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ATOMIC ENERGY COMMISSION  
WASHINGTON 25, D. C.

IN REPLY REFER TO:  
MAT:KFM

NOV 1 1956

Major General A. R. Luedcke, USAF  
Chief, Armed Forces Special Weapons Project  
Washington 25, D. C.

Dear General Luedcke:

As you know, there developed during Operation REDWING a great interest in determining what operational measures could be taken to increase the local fallout in an effort to reduce thereby world-wide contamination. The fallout program as planned before REDWING did not have this as one of its major objectives. Unfortunately, this interest crystallized too late to permit any revision of AFSWP's programs. However, as a result of the briefing presented by AFSWP to the AEC Commissioners on October 22, 1956, and subsequent discussion with members of your staff concerned with fallout, the possibility exists that further information may be obtained from existing samples and data.

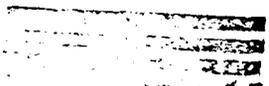
With this in mind, it is requested that AFSWP undertake the following:

- a. Further analyze the REDWING samples (analyses to include radiochemical) with attention to the elements Sr-90, Mo-99, Cs-137, Ce-144 and tritium.
- b. Develop, if possible, information on the amounts of water taken up by the shallow water shot WEMA and the deep water shots NAVAJO and FLATHEAD.
- c. Develop, if possible, information on the amount of solid particulate and its composition taken up from the craters of FLATHEAD, WEMA, MUMI and NAVAJO. (In the report of the 1955 Fallout Symposium it is indicated that no coral was picked up on the deep water shots of Operation CASTLE. Could you confirm this?)

The central problem is to develop a theory or a model of fallout which will explain the facts and enable one to predict the consequences of future tests. This model should cover the period from the explosion

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General A. T. Luedcke, USAF - 2 -

of the bomb until substantially all of the fallout has returned to earth. The immediate objective will be to exploit the available information from REDWING. Combining the knowledge of fission energy released with the data on local fallout at REDWING it may be possible to estimate the amount of radioactive debris in the stratosphere and hence the amount of world-wide fallout to be anticipated. The next objective will be to apply REDWING and CASTLE data, plus the existing model, to the planning for the next test series with two purposes in mind: First, to refine the model still more; and second, to apply it directly to the practical problem of minimizing world-wide fallout.

The AEC Commissioners are desirous of another fallout briefing when the above data and related information on REDWING fallout has been further developed to make such a briefing worthwhile.

Will you please advise how much of the above information can be obtained and a tentative date that it could be presented to the Commission; also, what are the possibilities of a more comprehensive fallout study for Operation PILGRIM to further develop the theory or a model as referred to above?

A fallout symposium, sponsored by the Commission, is contemplated shortly after the first of the calendar year to discuss all the important aspects of the problem. It is desired that information developed as a result of these additional studies be exchanged between the interested parties. It is requested that you designate a member of your staff to work with our staff to prepare information and to make a presentation at the symposium if you so desire.

You and any of your staff you may wish to designate will be invited to the symposium.

Sincerely yours,

Alfred D. Starbird  
Brigadier General, USA  
Director of Military Application

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