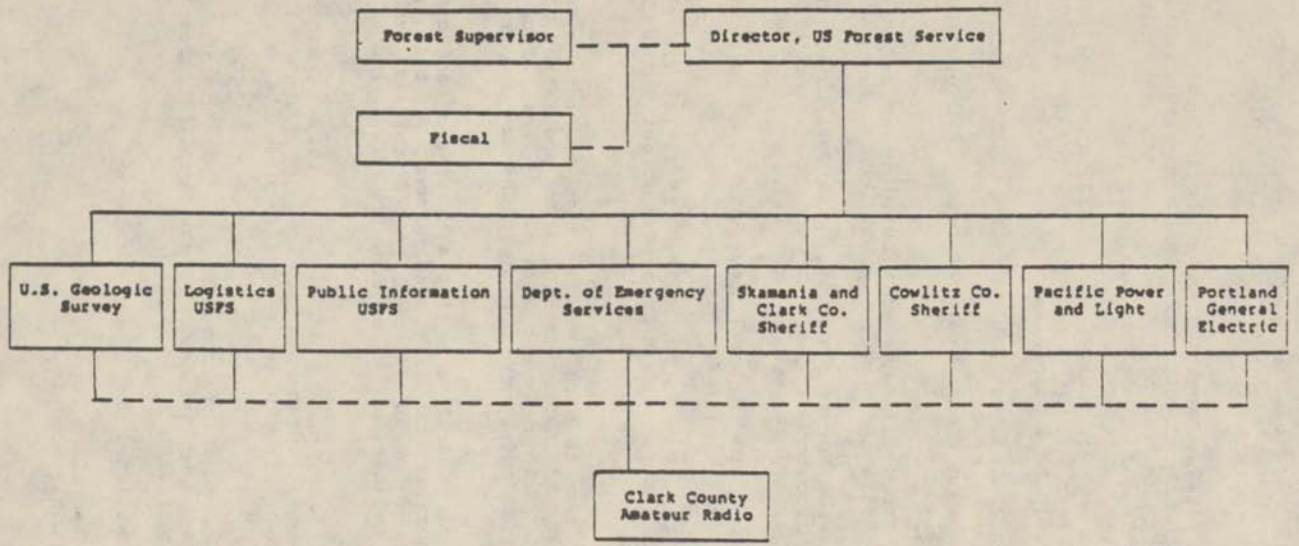
The form became the working communication tool to inform the ECC agencies and organizations, Forest public information officer, and the media.

Hot lines were established for direct access---

-- Skamania and Clark County Sheriff
-- Cowlitz County Sheriff
-- PP&L
-- DES
-- U of W
-- PGE

BASIC ORGANIZATION: While the basic organization has evolved somewhat from March 27, 1980 to present, April 1, 1980, the overall function has had only minor change to date:

EMERGENCY COORDINATING CENTER ORGANIZATION CHART - 4/2/80



OPERATIONAL PHASE:

The purpose of the ECC organization is to expedite a coordinated emergency response generated by volcanic activities.

The organization is composed of key agencies and organizations which are most likely to be directly effected by this phenomenon and/or can provide an emergency service response, either directly or indirectly, should it become necessary.

The primary objectives of this organization are:

1. Direct a coordinated response to minimize the potential loss to human life and property.

2. Be decisive in directing manpower effort and commitment of resources.

3. Facilitate accurate and timely exchange of ideas and concerns.

4. Provide a continuum of data flow concerning hazard assessment, evaluation, and decision.

5. Utilize more efficiently human and physical resources eliminating duplication of effort.

USFS DIRECTOR

The purpose of the Director is to provide command leadership and direction to the overall emergency effort. The position assures quality linkage occurs between the various agencies and private organizations. Data and situations are quickly processed, verified. The Director establishes priorities and directs the logistical and political phases of work taking into consideration the statutory purposes, goals and objectives, and constraints of respective organizations and government agencies.

A major responsibility is to assure the work is carried out in a safe and workmanlike manner. Coordinates agencies and organizations' contingency actions and develops and recommends an overall contingency action plan.

Establishes and maintains an effective 24-hour emergency monitoring operation with qualified individuals. Develops procedural methods to assure timely and effective data flow. Establishes and maintains key contacts with agencies and organizations.

Resolves managerial and organizational problems as they develop.

Coordinates activity with Forest Supervisor who is informed of problems or issues of major significance.

U.S. GEOLOGICAL SURVEY

Two areas of responsibility have been undertaken by the USGS in response to the current volcanic activities of Mt. St. Helens: the analysis of volcanic hazards and scientific investigations.

The scientific investigations are coordinated by Robert L. Christiansen and are being organized into several specific activity areas, outlined below:

Observational Volcanology: Making detailed observations of volcanic-vent activity and the dispersal and disposition of the resulting products; maintaining chronological written and photographic documentation of that activity.

Seismology: Establishment and maintenance of a seismographic network, recording seismic activity related to Mt. St. Helens, and preliminary analysis of the seismic data.

Deformation Studies: Measuring and recording changes in the position and form of the ground surface on the volcano and in its immediate vicinity.

Ejecta Studies: Collection of volcanic ash and other solid materials ejected in volcanic eruptions and measurement of the features and properties of the deposits they form.

Gas and Geochemical Studies: Collection and analysis of gases and condensed particles emitted by volcanic activity, principally by aerial methods but, if possible, by direct sampling of gas vents.

Surface-Water Studies: Measurement of changes in streamflow in streams affected by runoff from the volcano and the collection and chemical analysis of affected waters.

Thermal Emission Studies: Coordinating aerial infrared surveys, obtaining additional thermal measurements and making preliminary interpretations of the results in terms of volcanic processes.

The information collected in these investigations is interpreted in order to provide information on the current status of the volcano for management decisions by the Forest Service and local agencies and for the analysis of current or projected volcanic hazards.

Analysis of volcanic hazards is carried out directly at USFS headquarters for long-range outlook, daily outlook, and for specific times or events. These evaluations are and will be disseminated through other appropriate agencies by their representatives stationed at USFS offices, and by phone calls to other officials who need to know. Primary analyses are being made by D. R. Crandell and D. R. Mullineaux. In addition, Crandell is meeting with the groups of local officials to explain the kinds, magnitudes and locations of potential hazards.

USFS LOGISTICS

Logistics is responsible for many of the operational, such as communication to ground and air activities. It directs and coordinates the air support services with FAA including establishment of air security closures.

It provides the logistical support for the air arm including physical arrangements for pilots, aircraft, forest observers, and at times the physical control of aircraft within a five mile radius of the mountain. The actual administration of airspace is worked out with FAA on specific needs.

This function works closely with U.S. Geological Survey who provides geologists who accompany trained aerial observers on missions to collect raw data from the mountain.

Aircraft observations are transmitted to Logistics where data is recorded on tapes and in an official log: A USGS geologist also records this data and makes an assessment of the information in terms of scientific value, volcanic phenomenon, an potential significance.

Logistics makes other arrangements for purchasing, supply, delivery, and project support items.

It processes raw data and develops a Situation Report periodically throughout the 24-hour shift. The Situation Report is a key tool to disseminating information throughout the ECC organization.

A prime function is to determine the significance of incoming data and assure the proper individuals are informed.

The unit is at the direct disposal of the Director who uses the logistical arm for urgent dispatch of command decisions.

The organization is presently composed of Logistic Coordinator, Air Traffic Manager, Communications, and observers and 2-4 resource personnel.

Because of the amount of raw data received and access to geologic interpretation, logistics has a role in seeing that the Director is aware of potential safety considerations, and special resource or political considerations.

PUBLIC INFORMATION OFFICER

The primary purpose of the Information Center regarding the Mt. St. Helens eruption is to get the information to the news media in a manner where they can utilize it for their newspapers, radio and television reports as needed. After the mountain first erupted, nine Public Information Officer (PIO) positions were established to try to cover the massive amount of information that was coming in and being disseminated to the news media. Since that time, (PIO's) have cut back considerably. Presently there are two shifts of two people and are working from 5 o'clock in the morning until midnight.

The original effort required working out of the Supervisor's Office. On April 4, 1980, the (PIO's) moved the telephone answering service and press conferences to the Shilo Motel in Vancouver. USFS and USGS have already had one press conference and it seems to have worked quite well. What is needed now is to come up with a more definitive plan in regards to how many people are needed for different phases of information, depending upon what the mountain does.

DEPARTMENT OF EMERGENCY SERVICES

The Department of Emergency Services has established routes of communication to disseminate information to various levels of government.

A liaison position is manned at the center to disseminate information from USFS and USGS to the State Emergency Operations Center in Olympia. Data is sent to affected agencies such as Department of Transportation, State Patrol, Department of Natural Resources, National Guard, County Emergency Services, County Sheriffs, etc.

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This two-way communication is a vital link in the early warning system and developing a quick response in case of an emergency. They have a responsibility to the general public to make them aware of potential disasters and precautions they can take.

Special requests and needs are processed through DES for logistical support. Because of the interaction of DES and County Sheriff offices, these positions are in direct physical proximity to each other.

In the event of power transmission failure, DES has the service of Clark County Amateur Radio Club (CCAR) or other communications which can send emergency messages. Their radio is manned by volunteers from CCAR Club. They operate through Washington Emergency Services, using 147.060-BAWFAW Repeaters. They then link with 3.978 frequency for National Service coverage.

Their function is to send out up-date situations and screen incoming radio data which may help evaluation of emergency conditions.

CLARK, COWLITZ AND SKAMANIA SHERIFF LIAISON

An essential linkage from the ECC to the field is provided by two liaison positions representing three effected counties.

Hotlines have been established to assure 24-hour linkage with county sheriff offices. In addition, the respective Sheriffs have maintained personal contacts with the ECC from its inception.

Skamania County has maintained 24-hour manning of its hotline through two-12 hour shifts, and have represented Clark County in the coordination of activities. Cowlitz County hotline is manned 16-17 hours a day with Skamania County backing them up off-shifts.

The Sheriff's office personnel at the Coordinating Center disseminates information from USFS and USGS, PP&L and DES. This information is transmitted through hotlines to Kelso (Cowlitz County Sheriff) and Stevenson (Skamania County Sheriff).

The Sheriff is the front line and has prime responsibility in dealing with disasters. To date, the Sheriffs have developed or implemented evacuation plans (See Evacuation Plans).

In addition to this preparation, the principal activities conducted by Sheriff liaisons have been:

1. Maintain quality flow of data between the organizations. Verifying data - Killing rumors and faulty information.

2. Coordinate logistics of roadblock and access control. Review road restriction at shift change 0600 and 1800 and make recommendation to Center Director after verifying field situations. Instructions for access control have been personally issued by the Director to assure public safety and uniform understanding of rules.

This coordination is an essential step for an effective control of access.

3. Screen requests for roadblock access, for USGS scientific community, private landowners, and industry.

4. Coordinate the movements of industrial equipment out of danger area.

5. Maintain public relations with media when appropriate.

6. Coordinate with State Patrol manning 504.

7. Receive information from Sheriffs for authenticity.

8. Evacuation plans have been developed by the respective sheriff's organization.

PACIFIC POWER AND LIGHT

The Swift Creek Hydroelectric Project of Pacific Power and Light Company, uppermost of three such projects on the Lewis River, is less than seven miles from timberline on the mountain. Properly operated in the event of an eruption, Swift Creek reservoir has the potential to impound mud and other volcanic debris resulting from the eruption; thereby greatly reducing the potential for downstream damage from these sources. Improperly coordinated with other agencies, the displacement of water impounded in the reservoir by mud or other debris during an eruption could result in additional risks.

Reporting action structure:

Reporting - coordinator reports directly to Elwood Hedberg, Vice President, power operations, and either through Hedberg or directly, to Robert Moench, Senior Vice President, engineering power operations. Day shift (Bacon, who can also function as spokesman) also reports through Director of Communications, Jack McIssac, to PP&L President Eldon Drennan.

Action - A direct telephone line links the coordinating center with the six-state system dispatching center in Portland and the Lewis River dispatch center located at Merwin plant. Both centers have direct microwave communication with Swift control room.

Functions of Center:

1. There are two operators on duty at Swift. The center must obtain information concerning conditions on the mountain to enable them to evacuate, should conditions warrant.

2. Serve as company spokesman with the media.

3. Coordinate with other agencies.

4. Obtain data or other information from, and for, other agencies or company personnel.

5. Clear essential company personnel through roadblocks.

PORTLAND GENERAL ELECTRIC

Foundation Sciences, Inc., Geotechnical Engineers, is operating from the Emergency Coordination Center to advise Portland General Electric of conditions and events at Mt. St. Helens. They report to the shift supervisor at Trojan plant about every four hours or when significant events occur.

A hotline is maintained by FSI personnel on duty for 8 hour shifts around the clock. At present, shifts are manned by: D. H. Griswold, day; Dale Timmons, swing; W. C. Sidle, graveyard. The work of FSI personnel is under the direction of Clive (Rick) Kienle, Volcanologist, FSI.

They have been supplied with information on activities of Mt. St. Helens by updates prepared in the Emergency Coordination Center and by occasional spot reports of events of particular interest. Their additional source of information is Portland State University Seismic Center.

Their basic concern is ash fall and wind direction.

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND WASHINGTON STATE PATROL

The Department of Transportation (DOT) and Washington State Patrol (WSP) have assisted the emergency coordination effort since the initiation of the ECC in planning, coordinating, and implementing of road security measures.

Also, they initiated a program for safe public viewing areas which took great pressure from road closure points.

PYROCLASTIC FLOWS

General Comments: Pyroclastic flows occur at rapid rates up to 70-200 miles per hour; thus it is essential that evacuation is done prior to this volcanic phenomenon. Based on evaluation of previous flows, the highest probability occurs within a radius to 2-1/2 miles of the mountain and is considered Low Volume Flow.

A Moderate Volume Flow generally radiates out from the mountain for approximately 5 miles. Should this volume occur, it would effect an occupant and property in the Spirit Lake area. Presently HARRY TRUMAN is the only occupant of the area and has refused to leave.

High Flow Volumes have the potential for property destruction and loss of human life if precautions are not taken.

Of main concern is the two MAN PP&L CREW at the dam site. Additional manpower may be at the site from PP&L due to seismic activity in that area. COMMUNICATION MUST be maintained 100 percent.

Due to the nature and speed of travel of PYROCLASTIC FLOWS - EVACUATION MUST BEGIN IMMEDIATELY at the first indication of potential flow!

MUDFLOWS

General comments: Mudflows can move at speeds ranging from 50 miles per hour or more on steep slopes to 20 to 30 miles per hour on lower gradients. Mudflows move down river channels and valley floors, and could be formed very quickly and without warning. The anticipated speed of mudflows of large or intermediate size probably would not permit effective warning and evacuation in areas within 50 miles downvalley from the volcano.

Mudflows of small volume are the most probable and have the highest frequency. Areas on the flanks of the volcano and to a distance of about 3 miles beyond its base could be affected. They can be caused by the kind of volcanic activity that is going on now.

Valley floors within a distance of 12 to 15 miles from the base of the volcano could be affected by larger, but less frequent, mudflows. Mudflows like these could bury roads and make them impassable, and could carry away bridges and bury structures in areas they cover. Mudflows of this size or larger are not anticipated in the immediate future with the kind of volcanic activity occurring now.

Mudflows of large volume, but of low frequency and probability, could affect the floors of the valleys of the North and South Forks of the Toutle River, and the Kalama River at least as far downstream as their mouths. Although the valleys of Swift, Pine, and Smith Creeks and the Muddy River could be affected by mudflows, it is believed that Swift Reservoir is now low enough to accommodate any mudflow of predictable size.

ASH FALL

Ash can be erupted high above the volcano and carried by winds in different directions at various altitudes. Deposition of the ash depends on height of the eruption column and wind directions and speeds. Adverse effects of ash decrease with distance from the volcano, but increase with volume of ash erupted. Computer programs are available to predict directions and distances of ash transport by wind after a major eruption. For methods of protection from ash fall, see pages 17 and 18.

Often associated with LARGE ash eruptions are high energy electrical storms. LIGHTNING CAN BE A MAJOR HAZARD and has caused significant loss of life in the past. Operations close to the mountain must take this factor into consideration.

"ASH FALL" -- Contingency Plan

A. MODERATE EMISSIONS

		Who	How
1.	Situation Updates Sheet	DES	Hot Line
		Skamania	Hot Line
		Cowlitz	Hot Line
		Clark	Hot Line
		PP&L	Hot Line
		PGE	Hot Line
2.	West and South Quadrants		
	a. Inform PP&L Dispatcher	PP&L	503-243-7023
	Merwin Plant	PP&L	206-225-8191
	b. Inform - Trojan	PGE	503-556-3713 Ext. 256
	c. Inform - Counties	DES	Hot Line
	- Federal Emergency Mgt. Agency	DES	Hot Line
	- Ore. State Emergency Services	DES	Hot Line
	- All State Agencies	DES	
	1. Wash. State Patrol	DES	
	2. Dept. of Ecology	DES	
	3. Dept. Natural Resources	DES	
	4. Dept. of Fisheries	DES	
	5. Dept. of Game	DES	
	6. Social & Health Svcs	DES	
	7. Utility & Tran. Comm.	DES	
	8. DoT (State Highway)	DES	
	9. Governor's Office	DES	
	10. PCAA	DES	
	11. State Park & Rec. (City of Portland)	DES	248-4687
	12. Military Dept.	DES	
	13. Archeology & Historic	DES	
	14. State Commun. Colleges	DES	
	15. State Universities	DES	
	16. Labor & Industry	DES	
	17. Lt. Gov.	DES	
	18. EPA	DES	
	19. US Fish & Wildlife Svc	DES	
	d. Bull Run Watershed	Logistics	668-8528
3.	NE Quadrant: Yakima County	DES	
	State of Idaho	DES	

		Who	How
B.	HEAVY EMISSIONS (25 mile Zone)		
1.	Inform person manning Road Control Points	Co. Sheriff	Hot Line
		F.S.	Radio
	Consider Evacuation		
	PP&L		
	F.S. - Road Control Points		
	Sheriff - Road Control Points		
	Others: (if applicable)		
	Same as A2 plus 2. Additional municipal supplies:	Logistics	
	Note: DES will inform appropriate municipal watersheds concerning ash fall. (See Appendix - Municipal Watersheds Potentially Affected.)		
3.	Media Contacts	PIO	
	Inform of Situation		

This bulletin is from the U.S. Geological Survey and is for planning purposes. It is not intended to mean that a major volcanic eruption is imminent.

WHAT TO DO WHEN A VOLCANO ERUPTS

MOST IMPORTANT -- Don't panic, keep calm.

If volcanic ash begins to fall heavily:

Stay indoors

If you are outside, seek shelter, such as a car or building

If you cannot find shelter, breathe through a cloth, such as a handkerchief, preferably a damp cloth to filter out the ash

When air is full of ash, keep your eyes closed as much as possible

Heavy falls of ash seldom last more than a few hours, only rarely do they last a day or more.

A heavy fall of ash may cause darkness during daylight hours, and may temporarily interfere with telephone, radio, and television communication.

Do not try to drive a car during a heavy fall of ash. The chance of an accident will be increased by poor visibility.

A thick accumulation of ash could increase the load on roofs, and saturation of ash by rain could be an additional load. Ash should be removed from flat or low-pitched roofs to prevent a thick accumulation.

Valleys that head at a volcano may be the routes of mudflows, which carry boulders and resemble wet, flowing concrete.

Mudflows can move faster than you can walk or run, but you can drive a car down a valley faster than a mudflow will travel.

When driving along a valley that heads on a volcano, watch up the river channel and parts of the valley floor for the occurrence of mudflows.

Before crossing a highway bridge, look upstream. Do not cross a bridge while a mudflow is moving beneath it.

The danger from a mudflow increases as you approach a river channel, and decreases as you move to higher ground.

Risk from mudflows also decreases with increasing distance from a volcano.

If you become isolated, do not stay near the river channel -- move upslope.

Hazards are greatest at the volcano itself, and diminish with increasing distance. During an eruption, move away from a volcano, not toward it.

PRECAUTIONS TO DATE

Forest Service - 4/1/80	Pine Creek Ranger Station began physical movement of property to Chelatchie this day.
ECC - 4/1/80	Loggers and contractors moving equipment out with close coordination with ECC - Sheriff - IP.
Skamania County Sheriff	Given orders to North Wood Unit to vacate their residences.
Strict Road Closures Implemented --	Roads: N90 - Lewis River N818 - Merrill Lake 504 - Camp Baker Healy Rd east of Chelatchie N73 -
Strict Airspace Security	FAA and FS
Monitoring Program	U of W - Seismic Data USGS - Data Collection DOE - Air Quality Sampling DOE - Water Quality Sampling Nat. Guard - Infrared Photo US Fish & Wildlife Svc - Hatchery
Several Assessment Meetings	These have been attended by ECC members and affected agencies and organizations. They are generated on an as-needed basis (continuing).
Evacuation Plans	Prepared by respective County Sheriff.
Media Exchange	Numerous public information programs have been conducted by USGS, USFS, to inform forest users of potential hazards and current situation.
State of Emergency Declared by Governor	Allowed partial activation of guard to assist with immediate control problems. Authorized other State agencies to assist.

EVACUATION PLAN FOR COWLITZ COUNTY

The following data describes the evacuation:

	Who	How
1. COUGAR		
Fire District #7 will evacuate the town. Brochures have been given to residents describing the process	Cowlitz Co. Sheriff	1. Hot Line 2. 206 577-3093

FIRE ALARM will signal evacuation is in process.	Fire District	238-5226 231-4237 238-5227 238-5224
Personnel will assemble at YALE SCHOOL approximately five miles west of Cougar.		
Additional instructions will be given and evacuees will proceed to AMBOY by going south on 503 through Chelatchie.		

2. TOUTLE

Fire District #3 will respond and evacuate the town	Cowlitz Co.	Hot Line
A FIRE ALARM will give warning. Persons will be contacted by phone or in person. They are to proceed west on 504 and assemble at CASTLE ROCK.	Fire Dist.	274-8548

General Information: Temporary housing has been arranged at the Cascade Middle School in Longview as well as the Columbia Heights Assembly of God Church in Longview. The Salvation Army has volunteered to provide food to the evacuees.

In the event of an emergency, the Cowlitz County Sheriff's Office will notify private logging operations.

USAF Pararescue 304 ARRS is available for emergency airlift operations through County Sheriff's and Department of Emergency Services request. Operations need to be coordinated through FAA.

Local radio stations have been alerted.

Ham radio operators and CB'rs are in operation.

EVACUATION PLANS FOR LOGGING OPERATIONS

To date, close coordination has existed between the ECC and the primary industrial companies; e.g., Burlington Northern, Weyerhaeuser, and International Paper, as well as smaller companies.

These companies are maintaining direct communications with their field personnel. In the event of a need to EVACUATE, they should be directly contacted by USFS LOGISTICS. Refer to page 26 which establishes priorities for individual company contacts. Similarly, the DNR and St. Helens District Ranger should be informed immediately of the situations.

At this time, it appears that the general public will be excluded from some operation areas; but logging operations will be permitted access as long as WAIVERS are signed, and constraints, such as direct communications, are met.

DNR, working closely with their respective sheriff department and affected industries, should work out emergency EVACUATION

PROCEDURES for all State and private lands likely to be affected.

Similarly, the Gifford Pinchot National Forest, through the District Ranger, should work out similar arrangements with their cliental on Federal lands.

FOR A QUICK EVACUATION RESPONSE, THERE WILL BE A NEED TO KNOW LOCATION OF FIELD OPERATIONS DAILY.

Department of Emergency Services is in the process of developing a backup system utilizing EBS radio capacity to ALERT WORKERS AND GENERAL PUBLIC should an evacuation be necessary.

The intent is to have industrial operators tuned into established radio program should an emergency message become necessary.

DES will explore this possibility and develop a brochure or handout to explain the system to persons likely to need the data.

This information will become an intrical part of the Contingency Plan when developed.

Refer to "Quick Call Up Response", page 26 for key telephone contacts to industry.

Both USFS Logistics and DES will contact logging operators.

The DNR and USFS ST. HELENS RANGER will have primary responsibility to inform operators on their respective areas.

OPERATION OF EMERGENCY COORDINATING CENTER IN A SURVEILLANCE MODE:

A great deal of knowledge and experience has been gained since the initial volcanic activity, March 20, 1980. Of particular significance is the ability of Agencies and key Organizations to work in an interdisciplinary mode.

Presently all ECC members have qualified individuals to man on a 24 hours basis. These individuals know the system and the vital linkage arrangements with their respective operations.

Based on recent discussions with USGS personnel, it appears that current monitoring devices and assessment of data should give a 3-4 hour warning prior to a major eruption. While this is no guarantee, it does seem realistic based on current volcanic behavior.

Thus, reducing the current organization seems reasonable as long as a "fail safe" quick activation system is maintained.

The following information describes the surveillance mode:

A. Physical arrangements

1. Continue to use the Logistic operations as the nerve center in the Gifford Pinchot Supervisor's Office. Provide minimum level of manning to activate system on 24-hour basis.

2. Continue to utilize the S.O. conference room for USGS personnel and their operation.

3. Keep Hot line phones available for quick call up and emergencies dispatch (these phones will not normally be manned in a SURVEILLANCE MODE unless there are special needs).

4. Media coverage - the Forest PIO will continue to coordinate with U.S. Geological Survey to assure timely information flow, and establish a location that minimizes the impact on Forest Operations.

B. Manning:

USFS — Provide 24-hour coverage, at a reduced manning level, that will activate the ECC operation should an emergency arise.

USGS — Provide essential personnel for field monitoring, scientific evaluation and hazard assessment. Provide periodic media reports --- coordinate effort with Forest PIO.

Maintain linkage hot line in University of Washington.

PP&L — Will continue to man a 24-hour hotline as an interim measure until further stability of the situation is achieved.

PGE — Will maintain their hot line until their plant is shut down for normal maintenance.

SHERIFFS' OFFICES — Will continue to assist in the road security within their authorities and constraints and coordinate with other state agencies assisting with this job. Sheriff's and State Patrol will continue to coordinate their respective effort.

It will not be necessary to man the 24-hour hot line while in this mode. If activation is necessary, they will immediately reinstate the 24-hour hot line.

DES — Will maintain a 24-hour Duty Officer in Olympia who will contact the appropriate personnel to man the ECC operation should an activation become necessary.

C. System to Update Emergency Coordination Center Personnel and Affected Logging Companies:

USGS will prepare a daily update by 0900 while in a SURVEILLANCE MODE. This information will be supplied to the Forest PIO who will forward it to DES by 1000 each day.

DES, in turn, will see that all agencies listed on pages 15 and 16, item A.2c of Ash Fall Plan are timely informed and data gets to working levels.

USFS will see data gets to St. Helens Ranger District.

PP&L and PGE will pick up hard copies at the Gifford Pinchot Supervisor's Office each morning.

DNR will see that major logging companies are informed of updates.

NOTE: DES can be reached through 753-5255.

D. FAA Contacts for Priority:

FAA should still require flight plans and advanced notification of 6 to 12 hours for all study aircraft and Forest Service aircraft.

USGS planes and helicopters should have first priority for geological studies being conducted on the mountain.

Forest Service aircraft should have second priority for photography and VIP visits until such time that fire season has been declared or fire personnel of the Gifford Pinchot National Forest deem it necessary to keep air surveillance due to fire threat because of activity created by the mountain. This should also include air detection for the overall Forest protection flight route which will be put in a fire plan prior to fire season.

Third priority should be for aerial operations directly associated with monitoring the environment, such as that currently being done by PGE.

Media needs should follow priorities 1 through 3.

FAA needs to be notified of any ash that is vented above 20,000 feet or that goes downwind 2,000 feet above ground over a 20 mile radius for aircraft safety purposes.

E. Interim Guides for Roadblocks - Mt. St. Helens Area:

504 & 505 Starting on April 5 for approximately 2 weeks, will be manned at the current level of personnel with 24 hour coverage. The unmanned road blockade will remain at MP 35. Personnel manning that roadblock will be a mixture of National Guard, Washington State Patrol, Fisheries, and Game Department (Washington State Department of Transportation will explore a gating of Highway 504 near the 36 to 42 marker.

Criteria of Access:
1. Workers.
2. Homeowners, residences, cabin owners.
3. Emergency vehicles.

