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c/o National Research Council
Chalk River, Ontario
November 1, 1947

United States Atomic Energy Commission
Post Office Box 1928
Washington, D. C.

Attention: Admiral J. Gingrich

Subject: ESTABLISHMENT OF THE NAVAL RADIATION LABORATORY AS AN ATOMIC ENERGY COMMISSION FACILITY

1. With reference to our discussions in Oak Ridge on October 15th and in Washington on October 17th concerning the Naval Radiation Laboratory, may I take this opportunity to summarize the various points which were considered, together with a discussion of the objectives and broad policy of the laboratory. This information, I believe, will be helpful in future discussions concerning the relationship between the A.E.C. and the Naval Radiation Laboratory.

2. The simplest statement of the objective of the laboratory is that it will study the consequences and defensive aspects of atomic warfare. In Navy terminology, the duties of the Laboratory are set forth as follows:

(a) The field of the Laboratory shall be primarily that of effects and consequences of dispersed fissionable materials, fission products or other radioactive substances present and resulting from nuclear processes on vessels, in harbors and anchorages and in shore establishments, and in corrective measures therefor.

(b) In the general category of survey for, estimation and evaluation of hazards, the Laboratory will undertake investigations of:

(1) Distribution, retention and segregation of contaminants as a function of material substance, design or form, and prevailing environment;

(2) Chemical, physical and biological factors influencing distribution et cetera of contaminants;

(3) Methods of field analysis including development of technical requirements for detection and measuring instruments and their evaluation.

(c) All phases of decontamination studies are within the proper field of the Laboratory. Methods and procedures shall be developed for all conditions of contamination which may be encountered in naval operations. Investigations shall include adequate studies and expansion of knowledge of scientific basis for decontamination methods.

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(d) The Laboratory shall be responsible for basic development of means and devices to minimize contamination and personnel risks from contamination, e.g., protective coatings for materials, protective clothing and shielding.

(e) Within the field of biological studies and topics intimately related thereto, the Laboratory will conduct investigations under the technical supervision of the Bureau of Medicine and Surgery to provide a scientific basis for:

(1) Establishment of safety procedures including related physiological studies;

(2) Establishment of tolerance levels for various tactical situations;

(3) Determination of toxicities and cellular chemical and physiological mechanisms in metabolism of radioactive substances.

(f) The Laboratory is hereby authorized to undertake any necessary basic and fundamental researches to achieve the objective listed.

3. In thinking of the above outlined duties in terms of overall projects within the various divisions of the laboratory, I have tentatively broken down the various phases of work into twelve main categories as follows:

(1) Contamination and Decontamination Studies, which will include fundamental studies of the nature of the adsorption and desorption phenomena involved as well as a testing program to determine the efficiency of any decontamination procedures.

(2) Disposal of Radioactive Materials, including consideration of the ways and means of handling of radioactive materials which must be gotten rid of after performing any decontamination procedure.

(3) Atomic Bomb Detonation Observations and Studies, including examination of the Bikini target ships and participation in any tests, etc., which may be conducted in the future.

(4) Theoretical Studies, including phenomenology and calculations concerning the chemistry and physics of the bomb for various military situations (such considerations will be limited to those covered by the objective of the laboratory).

(5) Dosimetry, including evaluation of the tolerance dose, studies leading to the predictions of the performance of personnel who might receive sub-lethal acute doses under certain tactical situations and who must perform useful services thereafter, and methods for measuring and properly evaluating radiation dosage received by personnel under specified tactical situations.

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(6) Personnel Protection Studies, including the testing and development of better respirators, ventilation systems, protective apparel, and special shielding.

(7) Biological Effects and Clinical Studies, including compilation and evaluation of data and performance of some basic research in the fields of toxicology, pathology, histology, cytology, hematology, immunology, physiology, etc.

(8) Monitoring Procedures and Standards, including the development of standard methods of monitoring and the preparation of manuals for use by relatively untrained persons. This also includes the development of special monitoring procedures as required for unusual situations.

(9) Instruments, Instrumentation and Special Apparatus, including critical examination of and field tests with equipment now in design and production.

(10) Analytical Procedures and Standards, including all analytical procedures needed for proper analysis of materials and samples. This will include ionic analysis, radiochemical analysis for fission products and heavy isotopes, and any other physical and chemical assay methods required.

(11) Structual Materials Investigations, including studies of the behavior of materials under radiation, the contaminability of surfaces and correlation of their contaminability with structure, etc. Obviously this work will be directed toward the development of a surface having very low contaminability and which can be used in or on any structual form.

(12) Training Programs, Literature Surveys and Compilations, and Similar Special Projects.

4. From even a casual perusal of the objectives and projects outlined in the preceding sections, it at once becomes evident that the laboratory should be closely associated with the A.E.C. since,

a) it requires, for the prosecution of its objectives, a considerable amount of the data and information accumulated by Atomic Energy Commission projects during the past five years;

b) its efforts in the present and future will be directed toward the special application of knowledge in several broad fields of research undertaken by the A.E.C.; and

c) its research program attacks certain problems of interest to the A.E.C. and may provide valuable information for the A.E.C.

In other words, the Naval Radiation Laboratory, which must serve as a font

...wledge for the Armed Forces, is dependent in large measure upon the ...mic Energy Commission for information and data. Since the Laboratory cannot be a primary research center, it must be able to collect, correlate, evaluate, and prepare in useful form for military utilization all data and information falling within the scope of its objectives. This effort supplements but does not duplicate that within the A.E.C.

5. The establishment of the Naval Radiation Laboratory as a facility of the Atomic Energy Commission would be a desirable and logical consequence of the foregoing discussions. Thus, the A.E.C. would function principally in matters of security and information control, which fall within the meaning of the Atomic Energy Act of 1946. Such functions would probably include: a) security "Q" clearances for personnel having access to A.E.C. restricted data; b) security checks of the laboratory and its facilities; c) issuance of passes for visitors and trainees to other A.E.C. facilities; d) positive distribution of A.E.C. reports falling in particular categories of the Standard Distribution Lists, and; e) access to any other reports containing information required by the laboratory. The role of the Security Division under such arrangements is, I believe, clearly indicated.

It would be logical to suggest that these matters could be handled most expeditiously through the Berkeley Area Manager's office. Also, it would be considered desirable for this office to handle special requests for the purchase, transfer, use, or loan of special instruments and materials. Thus, requests for radioisotopes, dissolver solutions, and plutonium would be handled in much the same manner as those from any other A.E.C. facility.

6. In acknowledgement of the several advantages accruing to facilities of the A.E.C., the Naval Radiation Laboratory should reciprocate in several ways, particularly by:

(1) issuing copies of its reports, having no specific military implications, to the various A.E.C. facilities according to the Standard Distribution Lists given in report M-3679;

(2) submitting copies of reports of military significance to the Military Liaison Committee and to the Military Applications Division of the A.E.C., and;

(3) accepting particular assignments which can be conducted most expeditiously within the laboratory and which fall within the broad objectives established for the Laboratory.

7. The discussions and views herein presented represent my own personal thoughts on the broad problem of providing our Armed Forces with the information and data it needs with the least duplication of effort, minimum wastage of

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technical manpower, simplification of administrative red tape, and maximum utilization of available resources. It is my hope that others within the A.E.C. and Armed Forces, especially the Navy, concur in these thoughts and that the necessary steps to implement the proposals may be taken in the near future.

William H Sullivan

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cc - Dr. J. B. Fisk
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