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UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON 25, D. C.

April 13, 1955

MEMORANDUM FOR THE COMMISSIONERS

Although the Chairman has not seen the attached preliminary draft of a statement prepared by the staff for his testimony before the Joint Committee on April 15, I am circulating it to the Commissioners for information and comment.

The Chairman will distribute copies to the members of the OCB at a noon luncheon meeting today and invite their comments on any aspect of the statement which may have a bearing on international relations.

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K. D. NICHOLS  
General Manager

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PRELIMINARY DRAFT

April 13, 1955

STATEMENT BY CHAIRMAN LEWIS L. STRAUSS,  
UNITED STATES ATOMIC ENERGY COMMISSION  
BEFORE  
THE JOINT COMMITTEE ON ATOMIC ENERGY  
APRIL 15, 1955

May I preface my remarks by thanking the members of the Joint Committee for the opportunity which you have provided to clarify and set straight the facts about radiation as they relate specifically to the atomic tests currently being conducted in Nevada.

Your decision to hold this open hearing serves a most useful and timely purpose. It is a constructive step and a distinct service to the American people. Radiation has become an inherent characteristic of this atomic age with its vast potentials for beneficial as well as destructive applications. Therefore the people should know all the available facts about radiation as quickly as they are scientifically determined. The Joint Committee and the Commission are in complete agreement on this. To this end the Commission will pursue its studies of the subject, in collaboration with scientific authorities outside the Commission, not alone for the protection of life in the event of enemy attack where radiation exposure would be far greater than that



involved in any tests, but for the promotion and safe utilization of the peaceful uses of this new source of energy which holds such great promise for benefiting all mankind.

I also should like to take this opportunity to endorse your introductory statement, Mr. Chairman, about the great importance of our weapons testing program as it involves our ability to defend ourselves against atomic attack.

Since the Atomic Energy Commission's frank and detailed report of February 15 on the effects of high-yield nuclear explosions, there have been misapprehensions and speculation in some quarters which have tended to confuse the effects described in that report with those of the atomic tests currently being conducted in Nevada.

The February 15th report dealt only with the March 1, 1954, explosion of a so-called H-bomb at Bikini atoll in the Pacific. The Bikini device produced an explosive force equal to millions of tons of TNT and deposited its radioactive fallout over an area of several thousand square miles. Such high-yield thermonuclear weapons as the one which formed the basis of the February 15 report are not tested in Nevada or elsewhere within the continental United States. Therefore, the effects described in

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that report do not apply to any atomic tests conducted in Nevada.

It is completely erroneous to assume that every nuclear explosion, regardless of size or point of burst, creates a fallout danger over thousands of square miles and ranging several hundred miles down-wind from the point of burst. This is not the case. The explosion at Bikini occurred on the surface of the island. The fallout, therefore, resulted from both the tremendous explosive power and the fact that the fireball touched the surface of the earth. An atomic device of the type now being tested in Nevada detonated under the same conditions as those of the Bikini explosion would have produced only a very small fraction of the fallout. Likewise, if the Bikini H-bomb had been exploded high in the air, the amount of radioactive particles in the bomb cloud would have been a very small fraction of that produced by the surface explosion. The particles would have been smaller and lighter and therefore would have been carried by the wind over a greater distance. This would have meant greater diffusion from the air currents and greater loss of radioactivity due to decay than was actually the case when the Bikini H-bomb was exploded on the surface.

The yields (energy release) of the atomic devices tested at the Nevada site are actually tiny by comparison with the thermonuclear weapons whose testing is confined to a remote area of the Pacific.

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Many of the weapons tested in Nevada are tactical devices, designed for use by the armed services against comparatively small restricted targets.

In fact, it would take 10,000 of the smallest of these Nevada devices to produce explosive energy equal to that of the Bikini H-bomb, the effects of which were described in the Commission's February 15th report.

Since the first tests were conducted at the Nevada site in 1951 more than 40 of these smaller atomic devices have been exploded.

So far as I am aware, no person off-site has ever been injured as a result of these tests.

The Commission's staff has reported on the basis of its nationwide monitoring, that the radioactive fallout from the Nevada tests, even in communities nearby the site, has never in any instance approached a level which is hazardous to health.

The fallout experienced by most American cities has barely added to the level of nature's normal background radiation which is always present in the soil, water and air.

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In this connection it is worth noting that radiation above normal background levels sometimes has been detected when no atomic tests have occurred. This is due to "cosmic showers," those periodic phenomena of nature which have been occurring for years without any apparent danger to the human race.

While it is true that there are radioactive particles in bomb clouds produced by the Nevada tests, this does not mean that dangerous radioactivity is scattered over off-site areas. In the first place, the quantities of radioactive particles in these clouds are not comparable to those produced by an H-bomb explosion, and secondly, the bulk of the particles lose most of their radioactive strength within a matter of hours.

Rigid precautions are taken to hold the fallout from Nevada test shots to an absolute minimum. Tests are conducted only when weather conditions are suitable, thereby explaining the frequent postponements in the current series. Suitable weather conditions are selected in order to minimize the fallout and off-site blast effects. Methods of forecasting wind speeds

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and directions at various altitudes as well as the intensity and location of fallout have steadily improved since the first Nevada tests in 1951.

There has been concern and speculation in some quarters lest the Nevada atomic tests should affect weather conditions. Representatives of the Weather Bureau and advisers of the Atomic Energy Commission are here and prepared to discuss this phase of the subject. Therefore in this introductory statement I shall limit myself to saying that the Commission has worked in close cooperation with the Weather Bureau and there are no existing data which suggest that our weapons testing program has influenced weather conditions in any way.

