

The Future

This account of selected accomplishments over the 40-year program of energy-related health and environmental research only partially illustrates its role in fulfilling an important National need. Use of this style of presentation makes it difficult to convey the program's most important characteristics: an evolutionary, integrated, and multidisciplinary research commitment; a synergism between fundamental science and applied problem solving; and an inevitable share of scientific setbacks, as well as achievements. Thus, in reality the accomplishments represent a continuum of scientific development from the basic unraveling of bio-environmental processes and the coupling of seemingly disparate facts to their application to specific problems.

These program characteristics, in turn, lend a distinct characteristic to the research itself; it draws continually upon an established base of knowledge, the rewards becoming increasingly apparent far downstream from the initial thought and investment. Thus, to a large extent, the program's future accomplishments are already embedded in its studies of the past and the present.

As a part of the evolving National energy mission, a responsive research program has developed the expertise and facilities required for its newer roles. The evolution continues, centered around a long term commitment to fundamental and basic research and aimed at addressing problems and issues of a high-risk nature with an anticipatory rather than a regulatory approach. Of particular

importance to the future is the fact that the program's multidisciplinary talent and capabilities in unique, dedicated facilities constitute a valuable National resource.

The research program is, therefore, as well equipped to meet future challenges as it was to meet past challenges. As our energy mission continues to evolve, with changing patterns of energy demand and the accompanying development of responsive new sources, it is reasonable to expect research contributions to assure safety, acceptability, and compatibility with the National goal.

The promise for the future, therefore, lies within the Program's traditionally interactive and interdisciplinary approach to complex problems. New biophysical and chemical tools and techniques in biomedical and environmental research now make it possible to attempt unprecedented studies on cells, molecules, and processes relevant to the triad. These technical advances, applied to basic studies, will continue to contribute answers to energy related questions, as well as to increase knowledge about causes and effects in biological systems. As in the search for radiation repair mechanisms that led to discoveries of DNA behavior and important theories of the nature of human disease and its treatment, the Program's research will continue to lead in making fundamental and practical contributions in reducing uncertainties about the health and environmental aspects of emerging energy technologies.