503 (Jack's Store) - All roadblocks and barricades will be manned by the Washington State Patrol and National Guard. Will be discontinued at 1800, April 8.

N818 - U.S. Forest Service will sign N818 effective April 8.

N90 - The gate on Swift Canal will remain closed until approximately April 9 and then manned approximately April 10 and then access will be by a disclaimer release form.

Criteria of Access: 1. Workers.
2. Cabin owners.
3. Emergency vehicles.

N73 - Gate will remain manned for approximately 2 weeks. Access will be by disclaimer release form.

Criteria of Access: 1. Workers.
2. Cabin owners.
3. Emergency vehicles.

NOTE:

(1) Road control needs will no doubt change during the implementation of the contingency plan. Any changes will require close and timely coordination by affected agencies. Road security will become increasingly more difficult as snow recedes.

(2) All ECC members agreed the present system of disseminating information is good, i.e., "SPEAKING IN ONE VOICE" to media and cross-coordinating plans and direction. This will continue to be an ECC objective.

Skamania County's Waiver Format will be included in the Contingency Plan when it is available. This form is to be completed by persons entering road control points.

EMERGENCY ACTIVATION MODE - "QUICK CALL UP RESPONSE"

It is essential that all ECC members commit themselves to a 1-2 hours response time should emergency measures become necessary. To meet this response time, it may be necessary to develop a standby or call status for key people; however, this would be at the discretion of each agency or organization. Each agency must keep logistics daily informed of their key (quick response) personnel's location!

During this call-up mode, it is imperative that knowledgeable persons who have been in direct support of current activities by the key players. THE ACTIVATION PERIOD SHOULD NOT BE A TIME FOR TRAINING.

Manning would be similar to a fire, where all key individuals respond. The first shift would normally be extended with a DEFINITE SHIFT SCHEDULE after a 24-hour period.

The USFS LOGISTICS will maintain a minimum size crew on a 24 hour basis to initiate the "Quick Call Up Response" if necessary. Agencies and organizations will be contacted in the following priority:

ACTIVATE THE FOLLOWING PERSONNEL:

		DAY	NIGHT
A.	U.S. NATIONAL FOREST SERVICE:		
	USFS LOGISTICS (24 hr.)	206-696-7575	
	Information	206-696-7500	
	Paul Stenkamp - Fire	206-696-7518	206-696-2397
	Jim Unterwegner - Public Information	206-696-7505	206-573-6764
	George Theisen - Fire	206-696-0728	206-694-2282
	Mike Lowry - Fire	206-696-7575	206-694-9115
	Ed Osmond - SO Staff	206-696-7524	206-573-6543
	Linda Weimer - Fire	206-696-0727	503-249-8107
	Kenneth Johnson - District Ranger.	206-	206-687-5507
	Ben Hurliman	206-696-7544	206-892-0263
	Evar Knudtson	206-696-7516	206-256-3591
B.	USGS (24 Hour Coverage):		
	Rocky Crandell	206-696-7668	
	Don Mullineaux	206-696-7668	
	Dan Miller	206-696-7668	
	Rick Hoblitt	206-696-7663	
	Bob Christianson	206-696-7663	
C.	COUNTY SHERIFFS:		
	Clark County Dispatcher (24 hrs)	206-699-2207	
	Business Number	206-699-2211	
	Cowlitz County Dispatcher (24 hrs.)	206-577-3090	
	Office	206-577-3092	
	Skamania County Dispatcher (24 hrs)	1-800-572-9832 509-427-5626	
	Lewis County Dispatcher (24 hrs.)	206-748-8887	
D.	PACIFIC POWER AND LIGHT:		
	Systems Dispatcher (24 hrs.)	503-243-7023	
E.	DEPARTMENT OF EMERGENCY SERVICES:		
	Business Hours	206-753-5255	
	After Hours	206-753-5990	
F.	WASHINGTON STATE PATROL:		
	(24 hrs.)	206-696-6162	
G.	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION:		
	Dick Coffman	206-696-6761	206-693-5789
	Don Cox	206-696-6762	206-695-8864
	Dick Carroll	206-696-6621	206-574-2370
H.	PORTLAND GENERAL ELECTRIC:		
	Shift Supervisor (24 hrs.)	503-556-3713 (Ext 256)	
I.	DEPARTMENT OF NATURAL RESOURCES:		
	Ken Herman	206-696-6644	206-574-4928
	John DeMeyer - Castle Rock	206-696-6644	206-456-4708
	Neal Smith	206-696-6644	206-274-8567
J.	NATIONAL GUARD: (Liaison w/F.S. in S.O.)		
K.	BURLINGTON NORTHERN:		
	Dick Frohne	206-636-2650	206-425-9953
	Roger Wimer	206-636-2650	206-636-1076
	Greg Swanson	206-636-2650	206-423-5351

		DAY	NIGHT
L.	WEYERHAUSER:		
	Jack Schorning - Longview	206-425-2150 Ext. 690	206-423-3561
	Jim Rombach - Longview	206-425-2150 Ext. 676	503-556-3801
	Ross Graham - Longview	206-425-2150 Ext. 676	206-673-5356
	Bob Williams - Longview	206-425-2150 Ext. 589	206-636-2322
M.	INTERNATIONAL PAPER:	(Good 24-hrs.)	
	Frank Pumprey (Longview).	206-247-5411	206-269-4591
	Pete Quast, Longview	206-247-5411	206-686-3371
	Don Ward, Longview	206-247-5411	206-687-3901
	Chelatchie Prairie (Closed 0001-0600).	206-247-5419	

ALERT MODE

Until such changes occur and while the volcano is in a low level of activity, the following personnel may be contacted through the numbers listed below. The answering service will connect the calling party to the U. S. Forest Service Duty Officer on calls after 5:00 p.m.

	Duty Officer	Day	Night
(1)	U.S. Forest Service Logistics Coordinator	206 696-7575 206 696-0727	206 694-6421
(2)	U.S. Geological Survey	206 696-7663	206 694-6421

APPENDIX (Exhibits)

EXHIBIT #1

ORDER
OCCUPANCY AND USE

GIFFORD PINCHOT NATIONAL FOREST

Pursuant to 36 CFR Section 261.50(a), the following act is prohibited on the area described on the attached map, Exhibit A, of this order, the slopes of Mt. St. Helens above tree or timberline, all within the St. Helens Ranger District of the Gifford Pinchot National Forest, until further notice, to protect the Forest user from avalanche hazards.

Entering into or being upon any area which is closed for the protection of public safety, 36 CFR 261.53(e).

Pursuant to 36 CFR Sec. 261.50(e), the following persons are exempt from this order:

(1) Any Federal, State, or local officer, or member of an organized rescue or firefighting force in the performance of an official duty.

Done at Vancouver, Washington

This 25th day of March, 1980.

Robert D. Tokarczyk

ROBERT D. TOKARCZYK
Forest Supervisor
Gifford Pinchot National Forest

Violation of these prohibitions is punishable by a fine of not more than $500.00 or imprisonment for not more than six months or both. Title 16 USC Section 551.

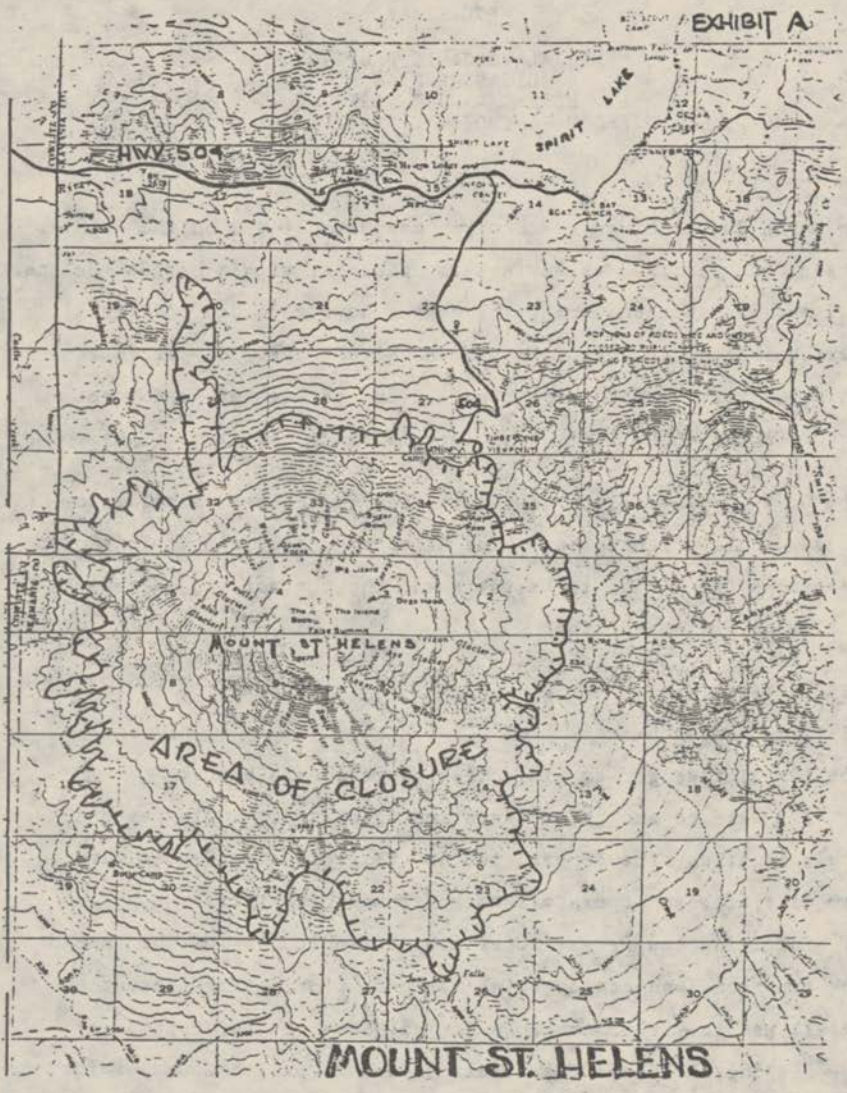
EXHIBIT A
HWY 504
SPIRIT LAKE
MOUNT ST HELENS
AREA OF CLOSURE
MOUNT ST. HELENS

EXHIBIT #2

SPECIAL VOLCANIC ERUPTION
DISASTER PLAN
ST. HELENS RANGER DISTRICT
GIFFORD PINCHOT NATIONAL FOREST

INTRODUCTION:

On March 20, 1980, an earthquake, measured at 4.2 on the Richter Scale, was recorded as having its epicenter within Mt. St. Helens. Seismotoligists monitoring the quakes have recorded additional earthquakes of at least the same magnitude every day since the first quake. Tremors less than 3.0 on the Richter Scale are occurring at about 1 minute intervals since the first quake.

The U. S. Geological Service says that earthquakes similar to these usually precede some kind of volcanic activity. This plan describes the action to be taken and the contacts to be made in the event of an eruption.

RESPONSIBILITY:

District Ranger

The District Ranger or his acting is responsible for:

a. The welfare and safe evacuation of district employees and their families, the general public, visitors, residences within the district, and operators on government contracts.

b. Informing the Forest Supervisor of indicators of the impending eruption, and action being taken to provide for evacuation of all people within the zone of influence of the eruption.

c. Keeping the Sheriff's of Skamania and Cowlitz County informed.

d. Keeping the Pacific Power & Light Company informed.

e. Keeping the U.S. Geological Service informed of the status of the eruption and action being taken.

f. Making recommendations to the Forest Supervisor on closures of the Mountain, Campgrounds, Roads, etc., and implementation of the closure.

g. Establishing a volcano watch by which the volcano would be observed regularly during daylight hours from ground stations.

h. Assessing damage to all improvements and to the basic resources.
i. Providing on-the-ground information to the news media.

Skamania County Sheriff

The deputies working under the Cooperative Work Agreement with Skamania County will do the following:

a. Keeping the cabin owners at Northwoods, Spirit Lake, and Swift Campground informed of the earthquake situation and evacuation plan.

b. Assisting the district with implementing road closures.

c. Providing communications with the County Sheriff for emergency evacuation needs such as Life Flight or Search & Rescue helicopter from the 304th Air Force Reserve.

c. Supervising the orderly evacuation of all private citizens when it becomes necessary.

Timber Sale Assistant

a. Notifying all operators working on Forest Service contracts and private lands. Will require telephone calls and field contacts. (A contact plan is maintained within the Sale Administration section.) Contacts will be made when the eruption appears ...sly and evacuation is deemed necessary.

Resource Assistant

a. Assisting the District Ranger as Disaster Coordinator. Keeping the Forest Disaster Coordinator informed on the situation. Reviewing and updating this plan.

b. Evacuating all visitors from Forest Service recreation sites that are considered to be in potential hazard zones.

c. Signing potential hazards to forest visitors such as the caves, mountain slopes, etc. during the earthquakes.

d. Signing road hazards or road closures.

e. Keeping P.P.& L., Burlington Northern, and other landowners informed of the location and timing of the potential eruption.

Working with the news media.

g. Informing employees and families of the situation and potential hazards.

Fire Management Officer

a. Notifying all residences at Pine Creek when evacuation is necessary.

b. Maintaining radio communication with personnel that are in the field.

c. Making requests for aircraft utilized for observing the mountain.

d. Organizing the orderly evacuation of the Vehicles Fleet.

e. Maintaining a radio log of all communications concerning the pre-eruption activity.

f. Maintaining communications with the Volcano Watch.

Silvicultural Assistant

a. Notifying all thinning and tree planting contractors of the potential hazard at pre-contract meetings, and when evacuation is deemed necessary for safety.

Individual Employee

a. Provide for the safety and welfare of your immediate family. Prepare a box or suitcase containing emergency provisions to sustain your family in the event that evacuation is necessary. (Clothing, toothpaste, towel, soap, precious items that you can't leave behind, etc.) You may have to leave in a moments notice.

b. You may be requested to assist in the notification of others, or the driving of a government vehicle.

WARNING SIGNS PRECEDING AN ERUPTION

The earthquakes will increase in magnitude and frequency as an eruption approaches. The first visible signs will probably be the appearance of clouds of water vapor or abnormal melting of snow.

When the earthquake frequency of the larger quakes reaches one per two hours, a volcano watch will be established at Eagle Cliff, and the Spirit Lake Work Center will be evacuated.

VOLCANO WATCH

During weather that will permit the direct viewing of the mountain slopes, one person in a vehicle will observe the slopes of the volcano. Initial observations will be made from Eagle Cliff until snow conditions will permit access to Marble Mountain. The observer will need a pair of binoculars and a Forest Service radio.

The observer will look for the following:

Clouds of white steam or smoke rising above the volcano.

A glow in the sky above the volcano at night.

The darkening of the snow on the slopes.

Water building up in the ravines on the mountain slopes.

Mud flows in Pine Creek and Swift Creek.

EVACUATION

In the event that a mudslide or tephra eruption occurs on the south side of the mountain, it may be necessary to evacuate the Pine Creek Administrative Site and other public residences around the Swift Reservoir.

The geologists feel that flooding could occur, causing danger to bridges and to the reservoir. They suggest we stay out of the valley bottoms, and particularly avoid going below the dam. For this reason, our evacuation route will be across Eagle Cliff Bridge, and up road N90 to road N714 and N73 to the Wind River Ranger Station.

The evacuation warning will be continuous sounding of the fire alarm, and also a continuous ring on the telephone.

The residences at Pine Creek should have the personal subsistence gear packed and ready to go at a moments notice. Individual employees will be assigned government vehicles to drive. The District Ranger will appoint a leader and someone to bring up the

rear of the convoy.

It is important that all persons report to the Wind River Ranger Station for accountability and further demobilization. The Wind River District will be working with the County Sheriff on a plan for feeding and housing your families.

The deputy sheriff will direct the evacuation of the public from Swift and Northwoods areas to the same location.

The Spirit Lake evacuation will be activated by Chuck Tonn or Jim Nieland. They will inform the people at Harmony Fall, St. Helens, and Spirit Lake Lodges of the evacuation plan. The Skamania County Deputy will inform the Spirit Lake Cabin owners when to evacuate.

They will travel highway 504 to Toutle River and regroup at the school. They will contact the Forest Supervisor by telephone of their condition, numbers, and location. The Forest Supervisor will give them instructions on where to go for temporary housing and food.

IN THE EVENT OF A SUDDEN ERUPTION OF ASH AND PUMICE, STAY INSIDE, SEAL UP THE WINDOWS, AND DO NOT TRY TO EVACUATE!!!

PUBLIC INFORMATION

The latest information will be called in to the Forest Information Officer who will make the decision on releasing it to the news media. The news media will be calling and visiting the ranger station. The important thing to remember is to speak from facts rather than assumptions. We are Forest Land Managers and not geologists. We can tell them what has happened, how it is effecting our lives and work areas, but direct them to the U.S.G.S. for assumptions about what the mountain is doing.

There will be occasions when news media persons will require a Forest Service person along with them. First priority should be given to the assignment of the following employees to act as field P.I.O.'s.

Dave Seesholtz

Chuck Tonn

Jim Nieland

The District Ranger, Disaster Coordinator, or acting District Ranger should handle telephone calls from the media.

VISITOR USE IMPACTS

Disasters usually attract huge crowds, and there will be problems handling increased traffic. We need to coordinate with the Washington State Department of Transportation and the State Police on the control of traffic into the St. Helens area. It may become necessary to block State Highways 503 and 504 somewhere beyond the Forest Boundary to all but authorized traffic. The Wind River Meadow Creek Road N73, Lewis River Road N90, Randle-Lewis River Road 125 could also require control. The district will seek help from the County Sheriff on traffic control.

KEY CONTACT LIST

U. S. Geological Survey

Denver Office:

Don Mullineaux	(303) 234-3312
Rocky Crandell	(303) 234-2834
Rick Hobbit	(303) 234-3546

If you cannot reach anyone at these numbers, call one of the following numbers and leave a message: (303) 234-3721
(303) 234-3819

Seattle:

Craig Weaver	(206) 543-8020

niversity of Washington (Seismotologist)

Steve Malone	(206) 543-7010

North County Ambulance:

Tom McDowell	(206) 247-5555

Skamania County Sheriff &
Department of Emergency Services:

Bill Closner	(509) 427-5047

Pacific Power & Light Co.:

Lee Crothers	(503) 243-4795
Bob Love	(503) 238-2881
Ariel Station	(206) 686-3390

Forest Supervisor's Office

Forest Supervisor:

Robert Tokarczyk	(206) 696-7570

Deputy Forest Supervisor:

Duane Tucker	(206) 696-7571

St. Helens District Ranger:

Ken Johnson

Disaster Coordinator:

Ed Osmond	(206) 696-7524

Public Information Officer

Jim Unterwegner	(206) 696-7505

This document was:

Prepared by: /s/ KEN JOHNSON 3/26/80
St. Helens District Ranger

Coordinated with: /s/ BILL CLOSNER 3/26/80
Skamania County Sheriff

Approved by: /s/ ROBERT TOKARCZYK 3/26/80
Gifford Pinchot Forest Supervisor

EXHIBIT #3

MT. ST. HELENS CONTINGENCY PLANNING

0900 - March 26, 1980
Gifford Pinchot National Forest

GENERAL WELCOME: Forest Supervisor, Robert Tokarczyk

Official Recorder, Maggi Courville

INTRODUCTION OF PARTICIPANTS AND THEIR ROLES

STATEMENT OF PURPOSE AND CLARIFYING OBJECTIVES: Facilitator - Ed Osmond

PURPOSE: Based on current and anticipated earthquake activity, develop the framework for a Mt. St. Helens contingency plan by Governmental agencies and private companies responsible for management activities adjacent and down-valley from the volcano for responding to various kinds and scales of eruptions, including possible restrictions on access, use and evacuations.

SPECIFIC OBJECTIVES OF MEETING:

1. Update all participants on current situation.
2. Review all actions taken to date:

   By all agencies
   for example, Forest Service
   - Area closure
   - Road 504 warning closure
3. Familiarization of participants of the possible effects of volcanic activity.
4. Joint discussion and identification of concerns and issues that need to be resolved (establish linkage).

   for example:
   - Communication linkage
   - Agency roles
   - Assumption strategies
   - Media relations
5. Develop strategies for preparation of contingency plans for coping with the effects of an eruption.
6. Others (?)

SUGGESTED PROCEDURE:

1. Current situation and potential volcanic activities - USGS, Don Mullineaux.
2. Overview of action to date -
   - USFS, Ken Johnson
   - Other Agencies

3. Review agency and private responsibilities - All
4. Identify key issues and concerns.
5. Develop strategy for contingency plan.
6. Define interim direction
7. Future efforts (contingency plans)
8. Summarize

EXHIBIT #4

MUNICIPAL WATER SYSTEMS

Washington Department of Social and Health Services - Olympia - 206-753-5953

1. Ken Merry
   206-753-5953
   206-352-8265 (Home)

Cowlitz County Health Department - Longview Environmental Health - 206-425-7400

1. Bob Buckmen, Supervisor
   206-425-7400
   206-274-4876 (Home)

2. Bill Harper, Director
   206-425-7400
   206-425-7531 (Home)

-- Includes
   Kelso - Subsurface Cowlitz River
   Longview - Cowlitz River
   Castle Rock - Wells, sursurface Cowlitz River
   Kalama - Kalama River
   Woodland - Lewis River

Lewis County Health Department - Chehalis - 206-748-9121, Ext. 223 or 1-800-562-6130

1. Jack Morris, Director
   206-748-9121, Ext. 238
   206-748-6375 (Home)

2. Phil Brinker, Environmental Health Specialist
   206-748-9121, Ext. 233
   206-754-8196 (Home)

Pierce County Health Department - Tacoma - 206-593-4760

1. Al Larson, Supervisor
   206-593-4760
   206-472-7435 (Home)

2. Don Oliver, Director
   206-593-4760
   206-564-5132 (Home)

3. Derek Sandison, Supervisor
   206-593-4760
   206-472-6538 (Home)

-- Includes:
   Tacoma - Wells and Green River
   Ashford - Mulles Creek
   Elbe - Well and stream
   Eatonville - Well and Michelle Creek

SW Washington Health Department - Vancouver (for Clark, Skamania and Klickitat Counties) - 206-695-9215

1. Tom Barton, Director
   206-695-9215
   206-573-7283 (Home)

2. Bob Larsen, Sanitarian
   206-695-9215
   206-887-4852 (Home)

-- Includes:
   Carson - Bear Creek
   Camas - Wells, Jones and Boulder Creeks
   Klickitat - Klickitat River
   White Salmon/Bingen - Buck Creek
   Stevenson - Lebong Creek * Not filtered

PUD of Skamania County (for Carson) - Stevenson - 206-427-5126

1. Bill Yee, Manager
   206-427-5126
   206-427-5882 (Home)

Yakima Health District - Environmental Health - 509-575-4265

1. Denny Knight, Director
   509-575-4055
   509-966-1805 (Home)

2. Ken Wilson, Environmental Health Specialist
   509-575-4268
   509-248-6377 (Home)

-- Includes:
   Yakima - Naches River

Portland Bureau of Water Works - 1800 SW 6th Avenue - Portland

1. Carl Geobel, Administrator
   503-248-4178
   503-656-4724 (Home)

2. Paul Norseth, Chief Engineer
   503-248-4408
   503-244-9463 (Home)

3. Bull Run Head Works
   503-668-8528 (24-hours)

4. Bureau of Water Works Radio Room
   503-248-4874

Hood River County Health Department - Hood River - 509-386-1115

1. Scott Fitch, Sanitarian
   509-386-1115
   509-386-4043 (Home)

-- Includes:
   Hood River

EXHIBIT #5

USGS PROCEDURE FOR HAZARDS WARNING

Warnings of volcanic hazards will be communicated from the USGS to other agencies through the USFS office in Vancouver. These warnings will have three orders of increasing urgency, as follows:

1. Notification of a change in seismicity or eruptive behavior.
2. Notification of changes in behavior that warrant placing other agencies on a VOLCANO ALERT status. Such changes include one or more of the following:
   a. Significant increase in frequency and magnitude of earthquakes, and/or progression of earthquakes upward in volcano.
   b. Large increases in frequency and volume of eruptive activity and of height of eruptive columns.
   c. Large increase in ground tilt signifying uplift or swelling of the volcano.
3. Notification of a change in behavior that warrants issuance of a VOLCANO CRISIS (Quick Call Up Response) warning to other agencies. Examples of such a change are:
   a. Appearance of molten rock in an ash-eruption column above the volcano, a lava flow, or a glow visible at night in the sky above the volcano.
   b. Very loud explosions.
   c. One or more large landslides of rock or ice that reach below timberline.

   A warning in the VOLCANO CRISIS category will be followed as soon as possible by a "Notification of Eruption and Hazard" (see attached form), which will describe the nature of the event and possible danger areas.

Notification will also be given when VOLCANO ALERT or CRISIS conditions can be terminated.

USGS NOTIFICATION OF ERUPTION AND HAZARD

(The absence of information below means it is not yet available)

An eruption in the form of _____

Was reported at vent located _____

Give time _____

Does eruption include new molten rock? _____

If a pyroclastic flow was observed, give location _____

_____

If eruption is (pumice) ash, give estimated height _____

Direction of wind at various heights according to last forecast

		Speed
50,000 ft	_____	_____
30,000	_____	_____
24,000	_____	_____
18,000	_____	_____
12,000	_____	_____
10,000	_____	_____
5,000	_____	_____

Direction of observed ash movement _____

If mudflow or landslide was observed, give location _____

_____

Estimated size and speed of mudflow _____

If lava flow was observed, give location and direction of movement _____

_____

Areas and times of anticipated hazard (such as: wind directions and speeds indicate that ash will reach Xville in 2 hours, or mudflow will reach Zburg at 4:30 p.m.) _____

_____

_____

Other pertinent information:

Observation reported by:

This form filled out by:

MT. ST. HELENS CONTINGENCY PLAN

APRIL 1980

Prepared By: Ed Osmond — 4/8/80
Contingency - Planning ECC - USFS

Review By: Carl R Stenberg — 4/8/80
Director of Emergency Coordination Center - USFS

Clark County Sheriff — 4-8-80

Cowlitz County Sheriff — 4/8/80

Skamania County Sheriff — 4/8/80

Department of Emergency Service — April 8, 1980

Pacific Power and Light — April 8/1980.

Portland General Electric — APRIL 9/1980

Approved By: Gifford Pinchot Forest Supervisor — April 9, 1980

ADVANCE PRECAUTIONS

Mr. PETERSON. On April 18, we designated Mount St. Helens as a geologic area, recognizing special features, the need to protect those, and the need to use care with people going into that area.

On April 30, still almost 3 weeks ahead of the major eruption, there was a Governor's executive order which controlled the land outside the national forest. We could only control beginning at the forest boundaries, which we felt was too close for people to come.

Coincidentally, just above Mount Baker, is almost exactly where that big flow went. On the map, it is shown with the blue line to the northwest. I would like to publicly acknowledge the cooperation, not only of USGS, but the State of Washington, the sheriff's office, and everyone else who got together and worked out this elaborate contingency plan which was put in effect ahead of time and closed a big part of this area. Had it not been for people going around the barricades and doing other things to get inside of the area, we would have lost considerably less people.

In all fairness, though, we did not expect the blast area to reach as far north as it did. We had what was called a red area, which was the high hazard area, based on the USGS publication of where the pyroclastic flows would go. This blast area reached a full 12 miles north of Mount St. Helens and took timber down that far away. I passed around some black and white photos you might be interested in. They show that every tree was blown down by the blast.

DAMAGE ASSESSMENT

I'd like to review briefly with you the situation. There were 169 lakes that were either moderately damaged or destroyed. The area to the north is a very high-use recreation area which has many high mountain lakes. There are over 3,000 miles of streams that are either marginally damaged or destroyed. We estimated that several thousand deer, elk, bear, and mountain goats were killed. There is heavy anadramous fish damage, due to high temperatures, floods, mud and debris flows. We lost a recreation site that previously had been closed. We had to abandon our Mount St. Helens Ranger Station which is on the southeast corner of the map. Our Spirit Lake work center was also destroyed.

The best we know now, the eruption has killed 24 people with an additional 54 still reported missing. The list is still being worked on by ourselves and by the Red Cross and by the State to further reduce that number missing to find out for sure if that is a correct number.

