universities and research institutes) in geographical regions which correspond generally to natural environmental boundaries.

To place pollution abatement on a comparable basis with other national technology programs, systems analysis and management capability should be established within the Federal Government. This approach should be used along with the "planning, programming, budgeting" technique to organize both near and long-term Federal research and operational efforts in pollution abatement. More attention should be paid to interfaces between agency missions which make the management of environmental problems difficult.

We are pleased today to have as our first witness Dr. Donald Hornig, Director of the Office of Science and Technology in the Executive Office of the President. No person is better equipped than he to inform us of the status of Federal programs and to illuminate the very difficult tasks which the laws have given to the technical community. Dr. Hornig is, of course, a person very well known to this particular committee. We have listened to him in the past and always have learned a great deal from his testimony, and it is an association which we treasure. He is accompanied by his Assistant Director, Dr. Ivan L. Bennett, Jr.

(The biographies of Drs. Hornig and Bennett follow:)

DR. DONALD F. HORNIG

Dr. Donald F. Hornig was born in Milwaukee on March 17, 1920, the son of C. Arthur Hornig and the former Emma Knuth. In 1943 he married Lilli Schwenk and they have four children: Joanna, Ellen, Christopher and Leslie.

Dr. Hornig became Special Assistant to President Johnson for Science and Technology on January 24, 1964. He was simultaneously named by the President to be Chairman of the Federal Council for Science and Technology. On January 27, 1964, the Senate confirmed the President's nomination of Dr. Hornig as Director of the Office of Science and Technology in the Executive Office of the President. Dr. Hornig also serves as the Chairman of the President's Science Advisory Committee.

A graduate of Havard University, where he received his B. Sc. degree in 1940 and his Ph. D. in chemistry three years later, he was awarded a Guggenheim grant and a Fulbright scholarship for research at St. John's College, Oxford University, England in 1954–55, and in 1955 was appointed the first Bourke Overseas lecturer by the Faraday Society of London.

After receiving his doctorate at Harvard, Dr. Hornig spent a year as a Research Associate at the Woods Hole Oceanographic Institution in Massachusetts. From 1944 to 1946 he was a Group Leader at the Los Alamos Laboratory in New Mexico and in the latter years he joined the faculty at Brown University as assistant professor. Three years later he became an associate professor and Director of the Metcalf Research Laboratory. He was promoted to the rank of Professor in 1951 and the following year became Associate Dean of the Graduate School. Subsequently he was Acting Dean. In 1957 he joined the faculty of Princeton University and was appointed Chairman of the Department of Chemistry in 1958. Dr. Hornig was the first incumbent of the Donner Chair of Science at Princeton, established in 1958 by the Donner Foundation, Inc.

Dr. Hornig has been an associate editor of the *Journal of Chemical Physics* and a member of the Editorial Advisory Boards of *Spectrochimica Acta* and *Molecular Physics*. He was President, from 1945 to 1947, of Radiation Instruments Company, and served as Chairman of Project Metcalf of the Office of Naval Research in 1951–52. Before coming to Washington in 1964, he was a member of the Advisory Committee, Office of Scientific Research, U.S. Air Force. In 1959 he was appointed to the Space Science Board of the National Academy of Sciences, on which he served until February 1964. In 1960 President Eisenhower appointed Dr. Hornig to his Science Advisory Committee, and he was reappointed by President Kennedy in 1961. In late 1960 he served on the Kennedy Task Force on Space to help formulate policy in this field for the new administration.

In 1962–63 Dr. Hornig served as a member of the U.S. Delegation headed by Dr. Hugh Dryden which negotiated the agreement with the U.S.S.R. for cooperation in certain space activities.