PUBLIC SAFETY

Radiation Investigation

➤ CONGRESSIONAL INVESTIGATION may be expected because of an Administrative order permitting any Federal agency to set up its own radiation protection guides.

The individual jurisdiction and the "do-it-yourself" safety procedures for agencies in atomic work was recommended by the Federal Radiation Council and accepted and approved by President Eisenhower.

The Federal Radiation Council through its chairman, Secretary of Health, Education and Welfare Arthur S. Flemming, submitted to the President on May 13, 1960, a memorandum on radiation protection guidance for Federal agencies.

This was the Council's first report on its statutory responsibility under Executive Order 10831 and Public Law 86-373 to ". . . advise the President with respect to radiation matters, directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards and in the establishment and execution of programs of cooperation with States . . ."

Sen. Clinton P. Anderson (D-N.M.), chairman of the Joint Committee on Atomic Energy, said that Congress had expected from the Council more uniformity rather than diversity in setting up radiation guides.

He said, "The trend should be toward uniformity; and one Federal agency should decide and be responsible for the establishment of radiation standards or guides.

"If any deviation of these standards is deemed necessary by an agency, application should be made to the controlling agency which should decide the requested change and give written reasons for its decisions."

The Council recommended in general terms the "Radiation Protection Guides" to be used by the agencies "for normal peacetime operations." The final recommendation of the Council states that agencies should adhere to the guides "with judgment and discretion" but that "the Guides may be exceeded only after the Federal agency having jurisdiction over the matter has carefully considered the reason for doing so in light of the recommendations in this paper."

Dr. Donald Chadwick of the U. S. Public Health Service and Secretary to the Federal Radiation Council said that this final recommendation does, in fact, allow each agency the freedom to determine its own safety standards "weighing the benefits against the risks." He justified the independence of judgment allowed the agencies by the Council on the ground that one standard cannot apply to all radiation uses.

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TECHNOLOGY

Noise Problem in Jet Age

➤ SILENCE STILL IS GOLDEN. In fact, it may be priced beyond reach in this noisy jet and rocket age.

The role of economics in getting rid of today's increasing noises was pointed out by Dr. Richard H. Bolt, professor of acoustics at the Massachusetts Institute of Technology and associate director of research for the National Science Foundation, in testimony before the House Committee on Science and Astronautics at hearings on the effect and control of noise.

The annoyance level of noise, or what Dr. Bolt defines as "unwanted sound," is determined by much more than just intensity. Most persons, for example, enjoy the loud rush of a waterfall while the relatively small whine of a mosquito is often intolerable.

Noises made by jets and rockets certainly are "unwanted sounds," particularly unwanted by those who live near airports and launching facilities. But these noises are here to stay, Dr. Bolt said, unless the high performance and advantages of swift travel of supersonic aircraft are sacrificed.

"The noise from these powerful sources, when off the ground, can be reduced by only a small margin without incurring severe penalties in performance." On the ground, jets and rockets can be muffled to almost any extent, "limited only by dollars."

The national investment in combating noise has been from twenty to twenty-five million dollars in the past 15 years. The bulk of this support has come from the armed forces and the National Advisory Committee for Aeronautics, now superseded by the National Aeronautics and Space Administration.

Ira H. Abbott, director of NASA's office of advanced research programs, told the Committee that "it is reasonable to expect a solution to this problem."

Dr. Bolt said progress in combating the noises made by new machines is counterbalanced by advances in their development that make them work better but noisier.

"Acoustic perfume," the substitution of a preferred sound (music, waterfalls) for a noisy unwanted one, was suggested by Dr. Bolt as a method that has proved successful in lessening the impact of noise.

It has proved successful in dentistry, he noted, where dentists have employed an "audiac," a device whereby the sound of the drill is obscured for the patients by music and other pleasing sounds.

It also has been found that air-conditioning in homes near airports lessened the impact of noisy take-offs and landings.

Dr. Bolt suggests major advances will be made through nation-wide planning for aviation facilities, airports and areas abutting sources of noise.

"Although it must incorporate scientific information," he said, "such planning is not a subject of scientific research. It is one of national understanding and coordinated action."

However, at the present time, the national regulations set by the Federal Aviation Agency for noise reduction for airports and facilities allow for greater exposure to noise than do the airport regulations set by the New York Port Authority.

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PUBLIC SAFETY

President Will Review Radiation Standards

➤ PRESIDENT Eisenhower will re-examine the recommendation by the Federal Radiation Council concerning the do-it-yourself provision that now permits each Federal agency in atomic work to set its own radiation standards.

He made this announcement at his news conference in answer to a query from SCIENCE SERVICE asking if there was any reason why the agencies were allowed this discretion without review and approval by the Federal Radiation Council.

The Council originally was established to set radiation standards for all agencies. It was hoped this would eliminate the danger of conflict of interest that might occur within an agency between the setting of its safety standards and its function in nuclear development.

The President's answer: "Well, as a matter of fact, the question is sensible because I assume . . . that there could be some confusion here if any excess radiation were allowed to escape and were not reported to the proper people. If the order is defective, I will try to find out about it."

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MEDICINE

Radioactive Gas Used To Detect Heart Holes

➤ CARDIAC SHUNTS — the dangerous mixing of oxygen-poor blood and oxygenated blood through holes in the partition between the left and right sides of the heart—have been successfully detected and located with a radioactive gas, krypton-85.

Drs. R. T. L. Long, Eugene Braunwald and A. G. Morrow of the National Heart Institute, Bethesda, Md., have used the technique on 48 patients.

To detect left-to-right shunts, a small tube is used to inject krypton-85 into the left heart. If there is leakage, the gas crosses directly to the right heart and is pumped directly to the lungs. Thus, a high concentration of the gas in exhaled air will reveal the shunt. The radiation of the expired air can be monitored by a count-rate meter.

The gas is injected into the right heart to detect right-to-left shunts. If there are none, the gas would be pumped to the lungs and expired. If there are shunts, the gas leaking into the left heart is pumped into the arteries, where arterial blood samples will reveal its presence.

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