

Estimated annual exposure of U.S. population from all sources of ionizing radiations—Average annual genetically significant dose to the population (millirem)

Irradiation

Natural sources:

External

Cosmic rays	32-73
Terrestrial gamma rays	25-75

Internal:

Potassium-40	19
Carbon-14	1.6
Radium-226	2

Medical (exposure of patients):

Diagnostic X-rays	40-240
Therapy	12
Internal (radionuclides)	1

Occupational

Environ (including waste disposal)	5
Other (luminous dials, TV, etc.)	2

Total 160-450

It should be noted that of the 160-450 millirem estimated average annual population dose, less than 30 millirem is attributed to the atomic energy industry. This is less than 20% of the recommended guide for the average annual population exposure.

With regard to the question concerning the predicted future growth of nuclear power, no difficulty is anticipated in maintaining the environmental exposure level well within accepted health and safety standards.

Question 3. In your testimony you discussed how the AEC obtains outside assessments and reviews. What built-in assessment mechanisms exist within the AEC? Who arbitrates disputes between the regulatory or licensing functions and the reactor development people?

Answer. There are three organizational units within the Atomic Energy Commission which have responsibilities in the licensing and regulation of nuclear power plants. These are the AEC's regulatory staff, the Advisory Committee on Reactor Safeguards, and the atomic safety and licensing boards. Each of these groups is organizationally separated from the Commission's operating organization. While they have the benefit of information which flows from the Commission's operating and development activities, none of them has any operating responsibilities. Their sole responsibility is in the field of nuclear safety and related regulatory matters. Each group is independent of the others.

Technical reviews and judgments have to be made on licensing applications by each of these groups, then the Commission, in the following order:

(a) Review by the regulatory staff. This is performed principally by the AEC's Division of Reactor Licensing, which calls upon many technical disciplines.

(b) Review by the Advisory Committee on Reactor Safeguards, as required by law. The ACRS is a 15-man committee appointed by the Commission, and is composed of scientists and engineers with extensive experience in various fields related to reactor technology.

(c) Review by a three-man atomic safety and licensing board after a mandatory public hearing. The board is drawn from the Atomic Safety and Licensing Board Panel appointed by the Commission. The Panel is made up of technically qualified experts and persons experienced in administrative procedures.

(d) Review by the Commissioners themselves—formally if an appeal is taken from the initial decision of an atomic safety and licensing board, or informally if no appeal is filed.

These reviews occur at both the construction permit stage and the operating license stage, except that a public hearing is usually not held and an atomic safety and licensing board is usually not appointed for the operating license stage. Commission-owned power reactors located at non-AEC sites and operated as part of conventional utility systems are not licensed. However, procedures which are parallel to those described above are used in the issuance of authorizations for construction and operation of these reactors.