The American people can be assured that the extreme safeguards which govern these tests are designed to prevent injury to the people of any community or city from fallout. The Commission has an extensive network of monitoring stations in areas near the test site and throughout the United States and is able to measure the levels of radioactivity with sensitive methods. Daily advices are received from more than 100 of these radiation detection installations operated by the Commission, the Weather Bureau, and the Public Health Service.

~~TOP SECRET~~


Radioactive fallout from the Nevada tests also is minimized by the manner in which the shots are fired. Most of the Nevada explosions occur well above the surface of the earth, with the result that only small amounts of earth are sucked up into the cloud. This is accomplished by exploding the devices atop towers as high as 500 feet or dropping them from planes.

As the basis of its safety criteria for all Nevada tests the Commission uses an "operational guide" of radioactivity which is extremely conservative and far below the actual limit of safety.

As was stated in the Commission's February 15 report:

"In general, the total amount of radiation received by residents of the United States from a nuclear detonation to date, including the Russian and British tests and all of our own tests in the United States and the Pacific, has been about one-tenth of one roentgen. This is only about 1/100th of the average radiation exposure inevitably received from natural causes by a person during his or her reproductive lifetime. It is about the same as the exposure received from one chest x-ray."





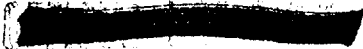
That statement, as you will note, referred to all tests of all types of nuclear weapons to date. If we refer only to the current tests being conducted at the Nevada site we must speak -- not of roentgens or even 1/10 of a roentgen -- but of milliroentgens, or a thousandth of a roentgen.

During the Nevada test series the radiation exposure from fallout, outside the actual testing area, has been well below the level that would constitute any actual hazard, either immediate or long range, to exposed individuals.

Generally speaking the exposure experienced by the American people from the current Nevada tests has been less than the radiation they normally receive every few days from natural sources

The Commission's February 15 report recognized that a wide range of opinion exists in regard to the long range genetic effects which radiation exposure might have upon future generations. The report pointed out that conclusive data are not available on which to base an uncontrovertible forecast and that the Commission would pursue its studies and continue to report the results to the American people.

Both before and after publication of the February 15th report discussion and speculation occurred on this subject in this country and abroad, some by competent scientific authorities in



the field of genetics, some by persons who have engaged in reckless and alarming predictions based on assumptions which go far beyond present scientific knowledge.

The Atomic Energy Commission has sponsored extensive research in the field of radiation genetics for several years and will continue this necessary research. It supports about 1/3 of all federally supported genetic research carried on in the United States, and in addition, is carrying on extensive research in its own laboratories. It is spending approximately 1.5 million dollars a year on such studies.

Since 1950 the Commission's expenditures on the program of its Division of Biology and Medicine has totaled more than 100 million dollars, about 1/2 of which has gone into research on the effects of atomic radiation on living organisms, including genetic effects.


Within recent days the importance of such studies has been emphasized by the announcement and the National Academy of Sciences will undertake a broad appraisal of the effects of atomic radiation with financial support of the Rockefeller Foundation. This study is a very timely undertaking and will be carried on with full cooperation of the Atomic Energy Commission. The Commission stands ready to facilitate in every way this project and will make available to the National Academy of Sciences the data which it has amassed.

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Again, I should like to point to the wide range of permissible opinion which exists in the study of human genetics and the need, therefore, for further research. Until further scientific knowledge is acquired, it is not permissible to indulge in categorical statements as to the long range genetic effects of radiation.

However, on the basis of factual evidence we now possess, the Commission's scientific advisers conclude that the amount of radiation exposure from all nuclear tests up to now is such a small fraction of the exposure which occurs naturally from the soil, water and air it is impossible to expect to detect a genetic change, even over the area of an entire population of many million people.

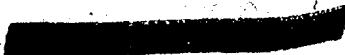
The medical and biological advisers of the Atomic Energy Commission are of the belief that the possibility of serious genetic effects from the small amount of additional radiation produced by the atomic testing program is remote, unless an assumption is made that the human race is poised on such a delicate genetic balance that any amount of radiation, no matter how small, might upset the equilibrium. There appears to be no scientific basis for such an assumption. However, as stated, the Commission is continuing its thorough studies in this field and its findings will be reported to the American people. The appraisal which the National Academy of Sciences will undertake will be broad in



scope and its sponsorship will be authoratative. It is the Commission's belief that greater and more prompt knowledge will be derived from this study than would be possible under any international undertaking to determine the effects of atomic radiation on living organisms. The National Academy of Sciences will have access to classified information of the Commission dealing with the types and yields of nuclear weapons which could not, in the vital interest of our national security, be made available to an international panel of scientists. Access to such classified weapons data is essential to a comprehensive study of radiation effects. Furthermore, an international undertaking of this sort might conceivably be frustrated by world politics and most certainly could not begin to function as quickly as the thoroughly objective appraisal which the National Academy is undertaking.

It is important to bear in mind the extent to which our security and the security of the free world is dependent upon the nuclear tests -- both the testing of the so-called H-bombs in the Pacific and the smaller atomic devices in Nevada.

These tests involve more than the developing of atomic weapons, important as that obligation is. They provide vital data, which can be obtained in no other manner, on which to build a sound and effective system of civil defense against the eventuality of an enemy attack.



Soviet Russia possesses atomic weapons; there is no monopoly for the free world. Therefore we have no alternative but to maintain our scientific and technological progress and keep our strength at peak levels. The consequences of any other course would imperil our liberty, even our existence.

The weapons which we test are essential, not only to our national security and that of the free world; they also are a deterrent to devastating war.