In looking at the specific damage that we need to be concerned about immediately, we have had extensive damage to roads, bridges, trails, administrative facilities, and also private improvements under permit inside the forest boundary. Many property corners, property lines, so on, have been obliterated. I think you have probably seen the ash. For those who have not seen it, I have brought a small jar with me. It is very fine ash that collects on roads from 2 to 8 inches. It drifts into drainage structures and has to be removed. This is a major problem for us.

What we are concentrating on right now is the short-term rehabilitation problem within that big area and work with the State to conduct an ongoing extensive public safety program to try to prevent people coming into this area and being killed by future eruptions. We had a significant amount of problems with people who wanted to get into the area for various purposes. We expect heavy tourism and many scientific studies throughout the summer and the years ahead. We want to make the area available for people to see and to be studied within the limits of safety. This summer we plan to provide temporary exhibits, portable exhibits, and mobile facilities so that the area can be viewed from a safe distance. This activity will be tied in, at all the times, to USGS's monitoring and warning center.

SALVAGE AND REHABILITATION

We have formed an interdisciplinary team to analyze the area; to look at what part of the area we should be salvaging timber, for example. We think there are about 800 million board feet of timber, valued at over $100 million. We expect to salvage about half of that. The area north of Mount St. Helens has large mud and pyroclastic flows. We expect it will be left the way it is for visitors and scientific study. It is too dangerous and the continuing ash makes it almost impossible to do anything with. We will concentrate on the northeast where there is heavy timber down and there is a danger of substantial fire and insect problem if we don't do something.

In the President's request, there is some $23 million in supplemental funding to handle this work this year. We intend to use two additional sources of funds. We requested from the Department of Transportation the use of emergency funds for construction of roads and bridges. There is a provision in the National Forest Management Act of 1976 using a timber salvage fund which is made up of receipts from salvage timber to do the administrative job of preparing sales. That fund has some money in it already from previous salvage sales. We intend to use that fund to do the timber salvage work. We will begin that effort as soon as we can.

Finally, Mr. Chairman, I am sure you are aware we have a large number of unanswered questions at this point. For example, we are not sure how to salvage the timber. Some roads are available in the northeast area which we will use. In other locations it would appear desirable to use helicopters for logging. Conventional helicopters, though, may create a cloud of dust that will damage the helicopters as well as cause problems with workers. We are looking at other methods. For example, we have under development a helistat, a large balloon that will have four helicopters and heavy lift capacity. The helicopters could stay more than 100 feet off the ground and not stir up a cloud of dust and ash and destroy the equipment. We are looking at that as one possibility. Unfortunately, that piece of equipment is not expected to be available until 1982.

That concludes my statement.

TIMBER SALVAGE FUNDING

Senator MAGNUSON. Do you have enough timber salvage money now?

Mr. PETERSON. We have enough money in the timber salvage fund to begin this operation and we think to last us through this year.

Senator MAGNUSON. At least until your regular appropriation bill shows up; is that correct?

Mr. PETERSON. That is correct.

Senator MAGNUSON. I expect if you are short on this salvage matter—and this is a matter of some concern—that you will come to us in 1981 and ask us for sufficient funds.

Mr. PETERSON. We will do that, Mr. Chairman. We will begin work now using salvage funds.

Senator MAGNUSON. I can't guarantee you will get it, but you can ask.

Mr. PETERSON. Yes, sir.

Senator MAGNUSON. There have been a lot of questions on salvage. Your statement is you can salvage about a half of it.

Mr. PETERSON. That is our best estimate now, Mr. Chairman.

Senator MAGNUSON. Is that the timber that is down?

Mr. PETERSON. That is the timber that is down; yes, sir.

Senator MAGNUSON. What about the timber that floated down the river? That is being salvaged by individuals, isn't it?

Mr. PETERSON. One of the significant questions is how to determine who owns the timber. Not much of it is national forest timber.

Senator MAGNUSON. When I was out there, we were flying around that day, there were some that had little barges, little pickups, they were getting all the logs in. I guess it is finders-keepers, isn't it?

Mr. PETERSON. Well, there are some logs associated—some of it is branded, some of it belongs to private individuals. Very little of that was national forest timber.

SUBMITTED QUESTIONS

Senator MAGNUSON. Thank you, Mr. Peterson, for appearing today. We do have additional questions which we will submit for your responses for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for responses subsequent to the hearing:]

64-529 0 - 80 - 10

QUESTIONS SUBMITTED BY CHAIRMAN MAGNUSON

Actual and Projected Costs

Question: How much of your $25 million supplemental request is for actual expenses to date on the Mt. Saint Helens disaster, and how much is projected needs for the balance of the current fiscal year?

Answer:

As of the end of May 1980	- $1,000,000
Projected Needs	- 6,500,000
Total	$7,500,000

Ongoing Program

Question: How have you funded your activities to date, and what has been the effect on your ongoing programs? Will the supplemental fully repay the funds you have had to borrow from other activities?

Answer: The activities to date have been partially funded from service-wide savings in other programs. The Region has utilized manpower from other programs to the extent possible. The activities, especially on the Gifford Pinchot National Forest, have certainly demanded the full attention of that Forest. A complete assessment of the impact on this other programs has not been completed. The supplemental will repay the funds we have had to borrow from other activities to the extent necessary.

Distribution of Funds

Question: Your initial justification did not indicate how the requested $25 million would be apportioned among your principal activities. How much are you budgeting for your comprehensive resource assessment, how much for reseeding and reforestation, how much for timber salvage, how much for immediate road and bridge repairs, and how much for other activities related to this catastrophe?

Answer: We will provide for the record a budget line item chart which shows the distribution of the $25 million. (The information follows.)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

1980 Mt. Saint Helens Supplemental

	Thousands
FOREST MANAGEMENT PROTECTION AND UTILIZATION:	
FOREST RESEARCH:	
Land and Resource Protection Research:	
Fire and atmospheric sciences research	50
Forest insects and disease research ..	-
Renewable resources evaluation	100
Renewable resources economics	-
Surface environment and mining	-
Total, Land and Resource Protection Research	150
Renewable Resource Management and Utilization Research:	
Trees and timber management research .	275
Forest watershed management research .	335
Wildlife, range, and fish habitat research	180
Forest recreation research	-
Forest products utilization research .	-
Forest engineering research	160
Total, Renewable Resource Management and Utilization Research	950
TOTAL, FOREST RESEARCH	1,100
STATE AND PRIVATE FORESTRY COOPERATION:	
Cooperative Land and Resource Protection:	
Forest insect and disease management	
Rural fire protection and control	
Total, Cooperative Land and Resource Protection	

	Thousands
FOREST MANAGEMENT PROTECTION AND UTILIZATION--continued	
STATE AND PRIVATE FORESTRY COOPERATION--continued	
Cooperative Renewable Resource Management and Utilization:	
Rural forestry assistance	
Urban forestry assistance	
Assistance in management, planning, and technology implementation	
Total, Cooperative Renewable Resource Management and Utilization	
General Forestry Assistance:	
Gifford Pinchot Institute for Conservation Studies	
FIRESCOPE	
Special projects	
Total, General Forestry Assistance	
TOTAL, STATE AND PRIVATE FORESTRY COOPERATION	-
NATIONAL FOREST SYSTEM:	
Land and Resource Protection:	
Minerals area management	50
General land management activities	-
Special uses--non-recreation	
Land classification, adjustments, and surveys	
Fire, administration, and other maintenance	
Payments to Employees' Compensation Fund	
Forest fire protection	1,235

	Thousands
FOREST MANAGEMENT PROTECTION AND UTILIZATION--continued	
NATIONAL FOREST SYSTEM--continued	
Land and Resource Protection--continued	
Fighting forest fires	-
Cooperative law enforcement	-
Forest road maintenance	20,450
Forest trail maintenance	-
Total, Land and Resource Protection	21,735
Renewable Resource Management and Utilization:	
Sales administration and management	1,200
Reforestation and stand improvement	100
Recreation use	740
Wildlife and fish habitat management	50
Range Management	-
Soil and water management	75
Total, Renewable Resource Management and Utilization	2,165
TOTAL, NATIONAL FOREST SYSTEM	25,000
TOTAL, FOREST MANAGEMENT PROTECTION AND UTILIZATION	25,000
CONSTRUCTION AND LAND ACQUISITION:	
Construction of Facilities:	
Research construction	
Construction for fire, administration, and other purposes	
Recreation use areas construction	
Forest road construction	
Forest trail construction	
Forest roads purchaser construction	

	Thousands
CONSTRUCTION AND LAND ACQUISITION--continued	
Pollution abatement	
Land acquisition, Weeks Act	
TOTAL, CONSTRUCTION AND LAND ACQUISITION	-
YOUTH CONSERVATION CORPS	-
ACQUISITION OF LANDS FOR NATIONAL FORESTS, SPECIAL ACTS	-
ACQUISITION OF LANDS TO COMPLETE LAND EXCHANGES	-
RANGELAND IMPROVEMENTS	-
CONSTRUCTION AND OPERATION OF RECREATION FACILITIES	-
TIMBER SALVAGE SALES	-
RIGHTS-OF-WAY	-
PERMANENT APPROPRIATIONS, WORKING FUNDS:	
Expenses, Brush Disposal	
Licensee Programs: Smokey Bear	
Woodsy Owl	
Restoration of Forest Lands and Improvements	
Roads and Trails for States, National Forests Fund (10% Fund)	
Timber Purchaser Roads Constructed by the Forest Service	
Subtotal, Permanent Appropriations, Working Funds	-

	Thousands
PERMANENT APPROPRIATIONS, PAYMENTS TO STATES AND COUNTIES:	
Payment to Minnesota	
Payments to Counties, National Grasslands.	
Payments to School Funds, Arizona and New Mexico	
Payments to States, National Forests Fund.	
Subtotal, Permanent Appropriations, Payments to States and Counties	-
TOTAL, PERMANENT APPROPRIATIONS	-
COOPERATIVE WORK, FOREST SERVICE (Trust Fund)	-
TOTAL, REGULAR FOREST SERVICE	25,000
Highland Scenic Highways	-
Rural Community Fire Protection Grants, FmHA	-
TOTAL, FOREST SERVICE	25,000

Visitor Center

Your budget request includes funding for planning and designing a visitor center in the Mt. Saint Helens areas.

Question: How urgent is this project in the context of this supplemental request?

Answer: Beginning comprehensive planning at this point in time is essential to gather scientific, photographic, and other data upon which an interpretive program can be based. We have already developed interpretive objectives for the Mt. Saint Helens area. Funding will permit us to complete adequate planning for a long-term interpretive program.

Question: How essential is some visitor center when compared to other immediate needs?

Answer: One of our important management responsibilities is to provide for public safety of visitors in the Mt. Saint Helens area. Interpretive program will compliment law enforcement efforts by explaining the need for limiting access in the area. Limiting access is generally disliked by the public. When the reasons for closures are not understood people tend to ignore them, causing untold law enforcement problems and avoidable rescue operations.

The human drama associated with the Mt. Saint Helens area brings additional interpretive needs. Families are concerned with how we are handling sites where friends and relatives died. Through our interpretive program we can show some sensitivty and understanding of their needs.

Question: Is there any plan to incorporate a Geological Survey observatory in your visitor center planning?

Answer: Our immediate plans are to interpret USGS activities by placing their monitoring instruments in our (temporary) mobile visitor centers.

In the future, as the activity stabilizes, a USGS observatory could be incorporated into any permanent interpretive facility or facilities.

Question: The Committee will need to know exactly how much you plan to spend on designing and constructing a visitor center. We will need more detailed justification. Please supply that for the record as quickly as possible.

Answer: Until we can enter the area and our planning for long-term interpretive facilities is completed, our costs for VIS facilities are only preliminary estimates. Our tentative estimate of $540,000 in fiscal year 1980 and $11,500,000 in fiscal year 1981 would allow us to plan, design, and construct the necessary interpretive facilities (if it is believed safe to do so at that time).

State and Private Forestry Assistance

Question: We see no reference to any State and private foresty assistance in your justification. Why isn't there any specific appropriation request for this type of assistance, which would seem to be an urgent need in view of the impact of the volcano on state and private forest holdings?

Answer: While it is true that the volcano has created serious impacts on State and private forest lands, a specific appropriation request was not made because it was felt that the State would be able to provide this assistance out of Federal funds being requested by the Governor of the State of Washington for disaster relief.

Question: What kind of supplemental funding could be used quickly and effectively to provide needed State and private assistance under your existing authorities?

Answer: Preliminary estimates are that $2.0 and $4.5 million are needed respectively in fiscal year 1980 and fiscal year 1981 to assist the State of Washington to meet the additional demands created by the destruction of existing State and private forest lands and watersheds. Specifically, the funds would be used as follows:

(1) Conduct comprehensive damage appraisals and prepare treatment plans for timber and watershed directly affected by the recent volcanic activity.

(2) Assess the potential for further destruction and losses of lives, property, and resources resulting from subsequent fires, floods, and insect or disease outbreaks.

(3) Provide technical assistance and treatment prescriptions to nonindustrial private landowners involved in salvage logging and timber harvesting operations.

(4) Provide technical assistance in Forest Products Utilization to the industries and agencies involved in timber salvage to insure the highest feasible recovery of wood products. These activities will include the location and installation of remote sawing operations, and the development of harvesting and transportation systems to meet this unique situation. Application of ongoing harvestng and sawmill improvement programs will be intensified to facilitate maximum feasible yields from damaged timber.

(5) Rapidly develop a large scale reforestation program through the purchase and collection of tree seeds, increased nursery production, and expanded tree distribution and planting systems. Provide the additional technical assistance and management planning required by such a program.

(6) Plan and participate in an intensive interagency fire prevention program. Develop special presuppression plans to cope with the massive hazards and risks created by the large amounts of dead and dying timber. Implement organizational and equipment needs for fire suppression efforts at far higher than normal levels.

(7) Provide technical and financial assistance to prevent the build-up of bark beetle in Douglas fir stands adjacent to the blast area. Monitor insect population

and disease potential on all public and private lands in order to maintain alert readiness for future outbreaks.

Approximately 150 square miles of blast area surface is affected by the depositing of volcanic ash, sediment from erosion, and debris through water courses into major stream channels throughout the watershed. Immediate stabilization of this material and the newly developed water courses will prevent further and continuing damage to municipal water supplies, shipping channels and fish habitat. In addition, five debris structures are presently being constructed by the Corps of Engineers with expectations of stabilizing the blast area surface and removal of debris from the stream courses. This work will require $10 million of immediate purchase, seeding, and planting of grasses and shrubs; and $15 million for the removal of debris from critical areas of major streams. It will take place on Federal, State, and private lands.

The Forest Service is coordinating the request with the Soil Conservation Service under the authorities of Section 403, Agricultural Credit Act of 1978 (formerly Sec. 216).

Research

Question: How much of your supplemental request is devoted to research needs and for assessing the magnitude of damage and rehabilitation requirements?

Answer: A total of $1.1 million is requested for assessment purposes. The assessment will determine the best approaches for: (1) identifying effects of the eruption on forest and range values, (2) evaluating the magnitude and importance of these effects, and (3) mitigating important adverse effects. The assessment also will describe the extent and location of the effects of volcanic activity and establish baseline for monitoring ecosystem changes.

Timber Salvage Sales

Question: Your justification states that the timber salvage program can be handled within existing funding authorities. Please expand on that. Don't you have a massive timber salvage task ahead of you that would require supplemental funding?

Answer: The Gifford Pinchot National Forest has funding in the Salvage Sale Fund provided by the National Forest Management Act. Portions of the "seed money" appropriated by the Congress can be transferred from other Forests if necessary. This source of funding will provide the necessary funding to begin sale preparation. As the damaged timber is harvested, a portion of the receipts will be deposited in the salvage fund to cover the cost of the administration and

additional sale preparation jobs. Because of the magnitude of the salvage, the sales of salvage timber will largely displace the regular timber sale program on the Forest for the next several years. Thus, the funds programmed for regular sale preparation and administration will be available for the salvage job. Between the available salvage funds and regular appropriations, we estimate there is adequate funding to cover the cost of preparing and administering the salvage program.

Funding -- Construction Cost vs. Operating Costs

Question: Your entire supplemental request is lumped under one new budget activity in your operating account. Why is it that you have not budgeted specific funding for your construction needs as well as your operating costs?

Answer: The purpose of the supplemental, in addition to funding current operating costs, is to assess the damage and prepare current and long range resource plans. During this period, the construction needs will also be determined.

Damage Estimates

Question: Do you now have any fairly reliable estimate on the total damage that has been caused to date by the Mt. Saint Helens eruption? Any estimates on the total rehabilitation costs to the Forest Service?

Answer: No reliable estimates are available as to the total damage caused by the Mt. Saint Helens eruption, because we have not been able to get into the devastated area nor make detailed orthographic photos. Preliminary estimates of the damage caused by the May 18 eruptions are based on information received from aerial observers and rescue personnel who have flown over the area. None of the specialists who made these estimates have actually seen the devastated area. However, these estimates should give a good indication of the magnitude of the resource damage incurred:

TIMBER

Three billion board feet of timber valued at approximately $400,000,000 was damaged or destroyed. All logging operations on the Forest have been halted until safety of operations and clean-up needs can be assessed. National Forest losses were well in excess of one billion board feet with 800 million possibly salvageable.

WATERSHED & SOIL

Lake Damage

Damage Category	Number of Lakes	Surface Acres
1. Destroyed	2	6
2. Severe Damage (very long-term) - Spirit Lake	1	1,262
3. Heavy Damage (long-term)	26	255
4. Moderate - Light Damage (short-term)	140	1,800

The severe and heavy damage category lakes are choked with woody debris and sediment. All aquatic life has undoubtedly been destroyed in Spirit Lake (severe damage) and it may take a decade or more -- depending on subsequent volcanic activity -- for it to again become a biologically productive body of water. Small niches of aquatic life may still survive in the heavy damage category lakes. Heavily damaged lakes in the Mt. Margaret Backcountry area may return to a productive state within a decade. Most moderately to lightly damaged lakes should return to natural conditions within several years.

Stream Damage

	Miles of Streams Class		
Damage Category	I & II	III	IV
1. Destroyed (by mudflows)	28	7	65
2. Severe Damage	9	8	35
3. Heavy Damage	40	62	195
4. Moderate - Light Damage	400	629	1,900

and 135 miles of perennial streams within the Goat Rocks Wilderness.

Class I and II streams include the major streams of the Forest -- Cispus, Lewis, Muddy and Toutle Rivers -- and their principal tributaries. These streams support anadromous and resident trout fisheries as well as providing water for recreation and downstream hydroelectric, municipal and industrial uses.

Class III streams are small perrennial streams tributary to the Class I and II streams and are important in maintaining downstream water quality and aquatic life.

Class IV streams are small, intermittent streams.

The North Fork and South Fork of the Toutle River, Pine Creek and the Muddy River have been destroyed by mudflows from Mt. Saint Helens. Severe damage categroy streams -- located in the headwaters of Coldwater Creed and the lower reaches of the Spirit Lake tributaries -- are undoubtedly almost devoid of aquatic life. Only scattered niches of aquatic life probably survive in the heavy damage category streams. Most moderately and lightly damaged streams will probably recover rapidly from the impacts of the ashfalls.

Numerous private domestic water supply systems have been developed on small streams flowing from the National Forest. Typically the drinking water is not treated, i.e., filtered or disinfected. Turbidity values will be above levels established by the Environmental Protection Agency under the Safe Drinking Act (P.L. 92-523). Turbidity problems will occur during periods of ashfall and during rainy periods until the sediment (ash) is flushed out of the streams.

Much of the sediment in the stream systems will eventually be deposited in hydroelectric impoundments -- Riffe Lake (Mossyrock Project -- Tacoma City Light) on the Cowlitz River and Swift Reservoir (Swift Project -- Pacific Power and Light) on the Lewis River. The major sediment impact to the Swift Project will occur as the Muddy River and Pine Creek systems re-establish channels by eroding through the mudflows that block them. This same formative process will take place on the North and South Fork of the Toutle River. It is estimated that 1,100,000 cubic yards of sediment will be dumped into the reservoirs reducing the storage capacity by 690 acre feet.

Destruction of the top 1,300 feet of Mt. Saint Helens also means the loss of glaciers and ice and snow field. During the summer months, these areas contribute important streamflows for beneficial downstream uses, including fisheries and power generation. Ashfalls have blanketed most of the Cowlitz River, including the Cispus and Toutle Rivers, and the Lewis River watersheds. Thin deposits of ash may increase snowmelt rates, thereby tending to reduce the amount of snow water available for late summer stream flows. Heavy ash deposits may reduce snowmelt rates by serving as an insulating blanket and thereby tending to prolong the snowmelt period. What the net effect on streamflow will be is not known.

FISH AND WILDLIFE

1. Big Game - 59,520 acres of deer and elk habitat were severely damaged by complete or near complete loss of vegetation. Nearly all of this was summer range. However, some mudflows affected winter range in the Muddy River and Pine Creek areas south of Mt. Saint Helens.

62,080 acres are estimated to be moderately damaged by ashfall over 8", overstory vegetation is intact and recovery should be complete within 2-3 years.

The number of Big Game killed during the eruption is estimated to be:

On FS lands only	(2,000 blacktail deer (300 elk (30 black bear (12 mountain Goats	On all lands	(6,000 blacktail deer (5,250 elk (200 black bear (100 mountain goats (15 cougar

The entire mountain goat population in the Mt. Margaret Backcountry area is believed to have been lost. This population was transplanted several years ago by Washington Department of Game.

2. Small Game and Nongame Wildlife

Thousands of smaller animals were lost. A small ptarmigan population which was resident to the upper slopes of Mt. Saint Helens may be completely gone.

Several thousand acres of old growth Douglas-fir, western hemlock, and Alpine fir stands were destroyed. Habitat diversity within the 59,520 acre devastation area was reduced to bare rock, bare ground, or areas with extensive down material.

Bird, reptile, amphibian, and small mammal populations within the area, where more than 4" of ash fell, are expected to be severely affected for at least two to five years. There are approximately 159,360 acres with heavy ash accumulations outside of the devastated area.

3. Anadromous Fisheries

The North Fork of the Toutle River was completely destroyed by massive floods, mud and debris flows, and water temperatures that were reported at 100 F. The upper portion of the South Fork of the Toutle River had similar impacts. The Green River had less severe damage. However, it is likely that all fish with the drainage were killed by high water temperatures, ash, or debris torrents.

The annual on-Forest anadromous fisheries value lost is estimated to be:

Steelhead	- $106,000
Coho	- 186,000
Total	$292,000 annually

Values on all lands will be much higher.

RECREATION

In the devasted area, 27 developed recreation sites were destroyed. A total of 4,280 PAOT capacity of developed sites was lost. Another 500 PAOT capacity is in a high hazard zone that will not be opened this year. Capacity for 480,000 RVD or 700,000 PAOT/

days will be lost this year due to Forest closures. The value of recreation improvement destroyed is estimated to be $1,700,000. An estimated $25,000 per year in recreation receipts will be lost from the destroyed and closed sites. The State Department of Natural Resources recreation site losses amounted to some $1.7 million.

ROADS

Within the blast and mudflow areas, approximately 63 miles of road valued at $10,000,000 were totally obliterated. Approximately 154 miles of paved and 1,560 miles of gravel-surfaced Forest development roads were covered with one to eight inches of ash and pumice. Forest road losses on private lands amounted to about $5.8 million.

BRIDGES

Seven permanent road bridges, five log stinger road bridgers, and five trail bridges are known to be destroyed. The value of the 17 bridges is estimated to be $10,000,000. An additional $2,900,000 in bridge losses was experienced on private lands.

TRAILS

Ninety-seven miles of trail valued at $1,200,000 were obliterated in the blast area. An estimated 30 miles of Forest trail will require ash removal.

ADMINISTRATIVE FACILITIES

The Spirit Lake Work Center was totally obliterated. It had consisted of 15 buildings (11,300 square feet) at a value of $1,000,000.

The Saint Helens Ranger Station Administrative site at Pine Creek has been abandoned and probably will not be re-occupied except as a day use work center. The site consists of 19 permanent buildings of 24,280 square feet. Estimated value of facilities that will not be used due to the hazards involved is $1,000,000.

SPECIAL USES

Private improvements on four Forest Service special use permit sites around Spirit Lake that were lost are estimated to have a value of approximately $1,000,000.

LANDLINES AND LAND STATUS

Approximately 130 property corners, 204 controlling corners, and 66 miles of posted Forest boundary line were obliterated. Cost of survey and monumentaton has a value of approximately $900,000. Restoration of land lines and property corners on State and private lands will cost an additional $486,000.

A large land exchange involving Sections 17 and 19, T9N, R5E, owned by Weyerhaeuser Company was in the final stages. These two sections of land were devastated, although the Forest Service land offered in exchange was not. The land exchange patterns and packages will have to be re-evaluated before any value of lost opportunity here can be calculated.

No estimate of rehablitation costs will be made until a determination is made of how much of the area will be preserved and what needs to be done on the balance of the area.

Rehabilitation Program

Question: If there are no further significant eruptions, do you have any idea how long it will take to mount and carry out an effective rehabilitation program designed to restore the timber, wildlife, soil and water resources of the region?

Answer: Estimates are that it will take about five years to carry out an effective rehabilitation program if there are no further significant eruptions.

Geologists cannot predict what Mt. Saint Helens will do next. The volcano is still very dangerous.

Salvage Sale Revenues

Question: What revenues do you anticipate will be generated by the timber that can be salvaged?

Answer: Due to the uncertainties involved in roading, logging, timber degrade, and possible continued eruptions by the volcano, any estimate now could be highly inaccurate. However, old growth timber of similar quality adjacent to the damaged timber is selling in excess of $300 per thousand board feet.

Line Item Summary

Question: Please provide a detailed breakdown of your supplemental budget request indicating how your funding is allocated among the traditional budget activities and subactivities and, where appropriate, for the specific functions involved. Also indicate what funding should be made available under your construction account.

Answer: The enclosed budget line item chart also shows this breakdown.

Question: Please explain why you are requesting that your entire supplemental be made available through fiscal year 1981.

Answer: With the end of fiscal year only three months away, it would be more economically efficient not to rush into contracts in order to get the funds obligated by September 30. We would need the continued use of the funds for contract supervision and also to finance work than is not contracted out.

Emergency Funding Authority

Question: The Forest Service does have emergency funding authority available for the purposes of firefighting and emergency rehabilitation of burned over areas. Does any of this emergency funding authority extend to situations other than wild fires such as the Mt. Saint Helens disaster?

Answer: The Forest Service funding authority for firefighting is authorized by 31 USC 534 and is limited to fighting forest fires in an emergency situation on or threatening National Forest System lands.

The authority for the rehabilitation of burned over areas is authorized by Title II of the current Interior and Related Agencies Appropriation Act, PL 96-126. This is an annual appropriation act which appropriates sufficient funds to liquidate obligations incurred in the previous fiscal year for forest firefighting and rehabilitation of burned over areas.

Therefore, none of the existing emergency funding authorities extend to Mt. Saint Helens or similar situations.

Question: Would such emergency funding authority be helpful to the Forest Service in coping with natural disasters -- volcanic eruptions, flooding, severe draught, earthquakes, and the like -- on national forest lands?

Answer: The Forest Service does not need emergency funding for coping with National disasters. We have authorities for emergency timber salvage, firefighting, emergency watershed restoration, insect and disease control, and general forestry assistance, which covers any contingencies.

Question: Please submit to the Committee suggested bill language that would provide such emergency funding authority for problems other than forest fires. Along with that, indicate how the emergency funding authority would be invoked and how the funds utilized for such emergencies would be repaid.

Answer: Since the Forest Service does not need additional emergency funding authority, suggested bill language is not being proposed.

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Questions Submitted by Senator Hatfield

Having viewed firsthand the tragic aftermath of the Mt. Saint Helens eruption, I have many concerns. They range across the breadth of geophysical, ecological, environmental and economic impacts associated with the eruption. However, my major interest is that we approach the Mt. Saint Helens phenomena in its entirety and not in a piecemeal fashion. We need to consider, in concert, the importance of the area in gaining new understanding of the earth's forces, in its potential beneficial aspects associated with the event, in its impacts to local and State governments, and in the destructive nature of the eruption to important resources.

Question: Along this line, I am interested in how long it will take to gather on-site information which will indicate those areas important for research projects, visitor interpretation, timber salvage, soil erosion control structures and potential geo-thermal activities. Are inventories underway to identify the various values and opportunities in the impacted area and alternative uses complementary to those values?

