Effects of Salt Tests on Vortex Project Scheduling

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March 31, 1959

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March 30, 1959

TO: J. Foster/J. Bell

FROM: B. Crowley/F. Fairbrother

SUBJECT: Effects of Salt Tests on Vortex Project Scheduling

Recent tests using salt as an energy degrading media have given results which are quite encouraging. At this time we would like to outline the possible experimental avenues available to us and their implications on scheduling of the Vortex construction program.

I. Continue on experimental investigation of snow media.

A. Obtain scaling data on snow and air using 2' and 3' diameter spheres.

B. Obtain information on scaling snow particle sizes using 2', 3', and 4' diameter spheres.

C. Continue investigations for miscellaneous engineering accouterments and basic sphere structure (optics, electrical feed-through, mechanical supports, etc.).

II. Experimental investigations of salt media.

A. Scaling data of salt as in (I-A) above including 4' diameter sphere work.

B. Miscellaneous investigations as in (I-C) above.

III. Analysis of (I) and (II).

A. Program I is feasible in time to commit the necessary fabrication (vessel steel) by the AEC. This implies that the FY '59 DMA contingency funds would be secured by June '59.

B. To undertake Program II one would fire two or three salt shots in the next two weeks to firm up on the feasibility of continuing with Program II.

1. If the outcome of these shots indicates a fairly high confidence that Program II should be continued, then we take a reasonable gamble that we may
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III. Analysis of (I) and (II) - continued

specify steel purchases and, hence, tie down DMA contingency funds on schedule.

However, if in the continuing salt investigations problems arise that indicate snow is a better media, a schedule delay is implied; that is, if contingency FY '59 funds can not be tied down by June '59, then our alternative is to submit the Vortex structure as a line item on the next possible budget (or take advantage of FY '60 contingency funds, if available). This could possibly mean a minimum delay of one year, though the question has not yet been raised to the LRL budget office.

2. If the outcome of the salt shots indicates fairly high confidence that salt investigation should be continued and problems arise in the continuing salt program that indicate snow is better, then one could gamble and order the steel on the basis of our present snow knowledge and take the chance that the energy limit of the sphere may be reduced below 150 pounds or that later information on snow particle size will permit the 150 pound energy limit to be achieved.

The writers have decided to proceed on the salt investigation outlined in (II) and commit the program to the risks outlined in (III-B). We feel that the chances of meeting the desired schedule and containment limit justify such a decision.

Bruce Crowley

Forrest Fairbrother