In addition to the regulation of licensed facilities and AEC-owned power reactors operated by utilities, the regulatory staff and the ACRS review the safety of reactors owned by the AEC and the Department of Defense. On an internal basis within the AEC, any disagreement between regulatory and reactor development program personnel is normally resolved on the staff level, with the benefit of consultation with technical staff at Commission field sites. In infrequent cases, it may be necessary to refer certain technical issues to the Director of Regulations and the General Manager for resolution. Finally, any continuing disagreement could be referred to the Commission itself for disposition, taking into account the views of the independent ACRS.

Question 4: In your testimony you indicated that the AEC routinely sends licensing applications to the Fish and Wildlife Service for comments, and that their recommendations are "incorporated in whatever requirements the regulatory people came up with and which a license would have to meet".

(a) What other agencies does the AEC routinely send applications to?

(b) Have there been disagreements, and, if so, who makes the final decision?

Answer. (*a*) In conducting its safety reviews of applications for permits to construct nuclear power plants, the AEC seeks the advice of expert consultants as well as of persons of specialized competence within the regulatory organization. The regulatory staff calls upon the expertise of other Federal agencies in such fields as meteorology, hydrology, geology, and seismology.

In addition to the U.S. Fish and Wildlife Service, whose recommendations are requested with respect to potential radiological effects on fish, other marine life and wildlife, the AEC routinely uses the technical capabilities of the U.S. Geological Survey with respect to the geological aspects of the site; the U.S. Weather Bureau with respect to meteorology; and the U.S. Coast and Geodetic Survey with respect to seismology.

Where the need is indicated, advice also is obtained from other Federal agencies as may be appropriate. For example, the U.S. Army Coastal Engineering Research Center has furnished hurricane data on coastal areas for the purpose of establishing whether special protective construction should be required, and the Naval Ordnance Laboratory has furnished advice concerning the effects of explosives and missiles on structures.

In addition to consultation with experts from these Government agencies, the AEC consults with experts from its National Laboratories, the universities, and private organizations on special problems.

A copy of each nuclear facility licensing application also is furnished to the U.S. Public Health Service for its information in maintaining its state relations activities.

(*b*) The advice of other agencies in their particular areas of expertise is used in the same manner as information developed by the AEC staff to form a basis for decisions as to the adequacy of the facility's design and location from the standpoint of public health and safety. There have been no substantive areas of disagreement pertaining to the radiological safety matters over which the AEC has jurisdiction. The recommendations of the agencies which routinely submit formal reports on those projects referred to them are incorporated in the regulatory staff's Safety Evaluations, and become a part of the public record.

Question 5. Regarding the doubling of installed capacity from nuclear power sources every ten years, Dr. Tape indicated that water available for cooling may be a limitation on how rapidly this transpires. Would you expand for the record how this may be a limitation, and what alternatives are involved?

(a) What are the other limitations referred to regarding doubling every ten years?

Answer. Before responding to the importance of cooling water and the effect of its availability, on the growth of nuclear energy the growth estimates referred to in the question should be clarified. The *entire* electric generating capacity is expected to double every ten years. According to the Federal Power Commission's National Power Survey published in 1964, electric energy requirements were .85 x 10^{12} KW-hr in 1960, will be 1.6 x 10^{12} KW-hr in 1970 and 2.8 x 10^{12} KW-hr in 1980. In other words, the demand for electric power generated from all types of fuel is expected to approximately double each decade through 1980. Nuclear power is expected to have a much faster rate of growth during that period with a doubling time of roughly three years. This short doubling time for nuclear power growth is possible only because the total nuclear power