Answer: An interdisciplinary team has been assigned to make a comprehensive resource assessment to develop an action plan. On-site assessment has not been possible to date because of the extreme hazards involved. Adverse weather has hampered doing the kinds of aerial photography needed for detailed inventory work. However, the team is developing some alternative plans, based on the best information available, for various values and opportunities in the impacted area.

Question: How long will it take to complete the inventories so we know what the opportunities are and where they lie?

Answer: We hope to have tentative plans developed in late June. The date of completion of inventories cannot be predicted at this time. Continuing volcanic activity precludes putting any people in the area to make the kinds of analyses needed for a complete assessment.

Question: What costs are associated with carrying out the inventory in the remainder of fiscal year 1980? In fiscal year 1981?

Answer: The cost for fiscal year 1980 is $675,000 and the cost for fiscal year 1981 is $200,000.

Question: What problems do you foresee for off-site impacts such as stream siltation and erosion caused by conditions within the devastated area?

Answer: The best assessment we have of such damage is from a preliminary and unverified May 27, 1980, damage appraisal by the Gifford Pinchot National Forest.

Stream damage and consequences are quoted as follows:

Stream Damage

Damage Catefory	Miles of Streams Class I & II	III	IV
1. Destroyed (by mudflows)	28	7	65
2. Severe Damage	9	8	35
3. Heavy Damage	40	62	195
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Numerous private domestic water supply systems have been developed on small streams flowing from the National Forest. Typically the drinking water is not treated, i.e., filtered or disinfected. Turbidity values will be above levels established by the Environmental Protection Agency under the Safe Drinking Act (PL 92-523). Turbidity problems will occur during periods of ashfall and during rainy periods until the sediment (ash) is flushed out of the streams.

Much of the sediment in the stream systems will eventually be deposited in hydroelectric impoundments -- Riffe Lake (Mossyrock Project -- Tacoma City Light) on the Cowlitz River and Swift Reservoir (Swift Project -- Pacific Power and Light) on the Lewis River. The major sediment impact to the Swift Project will occur as the Muddy River and Pine Creek systems re-establish channels by eroding through the mudflows that block them. This same formative process will take place on the North and South Fork of the Toutle River. It is estimated that 1,100,00 cubic yards of sediment will be dumped

into the reservoirs, reducing the storage capacity 690 acre feet. It would cost approximately $5,500,000 to remove the additional sediment.

Destruction of the top 1,300 feet of Mt. Saint Helens also means the loss of glaciers and ice and snow fields. During the summer months, these areas contribute important streamflows for beneficial downstream uses, including fisheries and power generation. Ashfalls have blanketed most of the Cowlitz River, including the Cispus and Toutle Rivers, and the Lewis River watersheds. Thin deposits of ash may increase snowmelt rates, thereby tending to reduce the amount of snow water available for late summer streamflows. Heavy ash deposits may reduce snowmelt rates by serving as an insulating blanket and thereby tending to prolong the snowmelt period. What the net effect on streamflow will be is not known.

Question: Have estimates been made of the cost of control structures to reduce off-site impacts?

Answer: No estimates of need or of cost have yet been made. The damage and rehabilitation assessment, when complete, will provide the data from which reasonable estimates may be made as to the cost of any required sediment control structures. If such structures are required, they will most likely be needed downstream from National Forest land. The determination of need and the planning and design of such structures will necessarily be coordinated with State and local government entities.

Question: I hear estimates of one billion board feet of trees have been killed. How long may these trees be left lying before they are no longer suitable for wood products?

Answer: We estimate 1.6 million board feet of merchantable timber on National Forest land was blown down by the volcanic blast. We anticipate that about 800 million board feet can be salvaged. There well be some deterioration of sapwood, but the bulk of the volume will be usable if salvaged within four to five years.

Question: Do you expect insect and disease epidemics to originate from the down trees? Could such an epidemic be confined to the impacted area and be kept out of the surrounding timber stands?

Answer: If the damaged and weakened timber is suitable for beetle attack we can expect attacks by the Douglas-fir bark beetle and silver fir beetles. These attacks will not take place until the spring of 1981 and epidemic outbreaks, if they develop, will not occur until the spring of 1982. We believe that if such epidemics develop, they can be confined to the impact area and the weakened timber immediately surrounding it.

Question: What insect and disease suppression alternatives are available to minimize the outbreak potential?

Answer: Prompt detection and removal of infested timber is the preferred alternative. Other alternatives available for use on a limited scale include the use of behavioral modifying substances (pheromones) and chemical insecticides.

Question: Are funds needed this fiscal year and in fiscal year 1981 for insect and disease suppression activities?

Answer: No additional suppression funds are needed in fiscal year 1980 or fiscal year 1981. However, we estimate that an additional $133,000 will be needed for monitoring activities to determine the condition of the damaged timber and to evaluate the insect and disease population trends in fiscal year 1981.

Question: Obviously, the public will be anxious to view the most severe example of volcanism in the continental U.S. in this century. What plans have been made to provide public viewing and interpretation of the area?

Answer: We have immediate plans for two mobile visitor centers, one to the north and one to the south of the volcano. These sites are close to Interstate 5 and will be installed before the July 4 weekend. Temporary exhibits are now being constructed. The Forest Supervisor's office and each Ranger Station will have lobby displays. Seasonal interpretors are hired and are being trained to conduct interprative programs. An important element of the interpretive program will be an extensive public safety message. Long-term interpretive data gathering and planning will be started.

By September 30, three additional vista sites will be operational with interpretive instruments in place. Additional interpretive exhibits will be completed. A color brochure will be available to interpret the volcanic activity and public safety.

Question: When do you expect the area to be safe for public access?

Answer: The Geologic Survey will make no predictions. Mt. Saint Helens is a very dangerous volcano and may remain so for months, years or decades according to their testimony.

Question: What facilities are necessary to adequately handle the expected public influx?

Answer: We will develop a complete assessment of the facilities necessary to interpret past and present volcanic activity. Through comprehensive planning, we will suggest appropriate management activities for the present (while the volcano is still active) and the future (after the situation stabilizes).

Our preliminary assessment indicates at least two centers of interpretive activity, one towards the north and one towards the south of the volcano. A network of trails through the damanged areas will eventually be an integral part of the interpretive facility.

Overlooks on heavily traveled roads will provide an opportunity to develop 10-12 small road side interpretive exhibits.

Question: Do you have an estimate of public facility needs for fiscal year 1981?

Answer: Until we can enter the area and complete our damage assessment, we can only estimate public facility needs for fiscal year 1981. We know there is need to install temporary bridges and construct bridges approaches outside the devastated area.

There will be additional needs for dealing with ash and its effects on the Gifford Pinchot, Wenatchee, and Colville National Forests in Washington and Idaho. Estimated costs of $1,500 per mile for dust abatement and ash removal will require approximately $4,500,000 in fiscal year 1980 and $20,500,000 in fiscal year 1981. More than 15,000 miles of forest roads have been impacted.

DEPARTMENT OF AGRICULTURE

Soil Conservation Service

STATEMENT OF NORMAN BERG, CHIEF, SOIL CONSERVATION SERVICE, USDA

COORDINATION WITH FOREST SERVICE

Senator MAGNUSON. How do the Soil Conservation Service and the Forest Service coordinate their activities?

Mr. BERG. We have excellent authority, Mr. Chairman, in the 1978 Farm Credit Act, Public Law 95-334, section 403, that allows the Department to move very rapidly on this sort of a problem. However, we need to identify just exactly the extent of what should be done and how best to do it. We certainly——

Senator MAGNUSON. Don't you work with the Forest Service?

Mr. BERG. Yes.

Senator MAGNUSON. You are all in the same department, the Department of Agriculture?

Mr. BERG. There are four agencies represented here from the Department of Agriculture: Forest Service, Soil Conservation Service, Administrator Fitzgerald representing the Agricultural Stabilization and Conservation Service.

Senator MAGNUSON. What will be done with the $20 million?

Mr. BERG. Mr. Thornton is the Farmers Home Administration. We are working with the State and local people through the Federal Emergency Management Agency, known as FEMA and with the Corps of Engineers and with other agencies who are in place at the local level, to assess what the damage has been and try to come up with a plan for a coordinated response that will most effectively meet the needs of that area. As the Governor has pointed out, it breaks down into three problems: how to deal with the blast area and the flow resulting from that, the mud flow, and the ash fall. And to the east of that area, there are very significant acreages of agricultural land, including forest areas, rangeland, and cropland that have been affected. We are working in concert with the State agencies and local people. We are trying to find what best to do in that particular area.

Something very significant in our opinion is, what effect would this have on the long-range productivity of the soil? Most of this area was formed originally from that kind of deposit. Over a long range of time it can be helpful, but right now it is a very serious problem. Irrigation facilities need to be rehabilitated in many areas. There is roughly 1,200,000 acres of range land that is going to be impacted quite severely. We need to assess that. I agree with the General from the corps that we need to examine the possibilities of retention facilities to

do what we can to hold back the very damaging precipitation flows that will occur later this winter. We need to build these now. There are 17 tributaries to the Cowlitz River that need to be looked at very rapidly. There are mud flows that need to be seeded. We asked the experiment stations what is the best seeding rate if we are ready to move on that. We have their recommendations. Most of this is testing based on the best experience we have had in the past, testing some of the things that are, at this time, really unknown.

I am reminded that not too long ago, about this time of year, the Teton Dam in Idaho produced an enormous catastrophe to that area. I think the agencies sitting at this table learned a great deal from that type of emergency. We moved in; our people worked literally around the clock, 7 days a week. As necessary, we move people in from other parts of the country. I think we have demonstrated that local, State, and Federal people can work together in concert with the private people to do what can be done with the best knowledge available.

As I said, we do have a good authority in the Department of Agriculture to deal with this. The $20 million will be made available as rapidly as we can come up with plans of work that are acceptable within our area.

Senator MAGNUSON. There have been some recent reports that apples and pears are dropping off the trees. Do you know anything about that?

Mr. BERG. Yes, we heard that. It is a problem that needs to be further analyzed. I think the State and local people have that in hand. There are three agencies of the Department of Agriculture that are in every county in your area. These are county extension agents, Soil Conservation Service and the local conservation district, and the Agricultural Stabilization and Conservation people with their local county committees. The Farmers Home Administration have offices throughout that area. These people are available; they are citizens of the community; they are as concerned as anybody can be. We place a great deal of reliance on what should be done and what the situation is by working back through our State people in Spokane and our county-based people in each of the counties. So to that extent——

Senator MAGNUSON. And the State agriculture department?

PREPARED STATEMENT AND SUBMITTED QUESTIONS

Mr. BERG. Yes, we are making our people available to do whatever is best within our responsibility. Mr. Chairman, I would like to insert my statement for the record.

Senator MAGNUSON. Without objection, it will be printed in full in the record, together with the questions and answers submitted for the record.

[The statement and questions and answers follow:]

PREPARED STATEMENT OF NORMAN A. BERG, CHIEF, SOIL CONSERVATION SERVICE

I appreciate the opportunity to appear before this committee to discuss what the Soil Conservation Service (SCS) can do to help with the aftermath of the volcanic eruptions of Mount St. Helens.

I have been reading reports and talking to some of those who have had a first hand view of this disaster, and I find the size and scope of what has happened to be almost beyond human comprehension. The total impact and changes in the environment of the areas concerned and the impact and magnitude of the ash "fall out" over a multi-State area has not been determined. The immediate and long-term effects of the eruption are being assessed and they are likely to be enormous.

Preliminary damage estimates indicate significant loss and damage to agricultural lands and crops, to watersheds and stream systems, irrigation developments, and other conservation systems. SCS has suffered losses to snow survey equipment, vehicles, and physical facilities, including our plant materials center, due both to the immediate blast of the eruption and to the resulting fall out of the ash. We do not have adequate estimates of these damages or the total cost of the work SCS will be responsible for in providing technical assistance and in mitigating the threat to human life and property. We are reasonably sure that the eventual cost of this work will be significantly greater than the $3 million requested under conservation operations and the $20 million requested under section 403 emergency watershed protection authorities. Damage estimates and their effects are further complicated by possible additional damage at any time. The Forest Service has already indicated to us that they will need about $25 million of our emergency watershed protection funds to complete work where they would be responsible. The requested amounts, together with currently available funds will enable us to begin responding to this situation as soon as an assessment of damage and a plan of work are completed. Additional funding needs, beyond the amounts included in this supplemental, will be decided upon at that time.

Some projected actions are:

(1) The seeding of eroding slopes and ash deposits with quick growing vegetation. This will be most difficult and costly on the steep slopes covered with deep ash deposits. It will be somewhat easier to achieve on the mud flats, and it is believed that this area should receive highest priority for technical and financial assistance in the next few weeks and months. Ongoing program and emergency authorities could be used for this purpose. A longer range, carefully planned seeding for the steeper ash-covered slopes appears prudent. This could be a part of total watershed or river basin planning to assure supportive corrective measures.

(2) The outlets of many of the smaller streams discharging into the rivers are plugged with mud and debris and are causing drainage and erosion problems and flooding hazards. Emergency assistance could be carried out by SCS to remove these stream plugs if funds and manpower are made available.

We have efforts underway to identify the specific needs which SCS will have to address and the resources which will be required to take care of these needs. When these details become available, they will be supplied to the committees. Meanwhile, what we are asking for is to increase the funds we have available to meet this emergency based essentially on the known magnitude of the disaster and the need to respond to these dangerous conditions as soon as a coordinated plan is developed.

Mr. Chairman, that concludes my statement. I will be happy to answer any questions I can.

Questions Submitted by Chairman Magnuson

Question: What type of assistance is the Soil Conservation Service now providing landowners whose agricultural lands were damaged as a result of the Mount St. Helens Volcano?

Answer: Local SCS personnel are providing technical assistance to landowners as a result of the Mount St. Helens Volcano. Technical assistance is being provided to help the landowner incorporate the ash into the soil by chiseling and discing and in the reseeding of hayland, pasture land, and other areas now barren as a result of the volcanic activity. SCS personnel are serving on State and local emergency boards, and are assisting Federal, State, and local agencies and individuals with the assessment of damages to agricultural land.

Question: What is your preliminary assessment of the damage to agricultural lands from the volcano? Why is it important to repair this specific damage? What are the implications of not repairing it immediately?

Answer: Damage to agricultural land is especially serious in the counties near the volcano but is present throughout eastern and central Washington. Damage to existing crops is still being assessed, but preliminarily, it appears that the hay crop was damaged the most with approximately 60,000 acres lodged, covered, and rotting. Apple orchards are suffering an unusually heavy apple drop with some drop reaching 100 percent. Wheat losses appear to be minimal, however, the full results will not be known until after the harvest. Some losses in lentils and peas are expected. Damage to native rangelands is still being assessed. Damage to harvesting, machinery, vehicles, and other equipment is expected to be high.

Delays in taking corrective action will accelerate the economic loss. The ash, as it is flushed off the farmland by wind and rain, tends to collect and harden in low areas of fields making it almost unfarmable. Air and water quality are deteriorating due to the ash. Water quality will continue to deteriorate until corrective actions are taken. Correcting damages to agricultural lands is technically tied to the sustained benefits of stream cleanout in the upstream watersheds and dredging operations in the downstream waterways.

Question: Within what timeframe can the necessary conservation technical assistance be provided to clear up the damage?

Answer: Almost immediately following the eruption, some relocating of personnel via details was accomplished within the State of Washington. More personnel are needed in portions of the State. Following authorization it would take 2 to 4 weeks to hire and/or transfer the necessary amount of personnel into the area.

Most of the current work is in assessing damages and early planning of restoration measures. Some stream restoration work is underway. To correct known damages may require 18 months to 2 years. Further volcanic eruption causing intensified or wider spread damages could lengthen even further the needed time for restoration.

Question: How has the Soil Conservation Service delivery system at the county office level been functioning in providing techni-

cal assistance to landowners? What has been the volume of requests? Have you been able to meet the requests to date?

Answer: The Soil Conservation Service delivery system is ideal for providing technical assistance to landowners in this type of crisis; however, more personnel are needed to handle the requests for technical assistance in the immediate future. The volume of requests is building and will reach a peak by late summer and fall. The immediate concern of most residents was to first take care of their homes and families; and they are now requesting technical assistance for their problems associated with their land. That activity is expected to build throughout the summer. We do not have sufficiently trained personnel in place to handle the workload, nor do we have adequate funds for the placement of sufficient personnel to meet the needs.

Question: How will these additional conservation operations funds accelerate the availability of financial assistance from other Department of Agriculture of Soil Conservation Service programs?

Answer: With the provision of technical assistance to determine the best corrective actions to be taken for each problem area, a restoration plan, including costs can be developed to support applications for financial assistance. Also, it is essential that additional expert assistance be available to implement the financial assistance programs, such as the Emergency Conservation Program of the Agricultural Stabilization and Conservation Service. Without adequate conservation technical assistance being available, there would be no point in making the financial assistance available.

In addition, for those individuals who do not request or qualify for Federal financial assistance to rectify certain damages, the Soil Conservation Service may still be able to provide the technical assistance that is needed to carry out the work with private or State funds.

Question: What types of emergency measures will be financed from the $20 million supplemental? Does this sum appear to be sufficient at this time?

Answer: Measures to be financed include debris removal from tributaries to the Cowlitz River. The Corps of Engineers is expected to work on the mainstreams and SCS will open clogged channels of side inlet streams.

Another type of measure will be the establishment of vegetative cover on mud flow areas. In some areas, debris basins will also be installed to prevent downstream sediment.

Question: How serious are the problems of runoff and soil erosion in the Mount St. Helens area? To what extent can the emergency measure funds alleviate the problem and safeguard lives and property?

Answer: The potential problems of runoff and soil erosion in the Mount St. Helens area are substantial. Thousands of acres are completely barren; there are numerous vertical head cuts, clogged streams, and volcano caused impoundments of water, mud, and debris.

This highly erosive situation is in an area of especially high precipitation which is frequented by winter rains on frozen soil

and subsequent excessive water runoff.

A massive amount of revegetation work needs to be done this summer to help hold the soil in place and reduce downstream flood potential. The ash tends to harden and become impermeable, which increases the amount of runoff since the moisture is not allowed to soak into the soil.

In the Mount St. Helens area, there could be serious flooding if immediate action is not taken. The Cowlitz River, which prior to the volcanic action had a carrying capacity of 70 cubic feet per second, now has a capacity of only 10 cubic feet per second due to the ash, mud, and debris in the river channel. A substantial number of residences are in potential flood paths on the Cowlitz and Toutle Rivers. Small tributaries are already flooding because of debris blockage.

In areas where mud flows have obliviated stream channels, large volumes of sediment will be eroded during reestablishment of the stream regime. This sediment will fill downstream reservoirs, stream channels, road ditches, etc.

Question: We understand there is a requirement for 20 percent local cost share for the emergency assistance. This is not in the legislation. Who imposed it? What will be the impact?

Answer: The 20 percent cost share for nonexigency situations was added by the Department during the review and revision of the currently pending regulations. Undoubtedly, this requirement will prevent some local sponsorship of some needed measures. Sponsors are entitled to use in-kind services as part of their cost share, which may reduce the detrimental impact of the 20 percent requirement.

The impact of the 20 percent criteria in the St. Helens area could create a hardship in communities where local funds are presently exhausted.

AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

RAY FITZGERALD, ADMINISTRATOR, AGRICULTURAL STABILIZA-TION AND CONSERVATION SERVICE, USDA

TREATMENT OF DAMAGED FARMLAND

Mr. FITZGERALD. Mr. Chairman, I represent ASCS. We are requesting $20 million primarily for the purpose of treating farmland damaged by the eruption of Mount St. Helens on May 18.

These funds are needed to repair the damage from the May 18 eruption through regular emergency conservation practices which are available, and two special practices which have already been approved for the State of Washington. On most of the lands, we think the ash will have to be incorporated into the soil either through shallow or deep tillage. There are other problems. For example, where alfalfa is down, it may have to be removed from the land before the ash can be incorporated into the soil. If other major problems develop, our county committees will be able to deal with them.

DEBRIS REMOVAL

Of the $20 million which we are requesting, an estimated $14.5 million in cost-share assistance is intended for incorporation of ash into the soil on 1,665,000 acres in Washington. These figures include residue removal on 70,500 acres. In addition, an estimated $350,000 would be allocated to Washington for removing debris from the farmland and restoring livestock watering facilities. Idaho would receive cost-share assistance of approximately $650,000 for incorporating ash into the soil and removing crop residue.

EMERGENCY LIVESTOCK FEED PROGRAMS

Mr. Chairman, we have elected county committees and an office in every county in the State of Washington, and we are receiving daily reports of the damage and of opportunities to provide assistance.

The remaining $4.5 million would fund requests on hand to repair damage caused by floods and tornadoes primarily in the Southwest and Southeast parts of the United States.

Other opportunities we have for assistance to the people in Washington and nearby States are already funded because they come through the Commodity Credit Corporation's ongoing programs. I am talking about emergency livestock feed programs, low yield harvesting of the crops of wheat and feed grains. But the emergency conservation program is the one where we do not have any funds at the present time.

EFFECT FROM FALLOUT ON CROPS

Senator MAGNUSON. You need the $20 million, then?

Mr. FITZGERALD. Yes, sir.

Senator MAGNUSON. Right away?

Mr. FITZGERALD. Yes, sir.

Senator MAGNUSON. What has been the effect on the crops, including the wheat? Do you know?

Mr. FITZGERALD. We don't know exactly. We had a man out there who just came back yesterday from our Conservation and Environmental Protection Division. We are advised that travel is restricted on some roads. In the case of wheat, generally speaking, it looks good. There are problems with some of the other crops, especially those which lodge underneath the fallen ash, on the ground. This ash evidently reflects the sunlight, causing the ground underneath to remain very cold, and some of the crops seem to be rotting.

Senator MAGNUSON. Your service is not widely known, except to certain farmers, isn't that correct?

Mr. FITZGERALD. I think that is true, Mr. Chairman.

Senator MAGNUSON. They know about it but I guess the public does not know about it at all, or they have only limited knowledge. So if a farmer has a problem, whether it be grapes, hops, or anything else, he would come to your office?

Mr. FITZGERALD. Yes, and make application, and we are already taking applications.

Senator MAGNUSON. And you are taking applications?

Mr. FITZGERALD. Yes.

Senator MAGNUSON. I wanted that known. You would help assess his personal damage, wouldn't you?

Mr. FITZGERALD. The county committee would assess him.

Senator MAGNUSON. You have to review it, the county committee, I suppose, and the rest of the agricultural people?

Mr. FITZGERALD. Yes.

Senator MAGNUSON. But he would come in right away?

Mr. FITZGERALD. Yes, sir.

Senator MAGNUSON. Do you have any questions?

EFFECT ON INSECT POPULATION

Governor RAY. I would like just to make a further comment and say Mr. Bob Nicholson, who is director of our State Department of Agriculture, has been working very closely with the different agencies within agriculture. I think the communication is good and the continuing need for assessment of the crops as time goes by. In many instances it just is not known yet what would be the final effect. There is one effect that is clearly long term that we already know, which is quite drastic. That is the effect on the insect population. This can be quite good and bad. I am told the dusting of ash, in the case where there is large poultry, enough ash has fallen on these chickens and gotten into their feathers and has destroyed all of their mites. It also has caused a vast death of insects which are important to pollination.

This, in turn, has an effect upon the birds that depend upon insects for their food. So the long term ecological effects are very great but these are things that I think are, at the present time, more open for study and planning for the future—how the environmental network can be restored.

I am sure we can continue to work with the Department of Agriculture on these problems.

Senator MAGNUSON. We have gone a long time, longer than I expected, and I have a few more witnesses.

PREPARED STATEMENT AND SUBMITTED QUESTIONS

Before we move on, however, I would like to insert in the record the prepared statement of Mr. Fitzgerald, together with the responses to questions the staff has submitted to the Service.

[The statement and questions and answers follow:]

PREPARED STATEMENT OF RAY FITZGERALD, ADMINISTRATOR
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Mr. Chairman and Members of the Committee, I appreciate this opportunity to discuss our request for supplemental funding for emergency conservation measures under the Emergency Conservation Program (ECP). This program has been used since 1957 to share with farmers the cost of rehabilitating farmland damaged by natural disaster.

We are requesting $20 million, primarily for the purpose of treating farmland damaged by the eruption of Mount St. Helens on May 18.

The eruption, which spewed volcanic ash in a northeasterly direction, deposited up to 4 inches on fields in the counties of Adams, Franklin, Grant, Lewis, Lincoln, Spokane, Walla Walla, Whitman, and Yakima in Washington, and in the counties of Benewah, Kootenai, and Latah in Idaho. The ash is mainly silica and is highly abrasive. Accumulation of one-quarter inch or more may interfere with normal farming operations. The hardest-hit counties report that crops were suffocated by the ash and that harvest of surviving crops will be impossible or uneconomical due to the ash's effect on machinery and the lower quality of crops. Ash has also contaminated livestock water and damaged irrigation pumps. In Cowlitz County, in the immediate area of the volcano, volcanic mud choked rivers and the resulting floods damaged cropland.

Another eruption on May 25 sent ash to the northwest, but the resulting damage, though not yet fully assessed, was relatively minor. No additional cost-share assistance is anticipated.

Measures needed to repair the damage from the May 18 eruption include regular ECP practices which are available and two special practices which have also been approved. On most of the affected acreage ash will be incorporated into the soil through shallow or deep tillage. However, in fields of windrowed alfalfa the volume of material involved makes tillage not practical. These farmers will need to remove the windrows before incorporating the ash. If other effective measures are found to deal with the problem, county committees may recommend those special practices.

Our $20 million request would provide an estimated $14.5 million in cost-share assistance for incorporating ash into the soil on 1,665,000 acres in Washington.

These figures include residue removal on 70,500 acres. In addition, an estimated $350,000 would be allocated to Washington for removing debris from farmland and restoring livestock watering facilities. Idaho would receive cost-share assistance of approximately $650,000 for incorporating ash into the soil and removing crop residue.

These cost estimates are based on the best information available today. There have been on-site inspections by members of the various county and state ASC committees and their staffs, and the Deputy Director of the Conservation and Environmental Protection Division in Washington, D.C., who surveyed the situation last week. Travel is still restricted in some of the affected area and precise damage assessment is difficult. However, our unique system of county and community committees is proving invaluable in getting a handle on the extent of the damage and informing the farmers on effective treatment measures.

The remaining $4.5 million would fund requests on hand to repair damage caused by floods and tornadoes primarily in the Southwest and Southeast, and other disasters for which requests for funds have not been received. For example, at this time we have not received a damage assessment on last week's tornadoes in Nebraska.

I will be happy to respond to any questions you might have.

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Questions Submitted by Chairman Magnuson

ASCS ASSISTANCE V. SCS ASSISTANCE FOR EMERGENCY CONSERVATION

Question: What type of cost-sharing assistance is provided to farmers under the Emergency Conservation Program? How does this assistance differ from what is provided under the Soil Conservation Service's emergency measure program?

Answer: The Emergency Conservation Program administered by ASCS provides assistance for rehabilitation of farmland damaged by natural disasters. This includes such measures as grading and shaping fields, removing debris, and repairing conservation structures. Basically, the authority is to restore to productive capability farmland which has been damaged by a natural disaster.

The Soil Conservation Service's Emergency Watershed Protection authorities provide for undertaking emergency measures for runoff retardation and soil erosion prevention in a watershed where necessary to safeguard human life and property.

DAMAGE TO AGRICULTURAL LANDS

Question: What is your preliminary assessment of the damage to agricultural lands from the volcano? What types of damage is there to the soil, to the crops, to the structures?

Answer: There were two types of damage--ash and mud. Ash covers the largest area but will be easiest to correct. Mud damage seems to have occurred on only 25 to 30 farms in Cowlitz County, but recovery will be more difficult.

Ash damage to the soil appears to be primarily from preventing water absorption and aeration. Because ash reflects the sunlight, it also prevents the soil from warming up.

Damage to crops varies: Irrigated alfalfa and seed peas are suffering from heavy lodging and loss of production; corn appears at present to be very poor mainly from cold soil temperature; the fruit crop is hurting due to dropping of set fruit and discoloration; seed crops in the irrigated area vary. Bee pollination of crops which have flowered since the eruption is questionable since most bees were killed.

Wheat, both dryland and irrigated, and potatoes appear to be doing well.

