

R-11  
Dr. G. E. Solomon

19  
18 December 1956

Addition of Discussions on Geophysical Problems  
to TD Meetings

WDLAR  
Maj Ebelke/ct/1555

1. Request that consideration be given to scheduling of quarterly technical sessions on geophysics problems in conjunction with TD meetings, beginning with the January 1957 sessions. Mr. N. Sissenwine, our AFCRC consultant on geophysical problems (possibly also Maj C. E. Jensen, AFCRC, Staff Weather Officer) should be asked to attend same.
2. It is further suggested that the discussion areas for these sessions be predetermined insofar as possible, and that the various other WED/R-11 groups (e.g. Engineering Mechanics) known to have related geophysics problems be invited to send limited representation to cover their particular interests.
3. These suggestions are based on the following conclusions (drawn from correspondence with AFCRC over the past several months and the many discussions held by various WED/R-11 groups with the visiting AFCRC geophysics consultant team over the period 5 to 9 November 1956):
  - a. Coordination with contractors on geophysical problems that have already received considerable internal WED/R-11 attention leaves much to be desired. Specifically, it appears that:

(1) Information, data and recommendations which AFCRC has provided are not always made available to contractors who also require same. As a result, AFCRC is the recipient of many complex inquiries of a repeat nature on the variations of such atmospheric parameters as pressure, temperature, relative humidity, wind density, shear, refractive index, etc.

(2) Statistical information which does get relayed to contractors is sometimes out of context. This may lead to erroneous design conclusions and unnecessarily expensive design features. A recent case in point - AVCO was advised that the following design criteria could be used as representative of extreme hot conditions in the U.S.:

Surface air temperature 125°F.  
Surface wind 0 to 60 mph.

No qualification of the above was provided although the temperature of 125°F is considered applicable in the U.S. to Death Valley only - and even there it

has a very limited expectancy. Furthermore, the concurrent wind speed experienced with such extremely high temperatures is only 5 to 10 mph. The duration of high temperatures should, of course, also be considered.


(3) AVCO, GE (and perhaps other contractors as well) appear to be going through about the same manipulations in connection with the conversion of raw data to the necessary form for application to specific ICM problems. They are all concerned with the many inaccuracies associated with available climatological data, extrapolation of limited data to cover unknown areas, and the establishment of correlations of uncertain value. Many of these contractor analyses and calculations undoubtedly involve unnecessary duplication of effort; all of them must eventually be checked for validity of interpretation and utilization of data. Since the state of the art is not affected and proprietary considerations are not involved, the desirability of such independent operations is open to question. The same sources of climatological data and basic recommendations (i.e. AFCRC and Air Weather Service) are available to all, of course, but it is thought that the other contractors should be advised that R-W computations (e.g. on the effect of wind on dispersion) will be made periodically available as well as advanced R-W thinking on the proper treatment of atmospheric parameters and their derivations in the establishment of structural, thermal and other essential design criteria. This would militate against the use of data out of proper design or operational context; it would also make it unnecessary for other contractors to obtain large duplicate collections of punch card data for independent processing and costly time consuming computations.

b. Coordination within WED/R-W on geophysics problems could also be much improved. Extensive personal contacts were made to obtain reasonable assurance that all geophysics problems of importance would be discussed with the AFCRC consultants during their recent visit; many of these contacts were ignorant of the liaison role played by WDTLAR in the geophysics area, had no knowledge of the voluminous collection of data and recommendations on specific meteorological problems to be found in WDTLAR files, and were unaware of the overlap of their own particular problems with those of other WED/R-W groups.

c. Contacts with the AFCRC consultants should be more frequent, than in the past and should include representation by other contractors to insure continuous and effective integration of effort on geophysics problems.

d. The complexity of meteorological problems is often difficult to recognize without considerable experience in meteorology and the knowledge thereby acquired of the inherent limitations and meaningfulness of available data. It is easy for the inexperienced analyst to either oversimplify the problem or to arrive at excessively conservative, naive or unrealistic correlations. Across the board coordination on meteorological and other geophysics problems through scheduled TD meetings as suggested should prevent further misinterpretation or misapplication of basic data and expedite progress towards our objectives.

5. One (1) copy of the report on the 5 - 9 November visit by the AFRC people has been forwarded to both AVCO and GE to establish a common level of knowledge as to assistance that has been provided to date on geophysical problems. Review of this report by the contractor personnel involved (believed to be Vachon of GE and Ricles of AVCO) should lead to early elucidation of the areas that need the kind of open discussion proposed.



JOHN A. DODGE  
Lt Colonel, USAF  
Chief, Areament Group