

REPOSITORY COMMISSION

COLLECTION Division of Biology & Medicine

711942

BOX No. 1

FOLDER 9

Copy 1 - Dr. John C. Bugher  
Copy 2 - Dr. Simeon T. Cantril

COMMENTS ON DOCUMENTS SR-1230 AND SR-1230A

Continuance of a continental test site; long-term continental contamination:

The reasons for the necessity of continuing operations of testing of atomic weapons within the continental limits of the U.S.A. are accepted as valid for reasons of national security and economy. I do not find anywhere in these documents any consideration of long-term planning other than the recommendation that the number of nuclear shots at NPG in any 12 months will be held to a planning maximum of 10 to 15. It is agreed that in the present flux of international relations no statement can be made on the probable future during which NPG will continue to be a source of continental radioactive contamination. Until there are evidences otherwise, perhaps NPG should be considered as continuing indefinitely, which for purposes of planning for environmental safety is the only tenable concept. The question is raised largely because it relates to another hiatus in the report - the accumulation of long-lived radioactive contamination on the continent. This relates to soil, subsoil, ground water and thus to food, drinking water and ultimately to human deposition. The report is cognizant of external irradiation to man from environmental contamination. Mention is made in Section O, p. 16(e): "A number of investigations have recently been made on the long time effects of detonations, the concentration of long-lived activities by plants and animals, and fixation in the bones of people. These investigations are continuing with a view toward determining the number of kilotons that can be detonated per year without causing appreciable hazard from such cause..... However, it does not seem reasonable to suppose that such considerations will be important factors limiting the use of the NPG."

Since no data are given relative to such investigations, on how or to what extent they are being pursued, one may seriously question the conclusion and particularly if use of NPG is projected indefinitely in the future. What will be the quantitative contamination of environment and ultimately of man? It is suggested, if this is not already being done, that the AEC arrange with qualified pathologists performing autopsies in various regions of the country to provide data relative to radioactivity (other than natural) of

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
DETERMINATION (CIRCLE NUMBER(S))	
1. CLASSIFICATION RETAINED	
2. CLASSIFICATION CHANGED TO:	
3. CONTAINS NO DOE CLASSIFIED INFO	
4. COORDINATE WITH:	
5. CLASSIFICATION CANCELLED	
6. CLASSIFIED INFO BRACKETED	
SINGLE REVIEW AUTHORIZED BY:	
AAS/11/5/23/94	
REVIEWER (ADD):	
NAME: /SA	
DATE: 5/22/94	

Copy 1 - Dr. John C. Bugher  
Copy 2 - Dr. Simeon T. Cantril

selected organs and skeleton and that this be a continuing study. Even six such centers chosen regionally would provide a log of static or gradually increasing deposition over the years. Mention is made in the report of animal investigations of pulmonary deposition of beta-active particles, but seems to overlook the more important factor of deposition and possible hematopoetic or carcinogenic action by concluding: "The total number retained will in any practical case be small and the contribution to total body radiation dose can be neglected." What for example may be the deposition in a life time, assuming NPG continues at present schedule? Likewise it is noted that alpha particle contamination or deposition is not mentioned as a potential hazard. Is any attention given to this from the standpoint of ultimate carcinogenesis? Is alpha particle contamination being surveyed, or is it unimportant?

My concern for the possible long-range contamination of the continent (and man) takes exception to a statement made in Section 0, p. 8, "Increased incidence of radiation-induced cancer may require 10 - 15 years to become evident, and several generations will be needed before adverse genetic effects appear. There is some evidence that at least for cancer production there is a threshold radiation dose which would make the effect of large single doses more serious than the same radiation given over a long period of time." Exception is not taken to the "10 - 15 year period" or the "several generations." It is to the inference that the 10 - 15 year period and several generations somehow dilutes the hazard. Likewise there is ample evidence to show that long-continued minimal exposure to irradiation (internal or external) can result in neoplasia. The acute exposure (except for leukemia in man) is less likely to produce neoplasia.

Thus in summary there is in the reports concern for external irradiation from fall-out. The more long range problem of environmental contamination and public health is not given emphasis. It is assumed but not stated in the reports that agencies such as Department of Agriculture is closely and competently following soil and ground water contamination. Is this so? For the long-term problem it is most important.

Copy 1 - Dr. John C. Bugher  
Copy 2 - Dr. Simeon T. Cantril

Standards for on and off-site external radiation exposure:

On-site exposure limits of 3.9 r/13 weeks seems reasonable. Agreement is urged with the recommendation that the test management be given guidance in authorizing exposure beyond standard limits. The off-site limit of 3.9 r/year of gamma irradiation is acceptable only as an emergency situation and in the interests of national defense. In this situation civilian populations are rightly asked to participate. Although 3.9 r/year is stated as an upper limit, it would be helpful to know and provide improved public relations if continued continental monitoring indicates that (with the exception of hot spots nearer NPG) the general level is well below 3.9 r/year. The extent of continental monitoring is not included in the report. It is assumed that this is adequately being continued under AEC jurisdiction.

The large numbers of personnel involved in all phases of NPG operations could provide valuable and much needed information on absence or presence of any detectable radiation effect if means are found to carefully follow these people medically. Section V, p. 1 states that "Numerous exposures of individuals beyond the limit have occurred in most operations." This in my experience, is a new turn of events in AEC operations. The guidance which the test director seeks in both limiting such over-exposure and in formulating a policy to permit over-exposure on an emergency basis should be forthcoming to him. But in the meantime it is asked whether those receiving irradiation at NPG are being followed medically? It is also assumed that careful records are kept of personnel accumulated exposure.

Public relations, education and support:

The complexities of public relations are well presented in the report and the deficiencies analyzed. Recommendations for their improvement seem sound, and particularly those which urge a concurrence of opinion on "what is hazardous?"

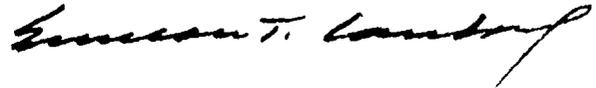
In the whole general problem of public opinion and support, the question is raised whether the AEC has elicited the consultative service and guidance which may be given to these problems by students of public opinion and reaction. The Office

~~SECRET~~

Copy 1 - Dr. John C. Bugher  
Copy 2 - Dr. Simeon T. Cantril

of Public Opinion Research at Princeton University is cited as such a group which in the past has undertaken for other military and diplomatic functions of government problems of equal or greater magnitude. It is agreed that the relationships are complex but technics of approach and understanding may be forthcoming from those who have studied mass psychology and adjustment.

I am in agreement with the recommendations made to improve the safety of future operations at NPG. Until such time as continental testing is no longer a necessity, careful and continued observation of all hazards, real and potential, should continue.



Simeon T. Cantril, M.D.

STC:hb