As far as equipment is concerned, the abrasive nature of the ash is causing abnormally large maintenance problems.

Washington State University reports that the ash is slightly acid, 6.5 pH, and contains small amounts of minerals. It appears that early incorporation in the soil is the best recovery method. However, this may mean the loss of crop income for 1980.

Mud damage to crops and soils was total in Cowlitz County. Mud layers are up to 10 feet thick on farmland. According to Washington State University, this mud is 67 percent sand, 9 percent clay, and 24 percent silt; it contains no nitrogen and only small amounts of phosphorus and potassium. Its texture is very good and with the addition of commercial fertilizer and organic matter, the cropland may be good in the future. Fences, wells, and other structures in this area were generally 100 percent destroyed.

PROVIDING EMERGENCY CONSERVATION FUNDS TO FARMERS

Question: How quickly can the Emergency Conservation Program funds be provided?

Answer: ASCS funds for the Emergency Conservation Program are exhausted; therefore, at this time funds cannot be provided for current disasters. However, if the Congress were to pass a supplemental appropriation for ECP we would immediately be able to provide funds to farmers through our county committee system.

REQUESTS FOR EMERGENCY DISASTER ASSISTANCE

Question: What kinds of requests have been coming into the county offices of the Agricultural Stabilization and Conservation Service to date?

Answer: Our county ASCS offices have received numerous requests from producers for assistance involving incorporation of volcanic ash into the soil by deep plowing; removal of crop residue; removal of debris from farmland; restoration or replacement of permanent fencing; restoration of livestock water facilities; and purchase of feed for livestock.

Question: Have you been able to provide assistance in these cases?

Answer: Requests are being processed and assistance provided to producers under the Commodity Credit Corporation Emergency Feed Program. Most of the requests, however, involve assistance under the Emergency Conservation Program, for which we have no available funds. This is why we are seeking additional funding for ECP, so assistance can be immediately and effectively provided to producers.

CCC EMERGENCY ASSISTANCE PROGRAMS

Question: Besides the Emergency Conservation Program, your Agency can provide assistance through funds available to the Commodity Credit Corporation for various commodity programs. Disaster payments as well as extensions of commodity loans are just two examples. Please discuss all of the various commodity program assistance that can be provided to these disaster victims.

Answer: The various emergency-related commodity programs are as follows:

The disaster program covers prevented planting and low yield disasters for wheat, barley, corn, and grain sorghum. There is a limitation of $100,000 per person for all crops in any crop year.

The commodity loan program is available for the same crops--wheat, barley, corn, and grain sorghum. Commodity loans nearing maturity have been extended in the four-State area affected.

The emergency feed program provides assistance in purchasing livestock feed to replace that normally produced on the farm but which was not because of natural disaster. Payment is based on 50 percent of the cost of feed purchased or less as determined by the Secretary. Loss of production must be substantial (40 percent), sufficient feed to cover the emergency period must not be on hand, and purchases during the emergency period must be larger than normal.

The herd preservation feed grain assistance program provides CCC-owned or purchased feed for livestock owners who are in a major disaster area and are unable to obtain credit or have insufficient cash to purchase necessary feed because of losses suffered in the disaster.

The Indian acute distress donation program provides CCC-owned or purchased feed to Indian tribes for livestock feeding when the ASCS Administrator decides that a natural disaster has affected normal feed supplies of members of an Indian tribe.

REQUESTS FOR CCC PROGRAM ASSISTANCE

Question: What has been the volume of requests in the county offices for commodity program assistance to date? What is your preliminary assessment of the costs in this area?

Answer: Under the Commodity Credit Corporation's disaster program, coverage is provided for both low yields and for prevented planting. To provide specific counts of disaster applications would be premature, since producers are still digging out.

The wheat loss in the State of Washington is predicted by Washington State University to be $25 million. In Washington a lot of corn is still to be be planted. In Idaho the ash, coupled with an extremely wet spring, has hampered planting of spring wheat and barley. In both States crops are expected to mature almost normally. However, due to the damage the ash causes to farm machinery, the amount of crops that will be harvested is questionable.

We will provide figures on costs incurred in the disaster programs as soon as data is available.

ASCS COUNTY OFFICE STAFFING

Question: Is staffing in the ASCS county offices adequate to properly deliver the necessary commodity and emergency conservation services?

Answer: The unique ASC farmer-elected committee system allows for hiring of temporary employees to staff county offices during peak or emergency workload periods. To date 12 temporary employees have been hired in Washington State county offices. It is anticipated that an additional 6 to 8 more temporary employees will be needed to assist with the increased workload. In the States of Idaho and Washington both overtime and shifting of personnel from other county offices to counties affected by the disaster are being utilized.

These personnel are used to provide assistance to farmers at ASCS county offices, to assist in field work involving the appraisal and assessment of crop damage, and to help staff FEMA emergency centers.

CROP DAMAGE

Question: I have heard reports that many of the crops in the State may be in trouble. Specifically, that apples and pears are dropping off the trees--is this true?

Answer: There has been severe damage to the apple and pear crops. In particular, nearly all the red delicious apples in the affected area are dropping off. The pears are discoloring and packers have indicated they will not accept them.

Question: What crop damage do you see to grapes, hops, wheat?

Answer: Most of the grapes were on the fringe of the area covered by ash and do not appear to have been damaged. No reports of damage to the hops have been received. The wheat crop does not appear to be damaged, but there is great concern about the affect of the ash on te machinery when harvest is made.

Question: Once the ash is turned under the soil, will it help the land or act as a fertilizer?

Answer: No one is yet certain of the short or long term impact the ash will have on the soil. The ash is composed of approximately 80 percent silica and the nutrients are not sufficient to improve soil fertility significantly.

SMALL BUSINESS ADMINISTRATION

STATEMENT OF WILLIAM MAUK, JR., DEPUTY ADMINISTRATOR, SMALL BUSINESS ADMINISTRATION

SMALL BUSINESS APPLICATIONS

Senator MAGNUSON. I think Mr. Mauk, from the Small Business Administration is here. I think you could just put your statement in the record.

Mr. MAUK. That will be fine.

Senator MAGNUSON. We are very familiar with the application of small business. The amount estimated for small business if $430 million.

Mr. MAUK. That is correct.

Senator MAGNUSON. Because you are rapidly becoming broke, too, are you not?

Mr. MAUK. We are not rapidly becoming broke, we already are. We haven't had money for 1½ months.

Senator MAGNUSON. It is very necessary we put some more money into small business. I hope you move quickly on the applications.

Mr. MAUK. We have people in the field already. We are opening up four offices outside the disaster assistance centers opened up by FEMA.

Senator MAGNUSON. You will get a lot of referrals from FEMA.

Mr. MAUK. We have had two people in each one of their centers. We have been meeting with the public already. We have applications in. We had over 2,100 interviews with applicants for our loans. We will have four offices, three in Washington, one in Idaho set up.

Senator MAGNUSON. I noticed in Kelso alone, at the opening of the FEMA office, they had about 300 people come through the first day and over half of them were given information for small business loans.

Mr. MAUK. That is correct. As you can see from the request for funds, ours is a very substantial one.

PREPARED STATEMENT AND SUBMITTED QUESTIONS

Senator MAGNUSON. We will make your prepared statement a part of the record and also ask that you respond in the record to some questions regarding your request.

[The information follows:]

PREPARED STATEMENT OF WILLIAM H. MAUK, JR., DEPUTY ADMINISTRATOR, SMALL BUSINESS ADMINISTRATION

Mr. Chairman and members of this committee, I welcome this opportunity to appear before you to discuss in detail the circumstances surrounding our request for a supplemental appropriation.

As you are aware, we have requested a supplemental appropriation of $427 million based on the fact that every region in the country is currently involved in some form of disaster activity. Although on April 25, 1980, the agency was required to suspend formal approval action on all disaster lending until additional funds become available, offices have remained open and we are processing all loans to the point of approval. In addition, those loans approved prior to April 25, 1980, are being disbursed.

Through April of this fiscal year, we have approved almost 40,000 loans for over $620 million. In addition to this, we have accepted over 20,000 loan applications valued at $362 million which are being processed. So as you can see, there exists a genuine need for our assistance.

Since our request to the Office of Management and Budget for supplemental funding on February 13, 1980, there have been a series of major disasters that are estimated to generate loans in excess of $700 million, therefore requiring us to return to OMB and request additional funding. This second request is primarily due to the floods in California and Louisiana, the Nebraska tornado, the Mount St. Helens volcano, and the recent civil disorders in Miami.

Included in these requests are estimates that will increase our nonphysical disaster loan program from its original budget level of $60 million. This is principally due to the demand for 7(b)9 economic dislocation loans and 7(b)3 displaced business loans. Through April 30, 1980, $42 million of almost $58 million nonphysical loan approvals were for these two programs. We currently have $37 million in process with another $25 million anticipated to be received from existing declarations.

Our original supplemental request contained $7 million for salaries and expenses fund. However, due to a significant number of disasters occurring since that request, an increase of at least $5 million will be necessary.

Mr. Chairman, this concludes my statement on our need for additional funding in connection with disaster relief programs at SBA, and I now will be pleased to answer any questions which you may have.

QUESTIONS SUBMITTED BY CHAIRMAN MAGNUSON

1. *In view of the fact that SBA decreased their estimate by $70 million in one week's time, how reliable are these estimates?*

SBA has virtually no experience in responding to an extensive volcano disaster. Our estimates are based upon our on-site evaluation of the situation and careful discussions with federal, state and local officials in the impacted area. Given our limited experience, these estimates are as reliable as we can prepare at this time.

As you are aware, much damage has yet to be thoroughly documented since it remains uncertain as to the exact extent of damage caused by the varying amounts of volcanic dust, etc.

A substantial portion of our estimate is based upon our belief that widespread economic injury has occurred in the disaster area; yet this impact is not yet well documented. Further, our economic injury loans are made only to those small businesses with substantial economic injury who do not have adequate personal resources for response to the disaster. In addition, economic injury disaster loan recipients must also be unable to obtain credit from local banks, etc.

In most instances, it will take a business a considerable period of time to establish their economic injury; so they have nine months during which to prepare and file their applications for SBA loans.

Lastly, farmers with partial crop losses will not have their applications completely processed and approved until after harvest when solid loss statistics are available.

2. *Congress expects to adjourn by October 1st. I am concerned that there could be a hiatus in the assistance until the 97th Congress convenes next January. Does SBA have any stand-by authority to make loans if the $430.6 million estimate for Mount St. Helens proves inadequate?*

At present, no. If S. 2698 were enacted and Congress would authorize additional borrowing authority, there would be flexibility.

3. *SBA also estimates $500 million in requirements for 42 other disasters that have occurred since February 27, 1980. How reliable are those estimates, and could they possibly crowd out the Mount St. Helens' victims if the overall estimate proves inadequate?*

Given our extensive experience in response to the other disasters referenced in your question, we feel the estimates are entirely reliable. We do not now anticipate these other disasters will crowd our the Mount St. Helens' victims.

4. *The eruption of Mount St. Helens had a devastating impact on the area adjacent to the volcano. However, the ash covered a wide distance across the State of Washington as well as other*

4. *Continued*

states. How much of the $430.6 million is estimated for Washington?

The $430.6 million damage estimate is for the entire State of Washington.

5. *What can you tell us about the details of the $430.6 million? For instance, am I correct that it only includes $600,000 for damages to 300 homes? What is the basis of this estimate as you can't do much to your house with the average you budget of $2,000 per home?*

The $430.6 million is broken down as follows:

	Units	Dollars (Millions)
Physical Damage		
Homes/Personal Property	950	6.6
Non-farm Businesses	600	9.0
Agricultural Entities	1,400	200.0
Economic Injury		
Non-farm Businesses	3,500	215.0
TOTAL	6,450	430.6

Our damage estimates for homes and businesses have been revised upward, reflecting additional information which indicates higher than anticipated applications for both categories, as well as information reflecting costlier damage to both categories (i.e., damage to air conditioners, furnaces, etc.). Still, it remains an estimate.

6. *We understand that the $430.6 million estimate includes only $5,000,000 for assistance to 500 businesses. That works out to an average of $10,000 per business. In these days and times a small grocer could hardly restock his shelves with $10,000, and any business with much machinery couldn't do much with only $10,000. What is the basis of the estimate that only $5 million will be needed for businesses?*

Our estimates for business damage includes the following:

	Units	Dollars (Millions)
Physical Damage		
Non-farm Businesses	600	9.0
Agricultural Entities	1,400	200.0
Economic Injury		
Non-farm Businesses	3,500	215.0
TOTAL	5,500	424.0

Estimates have been revised.

7. *There has been considerable debate in the Congress of SBA disaster assistance to farmers. The pending SBA authorization bill will make farmers first to go to the Farmers Home Administration for disaster loans.*

   A) *Will the legislative changes have any effect on the assistance provided farmers due to the Mount St. Helens disaster?*

   We do not anticipate that any legislative changes affecting the disaster program and included in the pending SBA authorization bill will affect farmers impacted by the Mount St. Helens disaster. The pending bill provides for the law to become effective for disasters occurring after the date the bill is signed by the President.

   B) *How much of the $430.6 million is to assist farmers for their disaster losses?*

   Approximately $200 million.

   C) *Does the assistance to farmers also include loans to persons who owned the timber that was felled by the volcano's blast?*

   The damage estimate for farm damage does not reflect any estimate for loans to persons who owned timber felled by the blast. At this point, it is unknown whether this felled timber will be salvaged, will be traded for other federal lands, or classified as 100% loss. We anticipate that any timber losses will be accommodated by other federal agencies.

8. *What rate of interest will be charged on the SBA loans? How long will homeowners and businessmen have to pay off these loans?*

Physical Disasters

I. PRIMARY HOMES OR PERSONAL PROPERTY

3% interest for repair and/or replacement. Maximum limits of $50,000 for repair/replacement of real property, $10,000 for repair/replacement of personal property, and a combined maximum of $55,000.

8 1/4% interest for loans or portions thereof used for eligible refinancing, with a maximum of $50,000.

II. NON-PRIMARY RESIDENCES

3% interest for repair/replacement of personal property. 8 1/4% for repair/replacement of real property, and for loans or portions thereof used for eligible refinancing.

III. BUSINESS LOANS

8 1/4% interest for Economic Injury Disaster Loans (EIDL) resulting from a physical disaster.

5% interest for loans to businesses which in SBA's judgment are unable to obtain credit elsewhere.

8 1/4% interest for loans to businesses which in SBA's judgment are able to obtain credit elsewhere.

8 1/4% interest for loans or portions thereof used for any eligible refinancing.

8 1/4% interest on loans for non-profit or non-business concerns (i.e., churches, etc.). Credit elsewhere test applies.

Maximum limit on business loans is $500,000, unless hardship can be proven.

IV. CREDIT ELSEWHERE

As used in Public Law 96-38, credit elsewhere means the availability of sufficient credit from non-federal sources at reasonable rates and terms, taking into consideration prevailing private rates and terms in the community in or near where the concern transacts business for similar purposes and periods of time.

9. *Is SBA responding to the needs of the Mount St. Helens disaster; for instance are all the applications worked up so that there will be no delay once the funds are appropriated?*

As of June 13, 1980, ninety (90) applications requesting $4.7 million have been received for processing. We are processing the applications as far as possible while we await approval of supplemental funding. Any delays encountered would be the

result of the time factor between now and the date of approval of supplemental funding, and the number of backlog applications placed on "standby" pending funding.

9A. *Is there anything Congress should provide beside the money to insure there will be no unnecessary red-tape?*

Not at this time.

10. *Earlier this year, Senator Jackson and I wrote Administrator Weaver about the reductions to the temporary disaster personnel assigned SBA's Seattle Regional Office. We had 17 on December 31, 1979 and on February 15th it was reduced to 14 and our farmers were encountering delays in getting their loans from previous disasters in order to plant their new crops.*

How many disaster personnel are now assigned to the Seattle Region and how does that compare to the number required to assist the victims of the volcano?

On June 3, 1980, we increased the Regional temporary disaster employee ceiling from 18 to 70 positions with the provisio that 20 of those positions (legal staff to close the loans) not be filled until June 15, 1980. The Region advises that they will have 70 persons on board as of June 18, 1980.

Further, each of our four (4) disaster offices will be managed by a permanent SBA employee.

Given the present rate of return of disaster loan requests, this staff should be able to meet the needs. We will be working very closely with the Regional Office to insure adequate Agency response to this disaster.

11. *At the time of the Mount St. Helens eruption, there was a pending supplemental request of $420 million for SBA disaster loans. Will the additional request for Mount St. Helens affect the funding for applications that had been filed previously?*

No.

DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

STATEMENT OF JAMES P. WALSH, DEPUTY ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

PREPARED STATEMENT

Senator MAGNUSON. Next we have our friend Bud Walsh on behalf of the National Oceanic and Atmospheric Administration.

Mr. WALSH. Thank you, Senator.

I will just submit my statement for the record.

[The statement follows:]

PREPARED STATEMENT OF JAMES P. WALSH, DEPUTY ADMINISTRATOR

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Mr. Chairman and Members of the Committee:

Since the eruptions of Mount St. Helens in Washington State on May 18, several components of the National Oceanic and Atmospheric Administration have been involved in efforts to understand or to deal with the impact of those eruptions.

The atomic bomb-like explosion injected an enormous amount of volcanic ash into the atmosphere; the cloud reached as high as 11 miles above sea level. Cascading mud and ash filled lakes and riverbeds and significantly changed the natural environment in the watershed near the mountain. Mr. Chairman, I have a series of photographs of the dispersion of the plume on that day taken from one of our geostationary meteorological satellites which I will provide to your staff.

This morning I would like to describe for you NOAA activities in connection with the eruption and to provide a very preliminary estimate of the damages to the fisheries in the area. I would like to emphasize that we really know very little about what the ultimate damage from the eruption will be, and these assessments are based only on our initial data.

As you know, the Federal government response has been led by the Federal Emergency Management Agency, with participation by numerous Federal agencies. The National Weather Service in NOAA has been providing meteorological forecasts, from Seattle and Portland, for the affected area. Of primary concern has been the movement of the volcanic ash plumes that have been disgorged from Mount St. Helens. The initial plume moved very quickly, travelling 75 miles east to Yakima, Washington two hours after the eruption. Violent thunderstorms were generated

by the turbulent ash cloud and started numerous forest fires. Our weather radar in Portland, Oregon, has been closely monitoring discharges from the mountain to provide early warning of ash movements. However, ash discharges seem to have abated for the moment.

INCREASED FLOODING POTENTIAL

Of more serious concern to the Weather Service, however, is the substantially increased potential of severe flooding in the watersheds of the Toutle, Cowlitz, Kalama, and Lewis Rivers. These river systems have been greatly altered by mudflow that was generated by the May 18 explosion. A tremendous amount of sediment, as you know, has clogged the rivers and streams around the mountain. As a consequence, the water carrying capacity of the river systems has been significantly reduced, thereby increasing the risk of serious flooding. For example, the capacity of the Cowlitz River is 75 percent less than before the eruption. Consequently, what was formerly a 10-year flood plain is now a two-year flood. At Castle Rock, Washington flooding will now occur when the river fills to 9,500 cubic feet per second rather than the previous flood level of 76,000 cubic feet.

Because of these changes in the river system and the loss of automatic stream gauges in the region, the Weather Service is understandably concerned about our ability to forecast flooding conditions on a timely basis. The potential for serious flooding initiated by a lava flow is of most immediate concern. But the usually heavy rains in the fall are also something to worry about.

Thus we see our most urgent need to be the establishement of a radio telemetry river and rainfall observing system to provide the data gathering capability we now lack. With such a system, we will be able to double the warning time by about 2 hours at most heavily populated areas. We will take all necessary steps to install a system to protect human life.

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IMPACT ON FISHERIES

Obviously, such large-scale alterations in the rivers in and around Mount St. Helens threaten the fisheries that depend on those rivers for reproduction. Although it is still too early for a definitive damage estimate, NOAA's National Marine Fisheries Service estimates an annual loss of $6-8 million based on the destruction of the stocks in the Cowlitz and Toutle Rivers, a small amount compared to the total value of the entire Columbia River fishery.

As you know, NOAA provides funds to the States of Washington and Oregon to operate several fish hatcheries on the Columbia and interconnecting streams and rivers. Our Columbia River Fishery Development programs costs about $7.8 million annually. One of the more productive hatcheries was situated on the Toutle River. Unfortunately, that hatchery has been extensively damaged. We are working with the Washington State Fisheries Department to determine whether that hatchery should be repaired given the changes in the topography of the area.

At this point we are not sure of exactly what form the impacts on anadromous fish will take. We do know that all fish in the Toutle River proper and its major tributaries have been killed and the river is uninhabitable. The lower 20 miles of the Cowlitz will not support fish life and are a barrier to fish trying to move up and down stream. Our immediate concern is what effect the turbidity in the Cowlitz will have on the adult chinook and coho which will be returning in the fall to spawn in the Cowlitz. Currently juvenile salmon are dying after 6 hours in the Cowlitz. There is some evidence that fish from the Cowlitz are returning to the Kalama, but we don't know how widespread this change in migration will be.

One of our major concerns is the impact the large amounts of ash in the water will have on fish in the Columbia River

system. The NOAA research vessel MILLER FREEMAN collected samples at the mouth of the Columbia on May 30, to study the effects on the river's chemistry. NOAA scientists studied the transport of particles suspended in the water and mapped the distribution of volcanic ash at the river mouth. It is possible that the ash and cinders will form a sediment layer on the ocean floor, which could smother organisms on the bottom and reduce the long-term abundance of crab and fish.

However, we know very little about the effects on the stocks passing through the Columbia system. At this point we have no hard data which indicates terrible loss in the system other than in the Cowlitz and Toutle Rivers. Some juvenile salmon appear to be under stress, and there have been some behavioral changes. We are continuing to sample juveniles as they pass through the Columbia and to conduct near shore ocean sampling.

CLIMATE CHANGES

NOAA is also studying the potential climate changes due to volcanic debris in the atmosphere. There are some indications that the debris could block out some sunlight and cause a slight cooling of the earth's surface over the next five to ten years. This could mask the expected warming effects of increased carbon dioxide in the atmosphere, making early detection of CO_2 related changes difficult if not impossible.

NOAA will be continuing to study the impact of the Mount St. Helens eruptions on fisheries, weather and climate. As we reach conclusions about the long-term effects of the eruptions, we will suggest appropriate remedial actions. This concludes my formal testimony, Mr. Chairman. I will be happy to answer any questions you may have at this time.

FLOODING FORECAST PROBLEM

Mr. WALSH. One point before I get to the question of impacts on fish. That has to do with the flooding question. As you know, the National Weather Service has the responsibility for forecasting flood conditions. We are, of course, very concerned about our ability to forecast those conditions, given the changes in the watershed in and around Mount St. Helens. To give you an example, the water-carrying capacity of the Cowlitz River is now 75 percent less than it was before the eruption. What was usually, say, a 10-year floodplain has now been reduced to a floodplain in which a flood will occur every 2½ years. At Castle Rock, the river will flood at 10,000 cubic feet per second, rather than the previously 76,000 cubic feet per second. These are serious problems.

Until the Army Corps of Engineers can change the capacity of the river, we have severe flooding danger. In order to forecast that, Mr. Chairman, we see our most urgent need to establish a river range fall observing system up the river. We are proceeding to do that, and that will probably extend our warning time by about 2 hours for areas such as Castle Rock, Kelso, and Longview. So we believe even if there is some delay in the completion of the dredging in the Cowlitz River watershed, we will be able to issue more timely forecast because we will be able to obtain precipitation and river flow data farther up the river in order to give that warning.

DAMAGE TO FISHERIES

We are still estimating the damage impact on the fisheries in the area. The loss of these rivers is fairly significant, although not tremendously so in terms of the overall value of the entire Columbia River, but we have lost, Washington State has lost some hatcheries in the area. In particular, we found one hatchery on the Toutle River which produced salmon and there was also schinook and steelhead in the area.

We estimated from the Cowlitz and Toutle Rivers we lost an annual harvest of between $6 and $8 million worth of fish. In addition, we see the Toutle River hatchery, which was one of the most prolific in the area, as probably totally unuseful in the area, although we are trying to estimate that. Of course, streams in the area have been significantly changed. This adds to an already serious problem, as you know, in the Columbia River, in terms of salmon production. We feel there is a problem with salmon loss in the area.

We are still in the process with the State of Washington to estimate exactly what that loss is. We do not have any funds in this supplemental for that purpose.

Senator MAGNUSON. The State director of fisheries was in to see me the other day, and he was discussing the Toutle River. He said, fortunately, they found five or six streams that were not touched.

Mr. WALSH. The salmon avoided the bad river. They found that the heat——

Senator MAGNUSON. He said they missed the ash and were not touched. Apparently all the salmon going up the Yakima River are being touched pretty good, they are dying. But that is just the 3 or 4 day part of the run when the ash was falling. They don't know.

Mr. WALSH. Juvenile salmon are now dying as they get into the Cowlitz River. We have great concern about the fall runs. We do not know what will happen.

Senator MAGNUSON. You have to look at the long pull on that, do you not?

Mr. WALSH. Yes, sir.

Senator MAGNUSON. How much money does NOAA need for its flood monitoring program?

Mr. WALSH. The telemetry system we are proposing to place on the river system in conjunction with the Army Corps of Engineers and Geological Survey will cost about one-half of a million dollars. We need to put it in as soon as possible.

SUBMITTED QUESTIONS

Senator MAGNUSON. Thank you, Mr. Walsh. We have additional questions which we will submit for your response.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN MAGNUSON

FLOOD POTENTIAL

Mr. Walsh, what is the flood potential in southwest Washington as the result of the eruption of Mt. St. Helens? Specifically, which areas could be affected by any flooding?

There are three main streams in the Mt. St. Helens area. The largest stream is the Cowlitz River of which the Toutle River is a major tributary. The two other streams are the Kalama and the Lewis Rivers. The Lewis River has three large reservoirs located on it: Merwin, Yale and Swift Creek that have a total capacity in excess of 1.6 million acre feet. The stream with the highest flood potential is on the Cowlitz River from Castle Rock to Longview. A great deal of sediment has been deposited in this reach as a result of the Mt. St. Helens eruption. In previous years flood stage on the Cowlitz River at Castle Rock was reached at a flow of 76,000 cfs (cubic feet per second), today flood stage is reached when the discharge is 9,500 cfs. Peak flows in excess of 40,000 cfs occur on the Cowlitz River almost every year so that communities along this river have a high probability of major flooding this winter. Communities on the Cowlitz River flood plain are Longview (approximate population 30,000), Kelso (11,000), Lexington (less than 1,000), and Castle Rock (1,600). On the Lewis and Kalama Rivers there are no sediment deposits, however, the problem could be serious if a large mud and water flow occurs as a result of another explosion. The main town on the Kalama River is Kalama (population about 1,000). On the Lewis River the main communities are Woodland (1,700) and Ariel (less than 1,000). The primary problem on the Lewis River is the potential, although remote, of failure of one or more of the very large upstream reservoirs. This could occur in conjunction with a large mud flow into Swift Creek reservoir.

FLOOD MONITORING

What steps are being taken by NOAA to provide early warning of any flood danger in southwest Washington?

Since the current hydrologic network is quite sparse, on both the Lewis and Kalama Rivers, and somewhat inadequate on the Cowlitz River, NOAA proposes to install gages at approximately 15 sites. We also propose to add precipitation gages at three of the proposed USGS GOES platforms, eight of which are proposed for this region. This summer the River Forecast Center (RFC) in Portland will be developing rainfall/runoff models for these various basins. Forecasts have been prepared previously for the main stem of the Cowlitz River (including Mossyrock and Mayfield Reservoirs); however, under previous natural conditions, the flood potential on the Kalama, Toutle, and Lewis Rivers was not significant enough to provide a routine forecast service. As a result of the eruption, a serious situation now exists in these basins and a concerted effort will be made to develop forecast procedures.

FLOOD WARNING

Once NOAA's flood forecasting equipment had detected the possibility of the flood, how much time would there be to evacuate populated areas and major transportation routes, such as Interstate 5?

The Toutle River crosses Interstate 5 just above its confluence with the Cowlitz River near Castle Rock. If precipitation and streamflow stages can be located far enough up in the Toutle Basin, approximately six hours warning could be given for potential flooding. On the main stem of the Cowlitz River, the travel time from Castle Rock to Kelso is only about one hour; thus, the cities of Longview and Kelso would have probably seven hours warning of impending floods. This warning is, of course, dependent upon the Portland River Forecast Center (RFC) receiving information in real-time.

On the Kalama, because this is a relatively small basin, a warning of probably three hours could be given to the city of Kalama.

The primary problem on the Lewis River is the potential for a failure of one or more of the upstream dams. The RFC has run the dam break model and estimate that two hours warning could be given to the city of Woodland if such a failure was detected immediately.

Fish Loss

What estimates do you have concerning the fish loss resulting from the eruption?

All fish in the Toutle River proper and its major tributaries have been killed. The river is uninhabitable. In addition, the lower 20 miles of the Cowlitz River currently will not support fish life and is a barrier to upstream and downstream fish passage. It is currently impossible for adult salmon to return to the Cowlitz system. We do not know how long the Cowlitz will be blocked, but we would anticipate heavy turbidity and flooding of the Toutle and lower Cowlitz River with very heavy rain for several years. Blockage may be a continuing problem for some time.

In addition to the mudflows which obliterated the Toutle, heavy ash deposits have fallen in eastern and southwestern Washington. This ash does not appear to have changed the pH in streams but the impact of suspended particles on fish has not been assessed. We anticipate problems for anadromous fish in impacted drainage for years to come. Impacts may be far more serious during winter rains when runoff concentrates the wide spread ash into the stream systems covering spawning gravel and physically killing fish.

The loss of production from the Toutle Hatchery is approximately 2 percent of the total Pacific Coast hatchery releases of fall chinook, 0.2 percent of the total coast spring chinook, and 3.6 percent of the total coast coho.

FISH ENHANCEMENT

What steps are being taken by NOAA to replenish the fish resources lost to the eruption?

Presently, nothing is being done. The Toutle Hatchery is being boarded up. There is a proposal to conduct research on fish resources lost. The estimated cost for this five-year effort is $1,040,000 for the first year, then $900,000 for each succeeding year. If fish facilities restoration, habitat protection, and surveys are undertaken, another $500,000 to $1,000,000 will be required. Screen guages on the Green River and at Kalama Falls will cost $130,000.

If the Toutle Hatchery is to be rebuilt, the cost will be $2-3,000,000. If the ecological damage is severe enough to abandon the Toutle site and rebuild at another location, the estimated cost will be $15,000,000.

The possible ecological effect on other hatcheries in the area are not known at this time.

DEPARTMENT OF TRANSPORTATION

OFFICE OF BUDGET AND PROGRAM

STATEMENT OF MORTIMER DOWNEY, ASSISTANT SECRETARY FOR BUDGET AND PROGRAM, DEPARTMENT OF TRANSPORTATION

PREPARED STATEMENT

Senator MAGNUSON. Now we have Transportation. Who is here from Transportation? Mr. Downey, you are the budget man down there?

Mr. DOWNEY. Yes, sir. I have a statement which if you would file in the record——

Senator MAGNUSON. Put it in the record.

[The information follows:]

PREPARED STATEMENT OF MORTIMER L. DOWNEY
ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS

DEPARTMENT OF TRANSPORTATION

Mr. Chairman, Members of the Committee:

I appreciate the opportunity to appear before you today to describe the efforts of the Department of Transportation to respond to the enormous destruction and disruption of our transportation systems caused by the Mt. St. Helens eruption. Accompanying me today is Mr. Richard D. Morgan, Associate Federal Highway Administrator for Engineering and Traffic Operations.

Effect of the Eruption

As we all know, Mt. St. Helens erupted violently on Sunday, May 18, sending mudslides down the mountain, flattening thousands of acres of timber, causing floods on the nearby Toutle River, and spewing ash into the air that was carried by the prevailing winds east across the country.

A subsequent but less violent eruption occurred on Sunday, May 25. This second eruption caused mudslides (but no major flooding) and deposited minor amounts of volcanic ash on southern and western Washington, and on northern Oregon.

The flooding on the Toutle River carried tremendous amounts of logs, debris, and trees which damaged or totally destroyed 35 miles of State Route 504 including 6 to 8 bridges. The longest of these bridges was a 200-foot concrete bridge on Route 504 over the Toutle River near the city of Toutle. Fortunately, the area in the vicinity of the City of Toutle remained accessible since routes to the north and west did not have damage.

But by far the most far reaching effect of the eruptions was the fallout of volcanic ash. The widespread volcanic ash fallout affected approximately 25,000 miles of off-system public roads as well as 11,300 miles of Federal-aid system highways in Washington and Idaho. The material

consists primarily of a fine silicon oxide, is gray in color, is highly abrasive, and varies in grain size and depth. When it gets wet, it forms a gummy, plasticized substance with adhesive qualities similar to portland cement. This has seriously affected automobile travel in the Northwest and has made us very concerned about the highway safety problems it causes. Even when traffic drives over a very thin layer of volcanic ash of less than 1/8 of an inch, clouds of ash billow up behind vehicles creating a hazard to traffic because of extremely poor visibility. High winds have also caused open roads to be closed due to poor visibility from blowing ash dust. The fine ash particles also can cause major damage to automobile engines and moving parts.

The removal of the volcanic ash from the highways is a problem that has never been encountered before. Since the material is quite light, conventional removal methods merely stir it up and cause it to settle back down on the road. Many ash removal techniques have been tried, but none seem to be very fast or effective. The Washington Department of Transportation reports that the best removal technique seems to be a very expensive and slow method involving multiple trucks with plows, water sprayers, and brooms. Removal progress under this method has been at a rate of about 2 lane miles per hour.

The transportation impact of this problem is not restricted to highway travel alone.

The Federal Aviation Administration has restricted flights in the immediate vicinity of the volcano, and an exclusive corridor has been set aside for the use of emergency aircraft flying search and rescue missions. Two special emergency air traffic control centers have been established. An around-the-clock center in Seattle routes air traffic away from the danger area, and a separate center in Toledo, Washington, controls emergency aircraft operating in the restricted corridor. Over 100,000 tons of ash were removed from runways at Spokane, Washington, before that airport was reopened.

The Columbia River's 40-foot navigation channel was reduced to a depth

of about 14 feet, and the 600-foot channel width was reduced to 200 feet. The Corps of Engineers will describe their efforts to restore navigation.

Impact on FHWA's Emergency Relief Program

The President declared a major disaster in the States of Washington and Idaho on May 21 and May 22 respectively, making those States eligible for public assistance under the Disaster Relief Act of 1974.

Both the States of Washington and Idaho have formally indicated to FHWA their intent to request funds under the Emergency Relief program authorized by Section 125 of Title 23 U.S. Code. I should note that this is a separate and distinct program from those managed under the Disaster Relief Act and is funded through Highway Trust Fund contract authority. The U.S. Forest Service has also indicated its intent to request Emergency Relief funds for forest roads damaged by the eruption and volcanic ash.

As yet, we do not have detailed damage assessments for those highways eligible for Emergency Relief funds. We hope to receive firm data later this week. However, our preliminary data, which is based on rough estimates, indicates that there may be a total of $100 million of emergency road work which would be eligible for funding under this Emergency Relief program. This includes about $65 million for road repairs and $35 million for ash removal.

However, due to several exceptional disasters over the past several years, demands for Emergency Relief funds has substantially exceeded the $100 million program authorized for each fiscal year. The assistance required to repair and clear roads damaged by the Mt. St. Helens eruption has added a significant new burden to our already severely strained ER program which currently has a $150 million backlog of unfunded requests, including costs of work begun to rectify disasters which occurred in prior years.

Legislation is being considered to address these problems, and could be forthcoming when the Administration completes its review of disaster relief funding.

I would be happy to answer any questions.

BRIDGE AND HIGHWAY DAMAGE

Mr. DOWNEY. We see two major transportation problems that we are dealing with. One is the destruction of roads and bridges at the immediate site, and the other is the ash fallout which has seriously affected the highways throughout Washington State and into neighboring States. We are working with the State transportation departments on these problems. And we had a short-term problem in the area with the Federal Aviation Administration having to set up emergency control procedures to control aircraft. That situation, of course, is now completed.

Our ability to deal with the long-term problems will depend on, first, the plans that are established by the Forest Service and the other Federal agencies for the use of the land in the area and, second, the kind of flood control plans that the corps develops. We will have to see how our restoration of highways and bridges will relate to those plans. Our most serious problem at the moment, however, is that the emergency relief program of the Federal Highway Administration, which would be the source of funding for these activities, is not only depleted, but $150 million short of meeting needs that have occurred in the past with previous disasters. We are preparing legislation and hope to have it reviewed by the Office of Management and Budget within the next few days to deal with this situation.

Senator MAGNUSON. You have $100 million in the President's request?

Mr. DOWNEY. That would be $100 million for the emergency highway work resulting from Mount St. Helens.

Senator MAGNUSON. Is that sufficient to take care of the road damage in the State of Washington? I doubt it.

Mr. DOWNEY. The current estimates are $35 million for ash cleanup and a minimum of $65 million for road rebuilding, but much of that will depend on more detailed damage assessments of what is out there.

Senator MAGNUSON. It may be a start but I think you are going to have to come back.

Mr. DOWNEY. I think very likely it would be more in the future, but it will be enough of a start.

Senator MAGNUSON. How is your emergency fund now?

Mr. DOWNEY. It is minus $150 million right now.

Senator MAGNUSON. How much?

Mr. DOWNEY. Minus $150 million. We have unfunded requests from States for $150 million for disasters that have already occurred.

HOOD CANAL BRIDGE

Senator MAGNUSON. Does that include the Hood Canal Bridge?

Mr. DOWNEY. That includes the Hood Canal Bridge and West Seattle Bridge. They are included in the $150 million.

Senator MAGNUSON. I think you are going to have to have more money in the emergency fund, too, and you have a Tampa bridge.

Mr. DOWNEY. The Tampa bridge is another part of that $150 million.

Senator MAGNUSON. This is the year of disasters, I guess.

Mr. DOWNEY. We have requests to amend the Highway Act which is the source of this funding and to set up a procedure to deal with these large-scale disasters.

Senator MAGNUSON. We will discuss that problem a little later.

SUBMITTED QUESTIONS

We have additional questions which we will submit to you for response in the record.

[The following questions were not asked at the hearing, but were submitted to the Department for responses subsequent to the hearing:]

Questions Submitted by Chairman Magnuson

TRANSPORTATION

Question: What specific damage has been done to the highways in the area because of the volcano?

Answer: As yet, we do not know the specific types and extent of actual damage done to the highway facility itself. We have reports that there is concern by State and local highway officials about:

1. The ash plugging up highway drainage facilities, i.e., culverts inlets, storm drains, etc., which if not removed will cause damage later on when heavy rain occurs.

2. The ash deposits in traffic signal controllers will cause the controllers to malfunction.

3. Ash, due to its abrasive properties, wearing off pavement markings.

4. Mud slides and flooding on the Toutle River in Washington is presumed to have totally destroyed approximately 35 miles of SR 504 including 6 to 8 bridges, and caused minor damage to the bridge on Interstate route I-5.

5. The streambeds of the Toutle and Cowlite Rivers and other streams in Washington have been raised as much as 15 feet due to deposition of mud and debris. This condition could result in future widespread flooding and damage to roads and bridges.

These concerns and others will be investigated in detailed Federal Highway Administration damage inspections being conducted this week.

Question: What is your estimate of the cost of ash removal in the state of Washington? In Idaho?

Answer: The initial estimate for removal of the volcanic ash from roads eligible under 23 U.S.C. 125 is:

Washington	
Federal-aid System	$18 million
Federal Roads	$ 6 million
Idaho	
Federal-aid System	13 million
Federal Roads	1 million
Total ash removal	$38 million

The initial ash removal estimates for off-system roads (under P. L. 93-288) are:

Washington	$30 million
Idaho	6 million
Total ash removal	$36 million

Question: As you indicated, the Emergency Relief Program is the source of funds to handle transportation emergencies like the Tampa Bay Bridge accident and Mt. St. Helens disaster. Does the fund now have sufficient resources to deal with these disasters?

Answer: At present, we will not be able to provide any emergency assistance for these disasters in FY 1980. All FY 1980 Emergency Relief funds had been obligated (except for funds reserved for the West Seattle Bridge which will be obligated later this year) prior to the Mt. St. Helens and Sunshine Skyway disasters.

Question: I am concerned about the Department of Transportation's proposal to limit total assistance from the Emergency Relief Fund to $30 million per state for each future disaster. If that provision were in operation now, what effect would it have had on Washington State's eligibility for Emergency Relief Funds?

Answer: The Administration may introduce this along with several other programmatic changes to enable the Department to meet disaster needs on a broader, more equitable basis. This provision would limit Emergency Relief expenditures for a particular disaster, such as the Mt. St. Helens disaster, to $30 million from the annually authorized emergency fund. The purpose of this limitation would be to prevent a single exceptionally high cost disaster from depleting the emergency fund and precluding the funding of needed disaster assistance in other areas of the country. This limitation, in our opinion, would provide ample authority to deal with immediate emergency needs.

Question: I understand that Department of Transportation has made recommendations for the proper maintenance of automobiles in areas which have been impacted by the volcanic ash. Have similar recommendations been made for farm machinery and other heavy equipment?

Answer: The Department of Transportation has issued several advisories recommending proper maintenance practices for automobiles, planes, railroad equipment, and small boats operating in the affected area. We do not expect the impacts of ash fallout to be quite as severe on the operation of farm machinery and other heavy equipment since they are normally equipped with heavy duty filters to operate in dusty conditions. We understand, however, that several farm implement companies, such as John Deere and International Harvester, have sent special representatives to the area to provide advice on any unusual problems.

Question: Does your estimated costs of repairing the flood-related damage to highways and bridges include funds to raise the Interstate 5 bridge and other roadways at points where the Toutle River is threatening to submerge the roadway? If not, how much would be needed?

Answer: No. Preliminary estimates indicate $33M would be required to raise the I-5 bridges and approximately one mile of State Route 411. Washington State DOT Officials are meeting with the Army Corps of Engineers to investigate the possibility of dredging the river channel as an alternative to raising the bridges.

Question: Can you furnish for the record a breakout of $150 million backlog of Emergency Relief projects for FY 1980?

Answer: The information is presented as follows:

EMERGENCY RELIEF FUNDING NEEDS FOR REMAINDER OF FY 1980
April 25, 1980

Approved Disasters (Projects ready for fund obligation)

Region	State	Projects	ER Funds	Region Total
15	Federal Highway Projects	1	400,000	400,000
1	Puerto Rico	18	798,716	798,716
3	West Virginia	3	325,000	
	Maryland	24	2,362,563	
	Virginia	24	3,174,172	5,861,740
4	Florida	4	375,109	
	Kentucky	5	854,420	
	Tennessee	5	1,258,892	
	Alabama	31	13,259,697	
	Mississippi	59	4,799,247	20,547,365
5	Wisconsin	2	650,000	
	Illinois	10	204,485	854,485
7	Nebraska	1	104,934	104,934
8	Federal Highway Projects	5	800,000	
	North Dakota	17	1,651,000	
	Montana	1	70,000	2,521,900
9	Arizona	22	8,352,000	
		EM Repairs	4,500,000	
	California	12	5,035,620	17,887,620

Cont'd Region	State	Projects	ER Funds	Region Total
10	Federal Highway Projects	10	3,105,000	
	Washington	7	48,700,000	51,805,000
Federal Agencies (USFS only)				10,200,000
Total Approved Disasters				$110,980,860

Pending Disasters (Funds can be obligated in FY 1980 when application is received and approved)

California February 1980 Floods	$18,972,000
Florida Sunshine Skyway Bridge	20,000,000
Total Pending Disasters	38,972,000
Total ER funding needs for remainder of FY 1980	$149,952,860

DEPARTMENT OF AGRICULTURE

FARMERS HOME ADMINISTRATION

STATEMENT OF JAMES THORNTON, ASSOCIATE ADMINISTRATOR, FARMERS HOME ADMINISTRATION

Mr. THORNTON. I don't want to burden you with reading my statement. I would like to file it for the record.

[The information follows:]

PREPARED STATEMENT OF JAMES E. THORNTON, ASSOCIATE ADMINISTRATOR

FARMERS HOME ADMINISTRATION

MR. CHAIRMAN, I AM PLEASED TO APPEAR BEFORE THE COMMITTEE TO DISCUSS THE DISASTER SITUATION CAUSED BY MT. SAINT HELENS FROM THE PERSPECTIVE OF FARMERS HOME ADMINISTRATION PROGRAMS.

FMHA PEOPLE HAVE BEEN WORKING IN THE AREA SURROUNDING THE MOUNTAIN WITH PEOPLE OF OTHER AGENCIES REPRESENTED HERE TODAY TO ASSESS THE DAMAGE AND BRING AID TO THOSE AFFECTED BY THIS DISASTER. IN THAT RESCUE AND RECOVERY EFFORT, WE HAVE WITNESSED A HEROIC MODEL OF LOCAL-STATE-FEDERAL COOPERATION.

TODAY I WOULD LIKE TO SUMMARIZE PROGRAMS OF MY AGENCY THAT CAN HELP WITH EMERGENCY FINANCING AND ECONOMIC RECOVERY. FMHA IS A SOURCE OF EMERGENCY CREDIT TO FARMERS, AND A BACK-UP RESOURCE FOR RENEWING RURAL HOUSING, RURAL COMMUNITY SERVICES AND RURAL ENTERPRISE IN AREAS LEFT BLIGHTED BY THE VOLCANO.

HERE ARE SPECIFICS OF FMHA PROGRAMS AS THEY APPLY TO THIS SITUATION:

FARM EMERGENCY LOANS

IN AGRICULTURE, OUR AGENCY ADMINISTERS THE DEPARTMENT OF AGRICULTURE'S EMERGENCY LOANS FOR FARMERS AFFECTED BY NATURAL DISASTER. THESE LOANS HAVE BECOME AVAILABLE IN ALL AREAS COVERED BY PRESIDENT CARTER'S DECLARATION OF MAJOR DISASTER DUE TO MT. SAINT HELENS.

ASSESSMENTS OF DAMAGE TO FARMING INDICATE THAT LOSSES FOR THE MOST PART WILL BE DUE TO DISRUPTION OF TRAVEL AND SHIPPING OVER ASH-COVERED ROADS, OUTAGES OF ELECTRIC POWER, AND DAMAGE THAT MAY BE DONE TO ENGINES AND OTHER PARTS OF MACHINERY BY THE HIGHLY ABRASIVE METALLIC ASH THAT BLANKETED A WIDE STRIP THROUGH WASHINGTON AND INTO OREGON AND IDAHO. DAMAGE ALSO RESULTED FROM FLOODS ALONG THE TOUTLE AND COWLITZ RIVERS WHEN SNOW MELT AND CASCADES OF MUD DESCENDED INTO THAT AREA.

DISASTER EMERGENCY LOANS CAN BE MADE TO PROTECT AND REESTABLISH THE OPERATIONS OF FARMERS WHO HAVE NO OTHER SOURCE OF CREDIT OR NO OTHER RESOURCES FOR RECOVERY, AND WHO HAVE SUFFERED AT LEAST A 20 PERCENT PRODUCTION LOSS OR A SUBSTANTIAL PHYSICAL LOSS. OTHER TERMS OF THIS EMERGENCY AUTHORITY PROVIDE FOR A 5 PERCENT INTEREST RATE ON A LOAN OF UP TO $250,000 BORROWED TO OFFSET ACTUAL LOSS. RATES ARE HIGHER FOR ADDITIONAL FINANCING OF OPERATIONS OR REVISIONS IN THE FARMING OPERATION.

DISASTER EMERGENCY LOAN FUNDS CAN BE USED TO REPLACE LAND THAT CANNOT HAVE ITS PRODUCTION CAPACITY SUBSTANTIALLY RESTORED. REPLACEMENT OF LIVESTOCK OR EQUIPMENT LOST IN A DISASTER, OR THE SUSTENANCE OF A FARM FAMILY UNTIL ITS NORMAL FARMING INCOME IS RESTORED, ARE OTHER PURPOSES THAT CAN BE SERVED THROUGH THIS PROGRAM.

THERE ARE MANY OTHER WAYS THAT FARMERS HOME CAN PROVIDE ASSISTANCE TO FARMERS BY SUPPLEMENTING ALL OTHER SOURCES OF AGRICULTURAL CREDIT. MANY FARMERS WERE BORROWERS BEFORE DISASTER STRUCK, THROUGH OUR REGULAR FARM OWNERSHIP AND FARM OPERATING PROGRAMS. THEY MAY BE ABLE TO HAVE THEIR LOAN PAYMENTS RESCHEDULED, OR PAYMENTS DEFERRED FOR UP TO THREE YEARS WHILE THEY WORK THEIR WAY BACK TO NORMAL.

AS YOU KNOW, MR. CHAIRMAN, FARMERS HOME'S REGULAR AND ONGOING FARMER PROGRAMS FALL INTO SEVERAL CATEGORIES. THEY INCLUDE FARM OWNERSHIP LOANS FOR OWNERSHIP AND IMPROVEMENT OF THE REAL ESTATE; OPERATING LOANS TO COVER SUPPLIES, EQUIPMENT, LIVESTOCK, SOMETIMES FAMILY LIVING THROUGH A LOW-INCOME PERIOD, AND OTHER NECESSITIES FOR KEEPING THE FARM RUNNING; NON-FARM ENTERPRISE LOANS SO THAT FARM FAMILIES CAN AUGMENT THEIR INCOMES BY BRANCHING INTO RECREATIONAL AND OTHER SMALL NON-AGRICULTURAL ENTERPRISES; SOIL AND WATER LOANS TO IMPROVE CONSERVATION AND USE OF A FARM'S LAND AND WATER RESOURCES; IRRIGATION LOANS TO ASSOCIATIONS OPERATING MULTI-FARM IRRIGATION SYSTEMS.

IN ADDITION, WE ADMINISTER THE ECONOMIC EMERGENCY PROGRAM PROVIDED IN THE AGRICULTURAL CREDIT ACT OF 1978 TO HELP FINANCE FARMERS THROUGH PERIODS OF STRESS SUCH AS GENERAL SHORTAGE OF CREDIT FROM OTHER AGRICULTURAL LENDERS, OR UNFAVORABLE BALANCE OF FARM COSTS AS COMPARED TO PRICES RECEIVED.

WE MAKE LOANS DIRECTLY TO FARMERS IN THE ABSENCE OF OTHER AVAILABLE LENDERS, AND WE ALSO GUARANTEE LOANS MADE BY OTHER LENDERS. IN FARM OWNERSHIP AND OPERATING PROGRAMS, WE CAN GUARANTEE LARGER LOANS THAN WE CAN MAKE DIRECTLY. WE TAKE SECOND LIEN IN INSTANCES WHERE PRIVATE LENDERS WILL SERVE A PART OF THE FARMER'S NEED. WE MAKE ALL THESE LOANS THROUGH COUNTY OFFICES THAT ARE PERMANENTLY LOCATED OUT IN THE FARM LOCALITIES, AND WE WILL BE THERE TO SERVE LONG AFTER THE PEAK PERIOD OF EMERGENCY IS PAST.

HOUSING CREDIT

IN RURAL HOUSING, EMERGENCY CREDIT FOR REPLACEMENT OF HOMES LOST IN A DISASTER IS PROVIDED BY THE SMALL BUSINESS ADMINISTRATION, EXCEPT WHEN BOTH THE HOME AND OTHER STRUCTURES ARE DAMAGED ON A FARM. IN THE LATER INSTANCE, FmHA MAY PROVIDE EMERGENCY CREDIT TO REHABILITATE THE ENTIRE FARM, INCLUDING THE HOME.

OTHERWISE, OUR CONCERN IS FOR EFFECTS OF THIS DISASTER ON HOMES ALREADY COVERED BY FmHA RURAL HOUSING LOANS. OUR FIELD STAFF REPORTS THAT DESTRUCTION OF THOSE HOMES HAS BEEN RELATIVELY MINIMAL. IT OCCURED MOSTLY WHERE THERE WAS FLOODING. THE FALLOUT OF ASH HAS NOT INFLICTED WIDESPREAD HEAVY LOSS OF HOMES. BUT THE DISASTER HAS INFLICTED LOSS OF INCOME ON BORROWER FAMILIES, AND OUR LOCAL COUNTY SUPERVISORS ARE ON TOP OF THIS SITUATION. THEY ARE GRANTING INTEREST CREDITS AND MORATORIUM ON LOAN PAYMENTS TO BORROWERS WHO ARE ELIGIBLE FOR THESE CONCESSIONS DUE TO LOSS OF INCOME.

AS A MATTER OF FACT, SOME ACTION ALONG THIS LINE WAS BEING TAKEN IN THE FOREST-LAND AREAS BEFORE THE VOLCANO ERUPTED. REPORTS INDICATE THAT THERE HAS BEEN MORE LOSS OF INCOME THROUGH SHUTDOWNS IN THE LUMBER INDUSTRY, DUE TO NATIONWIDE SLOWDOWN OF CONSTRUCTION, THAN FROM DEVASTATION OF FORESTS BY THE VOLCANO.

COMMUNITY FACILITIES

FmHA ADMINISTERS A MAJOR PART OF THE FEDERAL GOVERNMENT'S REGULAR FINANCIAL SUPPORT TO WATER, SEWER AND OTHER COMMUNITY FACILITY DEVELOPMENT IN RURAL AREAS, INCLUDING TOWNS OF UP TO 10,000 PEOPLE. HOWEVER, WE HAVE NO

SPECIAL AUTHORITIES OR FUNDS RESERVED FOR COMMUNITIES THAT SUFFER NATURAL DISASTERS. OUR LAST SUCH AUTHORITY WAS A SPECIAL PROGRAM IN 1977 TO HELP IMPROVE WATER SYSTEMS IN MANY STATES AFFECTED BY DROUGHT.

IN THE AREA OF THE MT. SAINT HELENS DISASTER, WE UNDERSTAND THAT THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) WILL MAKE 75 PERCENT GRANTS TO RENOVATE DISRUPTED UTILITY SYSTEMS UNDER AN AGREEMENT WITH THE STATE.

AT LEAST FOUR COMMUNITY WATER SYSTEMS IN THE TOUTLE-COWLITZ RIVER SECTION THAT HAVE FMHA FINANCING ARE KNOWN TO HAVE BEEN DAMAGED BY FLOODS ASSOCIATED WITH MT. SAINT HELENS. TWO OF THESE -- CASTLE ROCK AND TOUTLE -- HAVE APPLIED FOR THE FEMA GRANT. NINETEEN OTHER SYSTEMS IN WASHINGTON STATE THAT HAVE HAD FMHA FUNDS MAY ALSO SUSTAIN SOME DAMAGE FROM EFFECTS OF THE VOLCANO.

UNDER OUR REGULAR LOAN AND GRANT AUTHORITIES, WE CAN OFFER ASSISTANCE TO ELIGIBLE COMMUNITIES TO REHABILITATE OR REPLACE WATER AND WASTE DISPOSAL FACILITIES, OR TO PROVIDE LOANS COVERING THE LOCAL SHARE OF COSTS ON PROJECTS THAT WILL GET EMERGENCY GRANTS FROM OTHER AGENCIES. THERE IS A 75 PERCENT LIMIT ON THE SHARE OF PROJECT COST THAT CAN BE COVERED BY FEDERAL GRANT. THEREFORE, IF 75 PERCENT HAS BEEN GRANTED FROM ANOTHER AGENCY, THERE IS NO ENTITLEMENT FOR A FURTHER GRANT FROM FMHA.

AS WITH INDIVIDUALS, WE CAN HELP COMMUNITIES THAT ALREADY HAVE FMHA LOANS BY DEFERRING PRINCIPAL PAYMENTS ON THEIR LOANS. WE CAN GIVE PRIORITY TO FUNDING COMMUNITIES AFFECTED BY THE DISASTER, AND WE CAN EXPEDITE THE PROCESSING OF APPLICATIONS. BUT WE MUST DO THIS FROM REGULAR PROGRAM FUNDS, WHICH ALREADY HAVE BEEN OBLIGATED OR TARGETED FOR FISCAL YEAR 1980. ANY CONCENTRATED USE IN WASHINGTON OF A SMALL UNALLOCATED RESERVE HELD BY THE FMHA NATIONAL ADMINISTRATION WOULD BE AT THE EXPENSE OF NEEDS IN OTHER STATES.

WITH RESPECT TO COMMUNITY FACILITIES OTHER THAN WATER AND SEWER, COMMUNITIES IN THE AREA OF HEAVY ASH DEPOSIT ENCOUNTER A PROBLEM SIMILAR TO SNOW REMOVAL, EXCEPT THAT THERE ARE SOME ASPECTS MORE TROUBLESOME AND EXPENSIVE THAN SNOW. FOR EXAMPLE, THE ABRASIVE ASH INFESTING MACHINERY MAY SHORTEN THE LIFE OF

EQUIPMENT OPERATED BY LOCAL SERVICE AGENCIES. ASH TURNED TO MUD HAS WEIGHTED DOWN AND DAMAGED THE ROOFS OF SOME PUBLIC BUILDINGS.

FmHA IS AN AGENCY FOR LOANS TO BUILD, IMPROVE AND REHABILITATE HEALTH FACILITIES, FIREFIGHTING FORCES, AND ALL OTHER KINDS OF PUBLIC SERVICE FACILITIES IN RURAL COMMUNITIES BESIDES WATER AND WASTE DISPOSAL. WE WILL DO OUR BEST TO GIVE PRIORITY TO NEEDS OF COMMUNITIES NOT MET THROUGH EMERGENCY PROGRAMS OR OTHER AGENCIES. BUT THE FUNDING SITUATION IN OUR REGULAR COMMUNITY FACILITY PROGRAM IS TIGHT. ONE FORM OF RELIEF WE CAN PROVIDE IS TO DEFER PRINCIPAL PAYMENTS ON COMMUNITY FACILITY LOANS FOR PRESENT BORROWER COMMUNITIES THAT ARE IN A FINANCIAL BIND DUE TO CLEAN-UP AND FIX-UP COSTS IMPOSED BY THE MT. SAINT HELENS EMERGENCY.

FmHA HAS NO EMERGENCY AUTHORITIES IN CONNECTION WITH ITS PROGRAM OF LOAN GUARANTEES FOR RURAL BUSINESS AND INDUSTRY. BUT THAT RURAL B&I PROGRAM MAY ALSO BE A SECONDARY SOURCE OF FINANCING TO RESTORE BUSINESSES HURT BY MT. SAINT HELENS.

SUMMARY

TO SUM UP FmHA'S ROLE IN THE ALLEVIATION OF THIS DISASTER, WE ARE NOW INVOLVED IN SUBSTANTIAL EMERGENCY LENDING TO FARMERS, AND OUR REGULAR ONGOING PROGRAMS IN HOUSING, COMMUNITY FACILITIES AND BUSINESS OFFER OTHER RESOURCES FOR THE LONG RUN. WE HAVE IN FmHA AND THE DEPARTMENT OR AGRICULTURE A LONG-TERM COMMITMENT TO OUR ROLE AS FEDERAL COORDINATOR FOR THE PRESIDENT'S SMALL COMMUNITY AND RURAL DEVELOPMENT POLICY. WE HOPE THAT THE EMERGENCY SITUATION WILL SOON SUBSIDE, AND THAT THE REBUILDING TOWARD WHICH MANY AGENCIES ARE MAKING EMERGENCY CONTRIBUTIONS CAN SOON GET UNDER WAY. SEVERAL OF OUR PROGRAMS, SUCH AS MULTI-FAMILY RENTAL HOUSING, COMMUNITY FACILITIES AND RURAL DEVELOPMENT PLANNING, WILL BE OF INCREASING VALUE IN LATER STAGES OF THE REBUILDING PROCESS.

I WOULD EMPHASIZE, MR. CHAIRMAN, THAT ONCE THE EMERGENCY IS OVER, FmHA WILL NOT BE LEAVING THE AREA. ASSUMING THE CONTINUATION OF OUR AUTHORITIES, AND THE STAUNCH SUPPORT OF RURAL NEEDS THAT HAS CHARACTERIZED YOUR ACTION YEAR AFTER YEAR IN THIS COMMITTEE, THE FARMERS HOME ADMINISTRATION'S

COUNTY, DISTRICT AND STATE FORCES WILL STILL BE THERE IN RURAL WASHINGTON AND THE NEIGHBORING STATES, WORKING WITH THE STATE AND LOCAL AGENCIES AS WELL AS INDIVIDUALS TO PUSH ON FOR RESTORATION AND ECONOMIC DEVELOPMENT. IN FARMERS HOME WE HAVE THAT MISSION AND THAT ENDURING COMMITMENT: TO SERVE THE GREATEST NEEDS OF RURAL PEOPLE ON THEIR FARMS AND IN THEIR COMMUNITIES. ANYONE NEEDING FMHA ASSISTANCE SHOULD CONTACT THE LOCAL FMHA COUNTY OFFICE. WE WILL BE HAPPY TO FURNISH FOR THE RECORD A LIST OF FMHA COUNTY OFFICES IN THE STATE OF WASHINGTON AND NEIGHBORING STATES.

MR. CHAIRMAN, THIS CONCLUDES MY STATEMENT. I WILL BE PLEASED TO RESPOND TO ANY QUESTIONS THE COMMITTEE MAY HAVE.

Senator MAGNUSON. Do you have anything you want to add?

INDIRECT EFFECTS OF DISASTERS

Mr. THORNTON. One of the things that has to be kept in mind here is that in addition to the direct impact of disasters, such as what we have been talking about this morning, the indirect impact on people's incomes must also be addressed. That is, the Farmers Home Administration already provides existing loans in the State of Washington for farmers, and for home purchases, as well as loans to communities, for the water and sewage systems, community facilities and the like. The incomes of both the individuals and the communities are now being disrupted by reason of this disaster.

We are prepared to grant moratoriums or deferments on principal and interest indebtedness to the agency. In addition, we also have direct disaster lending programs which are available not only during this current period but afterward. Like our sister agencies in the Department of Agriculture, we have offices throughout the State of Washington, at the State level, district level, as well as the county level. We will continue to provide services to those who need assistance, both emergency assistance and our regular programs.

Senator MAGNUSON. You are giving moratoriums?

Mr. THORNTON. We will address that on a case-by-case basis as needed.

Senator MAGNUSON. When somebody comes in with a loss how do you differentiate between sending them to the Small Business Administration and the Farmers Home Administration?

Mr. THORNTON. In the case of housing assistance, we normally defer to SBA for providing emergency assistance to homeowners who have had destruction to their homes. If for some reason they cannot deal with that homeowner, we will deal with them on the same basis as SBA.

Senator MAGNUSON. I think you have broader authority than SBA has.

Mr. THORNTON. Yes, sir, we do.

Senator MAGNUSON. You have very broad authority to make loans.
Mr. THORNTON. Yes.

SUBMITTED QUESTIONS

Senator MAGNUSON. Thank you, Mr. Thornton. We have additional questions which will be submitted to you for response in the record.

[The following questions were not asked at the hearing, but were submitted to the Department for responses subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN MAGNUSON

FmHA LOANS AVAILABLE FOR MOUNT ST. HELENS VICTIMS

Question: What specific Farmers Home Administration (FmHA) Emergency programs would be available to Mount St. Helens victims? Wouldn't the principal ones be Emergency Disaster loans and Economic Emergency loans? Please discuss the purposes that these two loan programs can be used for.

Answer: Yes, the principal emergency programs available to Mount St. Helens victims are the Emergency Disaster loans and the Economic Emergency loans. The Emergency Disaster loans may be used for family farmers who cannot obtain credit elsewhere to enable them to continue operation of their farms after the eruption of Mount St. Helens. This would include development of land and buildings for either repair or new construction, the refinancing of debts, as well as removal or dispersal of volcanic ash, trash, trees, and other debris. Economic Emergency loans may be used to purchase livestock, meet family subsistence needs, purchase or repair equipment, provide for land and water development, and for the construction, improvement, alteration, repair, relocation, purchase, or moving of essential service buildings, facilities and structures on the property. Insured funds can be used to meet existing delinquent installments plus the next annual installment on outside accounts while guaranteed funds can be used to fully refinance existing debts.

Question: Are funds currently available for Economic Emergency and Emergency Disaster loans for Mount St. Helens victims? What has been the volume of demand for these loans in the area impacted by the volcano?

Answer: As stated in the FY 1980 Appropriation Act, such sums as may be needed shall be made available to victims, when an area has been declared a disaster by the President, as in the case of Mount St. Helens. FmHA will request OMB to apportion additional emergency loan funds if the amounts currently available prove to be inadequate in light of the disaster and its aftermath. To date, there has not been as exceptional increase in emergency loan activity. This is due to the fact that private lenders have remained active suppliers of credit in the disaster area. Also, emergency loans made for the purpose of restoring actual losses cannot be made because it is too early for the full extent of the economic loss to be ascertained.

Question: What is your preliminary assessment of the amount of loans that are likely to be needed?

Answer: At this time, the full extent of the disaster assistance needed cannot be assessed since the full impact of the volcanic eruptions has not yet been realized. The disastrous situation is still present at Mount St. Helens and there is no way to predict what the end results will be. FmHA will seek additional funds to be apportioned if and when the need arises.

Question: Have the Farmers Home Administration county offices had sufficient staff to handle requests from disaster victims? Do you anticipate any problems in this area?

Answer: If needed, Farmers Home Administration State Directors have the authority to hire additional qualified and experienced personnel on a contractual basis in order to handle the additional volume of loans that may develop from disaster victims. In addition, a national emergency disaster jump team is currently being recruited. This jump team will provide a ready pool of qualified loan making specialists. No problems are anticipated at this time.

Question: Besides Economic and Disaster loans, what other Farmers Home programs could be helpful to disaster victims and what is their availability of funds? Would additional appropriations be helpful in alleviating problems?

Answer: Available programs in the farmer area include farm ownership loans, soil and water loans and farm operating loans. In the area of rural housing, needs are minimal at the present time. However, if the need should arise in the future, loans could be made through available programs. Under community programs, assistance can be obtained through community facility loans, industrial development grants, watershed works of improvement and flood prevention loans and resource conservation and development loans. The availability of funds for any of these programs is limited to those amounts appropriated for FY 1980 and the state of Washington has already obligated much of its FY 1980 allocation for some of the programs. To a very limited extent, it would be possible to redirect funds to the state of Washington to meet increased needs arising from the Mount St. Helens disaster. Since the full impact of the disaster has not been realized, however, needs for additional appropriations have not been determined.

Question: How heavy has the volume of requests for Farmers Home program assistance been running in the Mount St. Helens area?

Answer: The volume of requests for Farmers Home program assistance has not substantially increased at this time. However, this is due to the fact that the full impact of the volcanic eruptions has not yet been realized, and a determination of the victims needs will not be available for some time.

NONDEPARTMENTAL WITNESSES

STATE OF WASHINGTON

STATEMENT OF LYLE JACOBSON, DIRECTOR OF FINANCIAL MANAGEMENT FOR THE STATE OF WASHINGTON

UNIFIED STATE PROGRAM

Mr. JACOBSON. Thank you, Governor, Mr. Chairman. I think enough has really been said about the unified effort that has taken place in the State. We have a Department of Emergency Services of 21 people. We have drawn from many, many, many agencies. There are over 200 that we are aware of, extra people from the Federal agencies that are in the State right now in assistance. We have six to eight, depending on what agency is offering what type of assistance programs. So I think the State has been very grateful for this. This past week in coordinating with Federal agencies and individuals, there has been about 151 applications for State and local entities. We are figuring on probably another 100 that are anticipating being asked for. At this time yesterday, and this entire week, there are assessment teams going out involving the Department of Ecology, looking at sewer problems, it could be the Transportation Department, all State agencies and trying to interface with the Federal Government.

INDIVIDUAL ASSISTANCE GRANTS

As far as the individual assistance grants, there are, as has been mentioned before, in various categories, over 4,000 visitors to these one-stop centers and it is growing daily. So this is a continuing strain on the resources. One of the bright spots of talking about getting immediate relief to some of the impacted areas, we have received word from the Department of Justice and the LEA division that we are able to relocate $181,000 to pay for overtime costs which has been extremely helpful to the local entities that have just taxed their services to the nth degree.

STATE AND LOCAL ABILITY TO SUPPORT DISASTER COSTS

The other thing that I would like to go into a little bit is there have been many questions about, I feel, misconceptions about the ability of the State and local entities to support the cost that has been incurred because of this disaster. One of the things that must be kept in mind, I think, is that the State of Washington is on a biennial appropriation of about $11 billion, or $5.5 million total for the State. Only 44 percent of this is not dedicated funding. So when we are talking about in terms of what is available at the State level for help, it becomes minimal.

STATE FISCAL CONDITION

A couple of other items that impact upon this is that the word the State has a surplus or local entities have a surplus, let me assure you the State of Washington does not have a surplus. We, right now, are taking various measures to maintain a delicate revenue expenditure balance. The Governor has issued a 3-percent reduction of State agencies to hold back in the second year. We have mileage reductions in place. There is a hiring freeze on, and all of these compounded, which were separate issues to the Mount St. Helens impact, have now taken its toll. So we are very much aware, very much concerned about our economic picture going into the end of this biennium.

Looking ahead even to the next biennium, we are currently in the process of approaching the budget cycle for next 1981–83 biennium. We have found we have a revenue expenditure shortfall, like the Federal Government has two problems, we realize also, of around $600–700 million. So State agencies would be requested to reduce their expenditures projected level of about 12 percent. So all of these in combination, again I might emphasize, with the impact of Mount St. Helens has taken its toll.

I wanted to be sure everybody understood the types of limitations that we are under, both financial, and also limitations in ability to raise revenue. There is an issue passed, called initiative 62 which rejected the amount of revenue that would be available to be raised within the State government.

LOCAL JURISDICTIONS BUDGET

Turning to the local ability just for a second, if you think about certain small communities in eastern Washington, say, Ritzville—Ritzville has 5 to 7 inches of ash. They have a population of around 2,000 people. Their total annual budget is in the neighborhood of $500,000. They have already spent $1.5 million. These are not projected what they are going to be costing. This is what actually happened in the State. They have borrowed resources from Seattle; they have borrowed from Portland; they have borrowed from every place in the county that would be available to provide any assistance.

EFFECT ON TOURISM INDUSTRY

What impact this is going to have on our overall economy in general is really a little preliminary to understand what that effect would be. Whether or not the tourism industry we depend fairly heavily on will recover adequately, as the Governor pointed out earlier in her statements, we have to get the point of the fact we have not completely closed up business in the State of Washington. We still have our sign out.

RESTORATION COSTS

To give you an idea of the impact, total impact, what we have identified now, we have identified what I would call three major categories: One is the immediate or out-of-pocket cost and the recovery, the restoration cost.

I would ask, Mr. Chairman, the rest of these comments be placed in the record, and to point out the cost related directly that we have been able to gather from all State agencies, local agencies, it is very hard to figure out what impact it is going to have on each one of the businesses and individual losses. But as far as State, local, private, the major industries and some economy impacts, we have those figures.

The figures we have been able to pull together, and I believe these are fairly accurate, they have been scrutinized extremely carefully by a number of agencies realizing it can go up and down, but it is the best information, that is preliminary that we have. To State agencies, the immediate impact is $191 million. The value lost is about $729 million. That would be broken down into a number of categories which I could go into, but I will just have it for the record. The impact on local governments identified as immediate is $128 million. Much of that is in the ash removal and the type of mechanical failures—there are a number of items. A lot is related to mechanical failures: Police cars which are no longer operable. Ritzville, I think, lost its only police car—excuse me, that was another community. It was one of the local communities lost every vehicle that it had used in emergency attention to the disaster.

IMPACT ON AGRICULTURE COMMUNITY

As far as private enterprise, the impact on the agriculture community, which has been discussed here very adequately today, is in the range of $200 to $300 million. Additional impact, again, on the waterways, when you figure the entire immediate impact, it will probably run upward of $2 to $2.5 million, the loss of forest service roads, and so on.

When we get to the bottom line, we find that the immediate out-of-pocket and restoration costs we have identified is $982 million. The value lost, our economic impact is approximately $1.7 million for a total of close to $2.7 million.

The State of Washington, we feel, I am sure you will all agree, some of these communities have had much unpleasantness and they have gone through a very traumatic time. They have used every resource that was available to them. We are respectfully submitting there is a problem in the State.

Thank you very much.

Senator MAGNUSON. I am glad to get those figures. The committee is glad to get your figures. Some of them are dealing with the future.

Mr. JACOBSON. That is exactly right.

Senator MAGNUSON. And economic loss is hard to evaluate and what we are dealing with here is the nitty-gritty of emergency output. I do not think your figures are far off from ours on that. The rest we are going to have to look at. Economic values are pretty difficult to determine. Take a recreation camp, something like that that did not get any customers for a while, they can figure out what they should have had and then what they lost. It may pick up in the future. I do not think we can deal in that figure yet from the Federal Government standpoint. But we can surely deal with the immediate emergency and the immediate losses. I don't think our figures are that far apart.

I want to thank all the Federal officials for coming up. You have been waiting here a long time. I think we have the gist of what you are doing. I am sure the Governor joins me in complimenting you on your work. It took a little bit of doing to get you all together. There was a little confusion going on but I think we are putting it together very well.

We have to move quickly and I intend to do everything I can to see that that is done. I am deeply worried about the impact on local governments. I am just wondering, Macy gave me a clue on what he might want to do with the emergency funds. How will they get down to the local communities? That is the county commissioners, primarily engaged in road work, the cities and people like that.

This is just a start. I intend to see the full costs will eventually be met insofar as the Federal responsibility. It is going to take some time. For instance, on the fish problem, we just have no knowledge of what the damage is going to be. And the Army Engineers will continue dredging forever, I guess, won't you? That is your business. So I will do what I can, or this committee will, I can only speak for myself, the committee will do what it can to get this done quickly, so when you start the ball rolling and with the cooperation of you people in the Federal Government. I am a little worried about the road program. I think we have to take a look at that and your emergency funds.

We will work on the immediate problem before us and get it done. We have that budget committee problem but I think that is coming together, and we may not have to ask for a waiver. It may be included in the amount we are talking about, maybe. I am a ranking member of the Budget Committee and I have been working on it.

Thank you all very much for coming.

Governor RAY. Mr. Chairman, could I say once again how appreciative we are being here and the guarantee the State will do everything we possibly can.

We are deeply concerned about the local government entities. The State will make sure the funds are passed through totally and directly to the local communities.

Senator MAGNUSON. We all have to work together on this.

IMPACT STATEMENTS

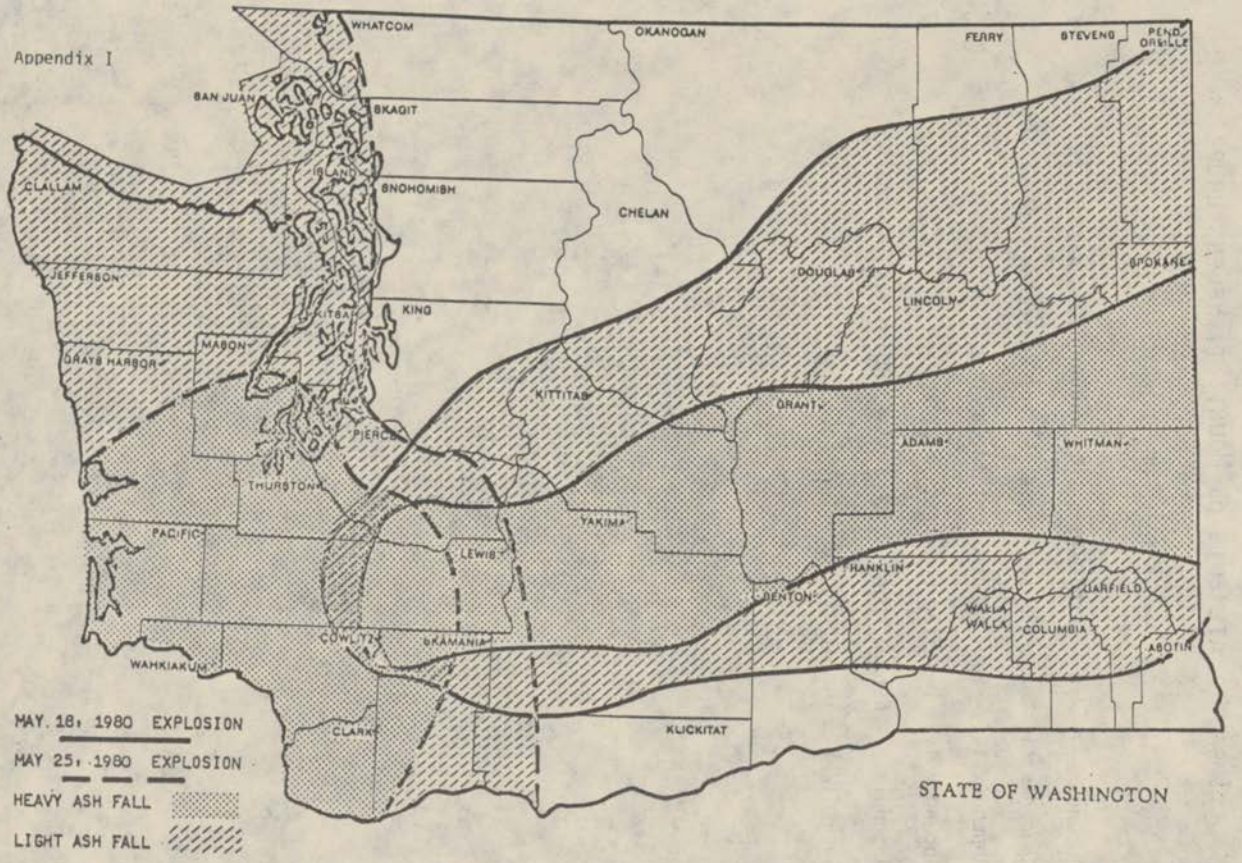
Additional material has been received by the committee from various departments in the State government in Washington. They will be inserted here.

[The information follows:]

Impact Statements on Mount St. Helens Eruption

TABLE OF CONTENTS

Appendix I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SKAGIT
ISLAND
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JEFFERSON
DOUGLAS
LINCOLN
SPOKANE
KING
MASON
GRAYS HARBOR
KITTITAS
GRANT
PIERCE
ADAMS
WHITMAN
THURSTON
YAKIMA
PACIFIC
LEWIS
FRANKLIN
BENTON
GARFIELD
WALLA WALLA
COLUMBIA
COWLITZ
SKAMANIA
ASOTIN
WAHKIAKUM
CLARK
KLICKITAT
MAY 18, 1980 EXPLOSION
MAY 25, 1980 EXPLOSION
HEAVY ASH FALL
LIGHT ASH FALL
STATE OF WASHINGTON

Appendix II Current Assessment of the General Fund—1979/81

A healthy state economy during the 1977-79 biennium left the general fund in a favorable financial position at the beginning of the 1979-81 biennium. The 1977-79 biennium ending fund balance reported by the Office of Financial Management was $410.6 million (State Treasurer's ending fund balance: $409.5 million). For the current biennium, evidences of national economic downturn have dictated a conservative approach to state revenue forecasting. The table below represents the most recent forecast (March 1980) of the Office of Financial Management. It reflects the 1979-81 biennium budget signed into law in June 1979, the 1980 supplemental budget, and unanticipated receipts approved for expenditure through February 1980.

The revenue estimate contains minor adjustments made since July 1, 1979. Assumed in this forecast is a reduction in federal revenue sharing of approximately $24 million. This is estimated to be the impact on the state of proposed cutbacks in the revenue sharing program recently announced by the President. Such a reduction is offset by increases in estimates for earnings on treasury investments ($25.1 million) and increased motor vehicle excise tax collections ($24 million). Detail on state revenues and expenditures is to be found in the tables "Revenues, All Budgeted Funds" and "Expenditures, All Budgeted Funds" for 1979-81.

Estimates—Basic General Fund		(millions of dollars)
Fund balance assumed by legislature in adopting 1979/81 budget		$ 410.6
General Fund Revenue Estimate (March 1980)		6,884.8
Subtotal General Fund Revenue Available		$7,295.4
General Fund Appropriations	$(7,227.9)	
Supplemental Basic Education Funding Requirement	(29.5)①	
Subtotal Estimated General Fund Appropriations and Requirements	$(7,257.4)	$(7,257.4)
Projected Fund Balance 6/30/81		$38.0

①Represents decline in local tax source dedicated for school purposes, thus increasing need for state appropriated funds for basic education. It is anticipated that supplemental budget assistance will be necessary.

Appendix III

IMPACT OF MT. ST. HELENS ERUPTION
State of Washington

	Dollars in Millions	
State Agency Programs		
Immediate Impact		
Social and Health Services	8.6	
Transportation	100.2	
Highway Patrol	3.2	
Natural Resources and Recreation	36.1	
Military	0.7	
Unemployment	5.0	
Public Schools	30.0	
Public Colleges and Universities	7.5	191.3
Value Loss/Economic Impact		
Natural Resources and Recreation		729.7
Revenue Losses (fee revenues)		22.2
Impact on State Agencies		943.2
Local Units of Government		
Immediate Impact		
Counties	71.0	
Cities	157.0	
Other	0.1	228.1
Impact on Local Units of Government		228.1
Private Enterprise		
Immediate Impact		313.0
Value Loss/Economic Impact		860.0
Impact on Private Enterprise		1,173.0
Additional Cost Impacts		
Maintenance of river channels for navigation and flood control (immediate impact)		250.0
Loss of federal forest resources, roads, bridges, facilities, and equipment (value/economic loss)		134.0
Total Impact		2,728.3

TOTAL IMPACTS	
IMMEDIATE COSTS	982.4
VALUE LOSS/ECONOMIC IMPACT	1,723.7
REVENUE LOSS (STATE GOVERNMENT)	22.2
TOTAL	2,728.3

Appendix IV

IMPACT OF MT. ST. HELENS ERUPTION
State of Washington

		Dollars in Millions	
STATE AGENCIES; IMMEDIATE IMPACT			
Social and Health Services			
Welfare caseload increases projected:			
GA-N @ +500 cases	0.6		
AFDC-E @ 275 cases	1.6	2.2	
Medical care caseload increase associated with projected increases in Welfare caseload		0.7	
Food Stamp requirements beyond normal demand:			
Assistance cases	0.4		
Non-Assistance cases	0.8	1.2	
Administrative costs associated with increased Welfare costs		0.4	
Increased institutional costs related to ash removal, vehicular equipment damage and damage to facilities and associated equipment:			
Adult corrections facilities	0.4		
Juvenile rehabilitation facilities	0.8		
Mental health institutions	0.1		
Institutions for developmentally disabled	0.2	1.5	
Increased public health costs related to water testing, air testing and generally monitoring health and safety programs		0.4	
Increased cost of construction resulting from delays and damage to equipment		2.2	8.6
Transportation			
Ash removal from Interstate Highways 5, 82, and 90 and various state highways east and west of the Cascade Mountains		4.0	
Reconstruct approximately 80 miles of State Highway 504 and replace seven bridges	50.0		
STATE AGENCIES; IMMEDIATE IMPACT			
Transportation (continued)			
Reconstruct approximately one mile of State Highway 411	2.2		
Regrade (increase elevation) of area in vicinity of intersection of Interstate 5 with Toutle River and Toutle River with Cowlitz River; filling of river channels with mud and debris will result in flooding during winter and spring months unless channels are dredged or area elevated	25.0		
Contingency costs per above items	19.0	96.2	100.2
Highway Patrol			
Vehicle and communications equipment damage and loss and additional time			

	Dollars in Millions		
required to support traffic flow and safety requirements			3.2
Natural Resources and Recreation			
Ash and debris removal		0.3	
Reconstruct roads and bridges		1.7	
Damage to facilities and equipment:			
State forest property	2.4		
Game and sports fish facilities (hatcheries)	3.3		
Food fish facilities (hatcheries and rearing ponds)	6.0	11.7	
Habitat recovery program for game and fish		22.4	36.1
Military			
Additional costs associated with search and rescue efforts and ash removal			0.7
Unemployment Insurance			
Unemployment compensation costs for those unemployed as result of disaster			5.0
STATE AGENCIES; IMMEDIATE IMPACT			
Public Schools			
Ash cleanup and removal, repair or replacement of facilities, mechanical and utility systems, and vehicle replacement and repair			30.0
Public Colleges and Universities			
Ash removal and repair or replacement of facilities and equipment			7.5
STATE AGENCIES; IMMEDIATE IMPACT			191.3
STATE AGENCIES; VALUE LOSS			
Natural Resources and Recreation			
State forest resources; 177 million board feet of timber		97.7	
Game and sports fishing losses; approximately 20,000 big game animals, 1.5 million birds and mammals, and 410,000 Steelhead and Cutthroat Trout. Economy of state will be adversely affected because of reductions in sports and outdoor related sales and reduction in travel and tourism related to sports interests during recovery period.		625.0	
Commercial fisheries loss; 12 million salmon killed		7.0	729.7
STATE AGENCIES; VALUE LOSS			729.7

		Dollars in Millions	
STATE AGENCY; REVENUE LOSS			
Hunting and fishing license revenue; losses estimated through impact period (7 to 9 years)		22.0	
Camping fee losses associated with reduced activity resulting from temporary closure of 15 state parks and continued closure of 5 parks		.2	22.2
STATE AGENCY REVENUE LOSSES			22.2
TOTAL IMPACT ON STATE AGENCIES			943.2
LOCAL UNITS OF GOVERMENT; IMMEDIATE IMPACT			
Counties			
Ash removal and cleanup on approximately 21,000 miles of county roads		37.0	
Equipment and facility damage; 9 of 28 impacted counties reporting.		34.0	71.0
Cities			
Ash removal and cleanup on approximately 3,500 miles of city streets		7.0	
Equipment and facility damage; cost data for communities in Yakima County only at $7.4 million		50.0	
Sewage treatment; repair and replacement of treatment facilities, collection systems		100.0	157.0
Public Utility Districts, Power			
Ash removal and repair of minor damage; 10 PUD's reporting			0.1
LOCAL UNITS OF GOVERNMENT; IMMEDIATE IMPACT			228.1
PRIVATE ENTERPRISE; IMMEDIATE IMPACT			
Agriculture			
Estimated crop losses:			
Wheat and barley	30.0		
Alfalfa and hay	35.0		
Peas and lentils	15.0		
Fruits, vegetables, and seed crops	100.0	280.0	
Losses related to livestock: cattle production, feedlot operations, dairy operations, and sheep raising		8.0	
Repair and replacement of equipment and and facilities		25.0	
PRIVATE ENTERPRISE; IMMEDIATE IMPACT			313.0

	Dollars in Millions	
PRIVATE ENTERPRISE; VALUE/ECONOMIC LOSS		
Forestry		
Estimated loss of private forest resources	460.0	
Business		
Economic loss estimated for Yakima County of $400 million*; estimate of economic loss for total impacted area not available at this time		
* estimated by Yakima Valley Chamber of Commerce	400.0	
PRIVATE ENTERPRISE; VALUE/ECONOMIC LOSS		860.0
ADDITIONAL COST IMPACTS		
Costs associated with bringing navigable waterways back to acceptable standards and elimination of flooding hazards created by siltation and debris accumulation	250.0	
Loss of federal forest resources, roads, bridges, facilities, and equipment	134.0	
ADDITIONAL COST IMPACTS		384.0

General Fund Reconciliation (Preliminary)
(Dollars in Millions)

Balance July 1, 1979		410.6
1979-81 Revenues	5,406.4	
1979-81 Expenditures	5,779.2	
Balance June 30, 1981*		37.8
1981-83 Revenues	7,363.8	
1981-83 Expenditures	8,013.0	
Balance June 30, 1983		(611.4)

* Does not include potential 1981 supplemental budgets for the Department of Social and Health Services or the Superintendent of Public Instruction, estimated at $50 million each.

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LAW ENFORCEMENT COSTS (Dollars in Thousands)

		Vehicle		Communications		Personnel		
		Replacement	Repair	Replacement	Repair	Overtime	Other	Total
Adams		120.0		167.0		9.6	75.0	371.6
Chelan		2.0						2.0
Clark (Vancouver only)						0.1	1.6	1.7
Cowlitz[1] - Longview							69.0	69.0
Kelso							10.2	10.2
Douglas		6.0						6.0
Franklin			0.2			0.3	0.1	0.6
Grant		235.0	20.0	95.0		11.0	19.7	380.7
	Moses Lake	55.0	7.0	8.0	1.0	5.0	18.2	94.2
	Ephrata		8.9		0.2	3.3	0.4	12.8
	Quincy		1.0			1.3	0.5	2.8
Kittitas		192.0		66.2		4.2	28.4	290.8
	Ellensburg	38.1	1.3		12.0	22.0	1.4	74.8
Lewis		12.0		2.0		2.0		16.0
	Centralia	32.0	5.0	15.0	6.0	0.4	2.5	60.9
	Morton	12.0			2.0	3.0		17.0
Lincoln[2]							8.0	8.0
Okanogan				2.0				2.0
Spokane			7.3	4.1		4.9	0.2	16.5
	Spokane City	7.2					7.3	14.5
	Cheney		1.9			6.0	0.5	8.4
	Medical Lake				1.5			1.5
	Deer Park						0.2	0.2
Skamania						18.0	7.0	25.0
Whitman		296.2		52.4		3.0	24.6	376.2
	Pullman		0.1		2.0	6.0	0.3	8.4
Yakima		154.0	24.5	12.0	3.2	12.8	5.8	212.3
	Yakima City		14.5			13.5	.3	28.3
	10 other cities		21.1		9.7	5.2	43.1	79.1
TOTALS		1,161.5	112.8	423.7	37.6	131.6	324.3	2,191.5

[1] original submittal @ $154.000

[2] original submittal @ $20,000

STATE OF WASHINGTON

Dixy Lee Ray
Governor

OFFICE OF FINANCIAL MANAGEMENT
House Office Building, Olympia, Washington 98504 206/753-5450

M. Lyle Jacobsen, Director

June 10, 1980

MEMORANDUM

TO: The Honorable Warren G. Magnuson, Chairman and Members of the United States Senate Appropriations Committee

FROM: M. Lyle Jacobsen, Director

SUBJECT: Impact of Mt. St. Helens Eruptions on the State of Washington

The purpose of this memorandum is to briefly discuss the major factors relating to the eruption and subsequent recovery efforts of the Mt. St. Helens disaster. Three major components of the disaster need to be stressed and more fully understood:

(1) The unified recovery efforts of the federal, state, and local entities.

(2) Financial status and limitations which affect both state and local government.

(3) Overview of the short and long-term economic impact.

First, I would like to say that we have received excellent support from the federal agencies, particularly the Federal Emergency Management Agency (FEMA), the United States Forest Service, the United States Geological Survey, Army Corps of Engineers, Department of Defense -LEAA Division, Department of Agriculture, Small Business Administration, and many other governmental and private entities. There are more than 200 federal personnel in the state with six disaster assistance centers and the main FEMA complex in Vancouver, Washington.

Coordination efforts during such emergency periods with state and local agencies are always a difficult task. With the assistance of particularly FEMA, the Department of Emergency Services in the state of Washington with its 21 person staff has been able to steadily improve the coordination activities.

Such coordination centers around (1) public assistance, including both state and local government; and (2) individual assistance of the Disaster Relief Act of 1974. In the public assistance area which funds a variety of projects, including debris clearing, repair and/or replacement of roads, bridges, public buildings and equipment, water control facilities, applicant briefings were conducted by FEMA/DES on June 3, 4, and 5. Applicants filled out notice of interest forms indicating their requirements for damage surveys. There were 151 applications received as of June 6, 1980. We anticipate an additional 100 applications yet to be received for a total of over 250 applications. Inspection engineers who will conduct the damage surveys received their briefing on Friday, June 6 and they began the damage survey process on Monday, June 9. The damage survey reports are used to prepare the project application and, upon approval of the application, funds can be disbursed to the applicants.

Individual assistance provides various kinds of assistance to families and individuals which could include food stamps, temporary housing, SBA and farm loans, individual and family grants. Disaster assistance centers (one-stop centers) have been initially located in Spokane,

Ritzville, Moses Lake, Yakima, and Kelso. They are also planned locations in Connell, Colfax, and Centralia. The activity report as of June 6 includes: 425 temporary housing applications, 709 individual family grant applications, 1,576 SBA home/personal loan applications, 821 unemployment claims filed, for a total of 4,022 visitors to the centers.

The state has also received approval from the Department of Defense, LEAA division, that $181,000 can be reallocated to help defray overtime costs associated with local law enforcement activities (see Appendix 6). In addition, the Corps of Engineers has started work on dredging both the Cowlitz and Columbia Rivers.

The unified effort of all concerned has been excellent. The volunteers, the federal, state, and local governmental units all have pulled together to respond to the needs of our citizens.

Secondly, I would like to discuss and, hopefully, clear up any misconceptions which might exist as they relate to the state's financial status and limitations which affect both the state's and local entities' ability to increase available funds to cope with this unexpected disaster. The state of Washington's annual budget is a little over $5-1/2 billion, of which 44 percent are dedicated funds that can only be used for specific purposes. The Governor has a discretionary emergency fund of less than $1 million per fiscal year.

Our current projection of expenditures and revenues for the 1979-81 biennium expects an ending balance of $38 million out of $5.8 billion in expenditures. This was before the Mt. St. Helens disaster and other recent economic factors which have had a negative impact. The state began the biennium with a $410 million surplus which was used to meet our court mandate to fully fund basic education. May revenue collections, which reflect March activity, show a shortfall of $7 million below estimates. April and May retail activity is weak nationally and this weakness is expected to extend through June. This translates into a potential revenue loss for 1980 estimated at from $20 to $30 million. State revenue sharing will end in September, and the last quarter of this fiscal year may also be eliminated. Total loss of revenues which were assumed in our budget could be $30 million. Based on our preliminary economic forecast just completed, the fiscal 1981 economy is weaker than previously expected. Interpretation of this forecast implies a potential loss of revenue for our fiscal 1981 totalling as much as $45 million. The net result is that the state of Washington does not have a surplus of funds and we will have to manage very carefully to avoid facing a deficit which is prohibited by state law. It is important to remember that none of the above points include the Mt. St. Helens impact (see Appendix 2). There are many key factors which must be considered when evaluating economic growth. The sales tax off food and drug sales reduced the tax base substantially. The state was ordered by the courts to assume full funding of basic education. Such funding represents 25 percent of the total state budget and 37 percent of general fund state dollars. In order to achieve and maintain this delicate revenue/expenditure balance, as required by state law, several executive orders were required. Agencies have been directed to set aside three percent of their appropriated budgets which we will release on a quarterly basis if the state of the economy justifies the release of these funds. This month we will announce that the three percent set-aside of appropriated funds will not be released. All agencies have been directed to reduce mileage driven (either state-owned or personal automobiles) by 20 percent. In addition, a hiring freeze was imposed in May (before the eruption of Mt. St. Helens). As you can see, prior to the eruption of Mt. St. Helens, several actions were taken to reduce expenditures.

What does the 1981-83 biennium have in store for the economic stability of the state of Washington? We have begun our budget cycle for the coming biennium. The initial projections indicate that the cost to maintain current service levels will exceed available revenues by $600 to $700 million (see appendix 5). The state is beginning the new budget cycle assuming that funding of all state services except basic education

will be reduced by 12 percent in 1981-83. This does not include any Mt. St. Helens impact.

State and local entities have various strict limitations which prevent revenue increases. Washington State revenue collections are limited in the rate of growth that can be achieved due to two major limitations. One was first passed in 1973 (prior to the recent rise in population of revenue limitations) and the second is a citizens' initiative which was passed in November 1979. Thus, if Washington had to raise additional revenues for assistance in the disaster recovery, those two revenue limitations would force a two-thirds majority of the legislature to increase taxes. All tax rates are either statutory or constitutional, thus requiring legislative action and/or a vote of the citizens.

Washington limited property tax growth in 1973 by allowing local regular levies to increase at a maximum rate of six percent. The success of this program with property taxpayers led to an extension of the six percent growth limit to state property tax levies. Thus, property tax levies are limited to a maximum growth rate of six percent for existing property. This is well below recent rates of increase in property valuation.

Initiative 62, Washington State's revenue limit, was approved by the voters in November 1979 and became law on January 1, 1980. The basic purpose of the Initiative is to limit revenue growth by assuring that future state revenue growth will not outstrip economic growth. Although it is certainly possible that the Initiative could mandate tax reductions, current forecasts show that revenue collections will be well under the limit for the next several years. Fiscal 1981 is the first year that revenue collections are subject to the limitation.

Washington State has enjoyed strong economic growth since 1976. However, the current downturn in the national economy has produced a very sharp downturn in the state's economy, much more severe than we expected a mere three months earlier. For example, as of April 1980, actual unemployment insurance beneficiaries were 32,000 more than a year earlier. The severe contraction in housing activity is a leading cause for this decline.

The long-term economic outlook remains promising but the near-term outlook is weak due to the severe housing cycle. Once economic recovery begins, we expect the pace of future economic growth to be slower than the robust growth of the past four years. Our economy is diversifying but our natural resource base (especially lumber and wood products) leaves our state exposed to recessionary impacts. Any analysis of the potential revenue impacts of the Mt. St. Helens eruption at this time must be considered preliminary. The nature of the adverse impact has been generally reported as reduced agricultural production, unemployment in certain areas, the massive cleanup efforts required, the damaging effects on any mechanical equipment, and destruction of roads and bridges, etc. A critical assumption is that Mt. St. Helens will not continue to have destructive eruptions for any length of time. Revenue losses to the state are expected to be temporary. Washington's heavy reliance on transaction-based taxes is expected to generate compensating revenue gains as disaster assistance monies are expended. One can only speculate as to the net impact on state revenue collections on the 1979-81 biennium.

The last area which I would like to discuss is the short and long-term economic impact.

The eruption of Mt. St. Helens created a wide variety of problems for the citizens of the state. Focusing our attention on those problems that may be equated to dollar costs or losses, we have attempted to identify those costs associated with government and private enterprise and differentiate between immediate costs and those losses that really represent a loss in value or constitute a longer-term impact on the economy (see Appendices 3 and 4).

Immediate costs to state agencies, presently estimated at approximately $190 million, are primarily related to damage caused by ash and mud flows. Damage to highways and state facilities caused by the mud and subsequent flooding represents about 60 percent of the total immediate damage incurred. Costs associated with the removal of ash and ash caused damage to facilities and equipment, particularly vehicles, represents approximately 25 percent. The remainder is associated with various social and health requirements and the redevelopment of habitat suitable for game and fish in those areas devestated by the volcano's eruption.

Damage to local units of government was similar to that suffered by state agencies. Approximately 80 percent of the estimated $228 million of immediate costs are associated with the repair and replacement of facilities and equipment damaged by ash and mud flow and flooding; most notable are damages to sewage collection, treatment, and disposal systems. The remaining costs at the local level are primarily related to the removal and cleanup of ash on county roads and city streets. Examples of local government problems are even more revealing than for state government. Take for instance Yakima -- population 50,000, total operating budget approximately $12 million. The direct costs are $3 million for ash removal and $2 to $4 million for damage to waste water treatment plants. The city has relied on 300 of its employees, 25 private contractors, plus equipment and labor from King county, Seattle, Portland, and Multnomah County in Oregon to cope with the problem. All will have to be paid for including per diem costs of those employees brought in to help remove the ash. Another example -- Colfax -- population 3,000, total operating budget approximately $500,000. The estimated direct costs are $100,000. Colfax experienced a flash flood prior to and after the eruption which has exacerbated the city's problems. It has utilized private contractors and the National Guard. The city's storm drains will all have to be cleaned to be returned to normal flow capacity. Ritzville -- population is 2,000, total operating budget $500,000, direct estimated costs are $1.5 million. Ritzville received help from 10 counties and had an ash fall of 5 to 7 inches. There were 2,000 stranded motorists which had to be housed and fed. The only city police car, animal control vehicle, and engine fire pumper were completely destroyed.

The collection of information related to losses of the private entrepreneur is really just beginning. What are we really doing for the individual? More emphasis must be directed toward this end such as increased funding of the Small Business Administration to ensure low interest loans for small business and individuals alike. At present, estimates are available for agriculture only, and these indicate an immediate loss of approximately $300 million.

Present estimates, however, which total approximately $1.7 billion take into consideration losses in state forest, game and sports fish, and food fish resources, private forest resource losses, and very preliminary and incomplete estimates for local business loss.

In summary, the state of Washington is willing and able. It has contributed much time, effort, and personal unpleasantness these past few weeks. We would hope that the Federal government will understand, as I am sure many of you do, the immense problem this has created and that jointly we can recover in the most workable way possible.

STATE OF WASHINGTON
Dixy Lee Ray
Governor

EMPLOYMENT SECURITY DEPARTMENT
212 Maple Park, Olympia, Washington 98504 206-753-5114
Eugene Wiegman,
Commissioner

May 28, 1980

The Honorable Warren G. Magnuson
United States Senator
127 Russell (SOB) Building
Washington, D.C. 20510

Dear Senator Magnuson:

I am pleased to provide a copy of my recent letter to Secretary of Labor Marshall. We are requesting a number of waivers in federal CETA regulations to enable the State of Washington to more quickly and effectively put these resources to use in responding to the Mt. St. Helens disaster.

We are also seeking congressional support for a temporary waiver of CETA eligibility requirements.

Any assistance you could provide would most certainly be appreciated.

Sincerely,

EUGENE WIEGMAN
Commissioner

STATE OF WASHINGTON
Dixy Lee Ray
Governor

EMPLOYMENT SECURITY DEPARTMENT
212 Maple Park, Olympia, Washington 98504 206-753-5114
Eugene Wiegman,
Commissioner

May 27, 1980

The Honorable Ray Marshall
Secretary of Labor
U.S. Department of Labor
Washington, D.C. 20210

Dear Secretary Marshall:

As you know, the State of Washington has been declared a federal disaster relief area due to the devastation caused

by the eruptions of Mt. St. Helens. The mountain continues to spew steam and ash, and further eruptions are predicted. Many people living within the ash fallout areas have been evacuated, and their homes, crops, cars and jobs have been affected. To help provide the State of Washington with flexibility to cope with the current emergency situation, I request your assistance in seeking waivers of the following reductions and CETA requirements:

1. We request that you use your influence on the Departments of Agriculture and Interior to seek an immediate halt in the reductions of YACC, Title VIII, so enrollees can assist in the cleanup and emergency operations.

2. We request an immediate waiver of the freeze on Title VI public service employment, effective April 25, 1980, so we can allocate CETA PSE positions in the disaster areas. We have had excellent cooperation from Don Balcer and the Region X staff, and have been authorized to receive additional Title II-D funds. However, the 15-week unemployment restriction on Title II-D eligibility prohibits us from employing many of the people thrown out of work by the disaster. Some of these people are eligible for unemployment insurance, but would prefer to work, and are needed to help clean up and aid in the recovery effort. A waiver of the Title VI PSE freeze would allow us more flexibility in eligibility, enabling us to put more people to work, using available grant funds rather than overdrawing the State's Unemployment Insurance fund. We request this waiver through the rest of Fiscal Year 1980.

3. We request an immediate release of Title III and other Secretary's Discretionary Funds to employ migrant and seasonal farmworkers who have been displaced by the heavy ash cover on the crops. Some farmworkers could be employed to work on disaster relief and cleanup projects, and others need support in relocation and other job search assistance.

4. We request a waiver of the 1,000 hour limitation on Work Experience participation during any one-year period. Existing Work Experience participants are coming close to the 1,000 hour maximum for the first year. The disaster created by the volcano has limited opportunities for placement of many of these participants. Because job opportunities have been reduced, we need a temporary waiver of the first year, 1,000 hour limitation so we can continue to carry the WEX participants in existing positions until the state recovers from the disaster, and alternative job opportunities are available.

5. We request a temporary waiver of or adjustment of paperwork requirements for prime sponsors in the disaster-affected areas, so we can put people to work immediately, conduct initial eligibility background and reallocate positions as the need arises. Paperwork requirements can then be completed within 60 to 90 days, including modification of annual plans, which were prepared without knowledge of the pending disaster.

6. We request you recommend to Congress that the Congress grant a temporary waiver of CETA eligibility requirements for affected disaster areas. The stringent eligibility requirements restrict prime sponsors' ability to quickly employ necessary people to aid disaster victims, and to provide jobs for those unemployed as a result of the disaster.

Your immediate attention to this request would be appreciated. Please contact me, or notify John Swannack, Administrator, Employment & Training Division (206) 753-5250 of any assistance you can provide.

Sincerely,

EUGENE WIEGMAN
Commissioner

Superintendent of Public Instruction
DR. FRANK B. BROUILLET · OLD CAPITOL BLDG., OLYMPIA, WASH. 98504

June 9, 1980

The Honorable Warren G. Magnuson
United States Senator
127 Russell Senate Office Building
Washington, D.C. 20510

Dear Maggie:

Just so that your office may be kept up-to-date on the problems of schools related to the Mount St. Helens eruption, I have submitted to your Committee the attached testimony. This is, of course, merely to supplement what the Governor already has provided to you.

If you need further details or information, please do not hesitate to contact me or my staff.

Sincerely,

Frank B. Brouillet
State Superintendent
of Public Instruction

Superintendent of Public Instruction

DR. FRANK B. BROUILLET · OLD CAPITOL BLDG., OLYMPIA, WASH. 98504

M E M O R A N D U M

TO: The Honorable Warren G. Magnuson, Chairman, and Members of the U.S. Senate Committee on Appropriations

FROM: Dr. Frank B. Brouillet, Washington State Superintendent of Public Instruction

DATE: June 10, 1980

SUBJECT: Testimony on the Mount St. Helens Disaster as it Affects Schools

Governor Ray has supplied your Committee with substantial information concerning the effects of the Mount St. Helens disaster on the State of Washington. In order merely to supplement her testimony, I am submitting this memorandum to the Committee to document the specific needs of educational institutions in the State of Washington.

Attached is a summary of the results of a telephone survey conducted on May 29, 1980, following the second ash fall. 121 school districts experienced the disaster to some degree, 30 of the districts were unable to reopen. The costs are mostly for clean up, although there has been occasional damage to buildings and equipment.

Based on cost figures from some of the districts, we estimate that the cost of repairing and cleaning up the schools in Washington will be around $30 million. I must emphasize that this is an estimate based on fairly limited experience and it may change substantially as federal inspection teams meet with officials from the effected districts. Those meetings have already commensed and more detailed cost estimates should be forthcoming soon.

I am concerned that disaster aid for schools, which is provided through the Impact Aid Act Law, may not contain sufficient funding for the cost of the Mount St. Helens eruption and still meet other needs for construction and school disaster relief in other parts of the country. As you consider a Supplemental Budget, I urge that your Committee be sure to include an appropriation for Public Law 815.

MOUNT ST. HELENS DISASTER - DAMAGE AND CLEAN UP ACTIVITIES
TELEPHONE SURVEY OF EDUCATIONAL SCHOOL DISTRICTS

Number of school districts that are or have been closed: 121

Closures run from one day to ten days at this time. Some districts closed for a day upon receiving that advise from county health offices.

Number of school districts not expected to reopen: 30

Many other districts are operating on a day-to-day basis; some have closed reopened, and closed again.

Types of damage incurred (known to date): roofs, ceilings, gym and other floors, buses, vehicles, sprinklers, downsputs, sewer systems, compressor fans/motors, drywells, vaccumm cleaners, air conditioning and ventilation systems, lights, freezers, washing machines, carpeting.

Types of clean up activities: Sweeping off dust, scrapping off mud from roofs, walks, roadways and sports fields (some districts have moved as much as 150 tons/acre of ash and mud). Districts have rented equipment such as trucks, tractors, vaccuum equipment, etc. They have also made purchases of shovels, wheelbarrows, mops etc., and hired additional labor. Some labor has been donated by district staff, citizens, fire departments, etc. Maintenance of equipment: purchase of filters, oil and other parts to keep district vehicles and other equipment clean and functional. Computers, typewriters and other office and educational equipment has had to be cleaned. Constant cleaning of floors, walls, etc., inside buildings.

Current conditions: Many districts are determining closures on a day-to-day basis because of road conditions and equipment conditions. In many rural areas it has been impossible for unpaved county roads to be cleaned, therefore, poor visibility continues to create safety hazards and the dust continues to wear on machinery.

Other districts have had to cope with power outages, water shortages, drainage and sewer problems, schools being used as refugee centers for stranded motorists, National Guards and evacuated townspeople, and having buses commandeered by other governmental agencies. Many districts have become involved in the Mount St. Helens disaster in subsequent days after an eruption as the blowing ash is brought in by wind storms.

The following is data collected through a telephone survey conducted by the Educational Service Districts (ESDs) this week to ascertain current conditions in school districts affected by the Mount St. Helens disaster.

ESDs 101, 105, 112, 113, 123, and 171 have had school districts affected by the eruptions. School districts in ESDs 121 and 189 have not been affected. Some school districts in ESD 114 have experienced some ashfall, however, there have been no school closures and there will only be very minor damage and clean-up activities.

MOUNT ST. HELENS DISASTER - DAMAGE AND CLEAN UP ACTIVITIES
TELEPHONE SURVEY OF EDUCATIONAL SCHOOL DISTRICTS

ESD 101 (Adams, Ferry, Stevens, Pend Oreille, Lincoln, Spokane and Whitman counties)

Benge*	Newport*	Wilbur
Lind	Cusick	Central Valley**
Ritzville*	Selkirk	Cheney*
Washtucna*	Almira	Deer Park
Curlew	Creston	East Valley
Hazelmere	Davenport	Freeman
Inchelium	Harrington	Great Northern
Keller	Odessa*	Liberty
Orient	Rearden-Edwall*	Mead
Republic	Sprague-Lamont**	Medical Lake
Nine-mile	Loon Lake	Garfield*
Riverside	Mary Walker	LaCrosse*
Orchard Prairie	Northport	Oaksdale*
Spokane	Onion Creek	Paloose*
West Valley	Summit	Pullman*
Chewelah	Valley	Rosalia*
Columbia	Wellpinit	St. John*
Colville	Colfax*	Tekoa*
Evergreen	Colton	
Kettle Falls	Endicott*	

Totals: 54 schools have closed; 19 schools are not expected to reopen; and 38 schools are expected to reopen.

ESD 105 (Kittitas, Yakima counties; Royal, Wahluke school districts in Grant county; Bickleton Goldendale school districts in Klickitat county)

Damman	Mt. Adams	Toppenish
Cle Elum	Moxee	Union Gap
Ellensburg	Naches Valley	Wahluke*
Grandview	Royal*	Wapato
Granger	Selah	West Valley
Highland	Sunnyside	Yakima
Kittitas	Thorp	Zillah
Mabton		

Totals: 18 schools have closed; 2 schools are not expected to reopen; and 16 schools are operating.

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*School closed for the remainder of the year.
5-30-80
SPI

ESD 112 (Clark, Cowlitz, Skamania, Wakhiakum counties; part of Klickitat county, part of Pacific county)

Vancouver	Ridgefield	Kalama
Hockinson	Carrolls	Woodland
La Center	Longview	Kelso
Green Mountain	Toutle Lake*	Stevenson-Carson
Washougal	Castle Rock	Wahkiakum
Battleground		

Totals: 11 schools have closed; 1 school is not expected to reopen; and 10 schools are expected to reopen.

ESD 113 (Grays Harbor, Mason, Lewis, Thurston counties; part of Pacific county)

McCleary	Chehalis	Napavine*
Elma	Toledo	Raymond
Montesano	Onalaska	South Bend
Oakville	Morton	Willapa Valley
Satsop	Mossyrock	North River
Adna	PeEll	Evaline
Boistfort	Winlock	Rochester
Centralia		

Totals: 22 schools have closed; 1 school is not expected to reopen; and 21 schools are operating on a day-to-day basis.

ESD 123 (Asotin, Columbia, Garfield, Walla Walla, Franklin and Benton counties; Othello school district in Adams county)

Othello*
North Franklin*
Kahlotus
Pomeroy

Totals: 4 schools have closed; 2 schools are not expected to reopen; and 2 schools are expected to reopen.

ESD 171 (Chelan, Douglas, Grant and Okanogan counties)

Grand Coulee Dam	Ephrata*
Coulee-Hartline	Warden*
Soap Lake	Moses Lake*
Wilson Creek*	Quincy*

Totals: 8 schools have closed; 5 schools are not expected to reopen; and 1 school is expected to reopen.

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* School closed for the remainder of the year.

COMMITTEE RECESS

Senator MAGNUSON. The committee stands in recess, and thank you all.

[Whereupon, at 1:52 p.m., Tuesday, June 10, the committee was recessed, to reconvene at the call of the Chair.]

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