

Appendix The Health and Environmental Research Program

The Office of Health and Environmental Research (OHER) manages the Department's Biological and Environmental Research (BER) Program. The mission of OHER is to develop and sustain a high quality basic and applied research program at the frontiers of biomedical and environmental science consistent with the mission of the Department of Energy (DOE) and the objectives of the Office of Energy Research. More specifically, the OHER program objectives are based on the following considerations:

1. OHER is the principal organizational unit within DOE for conducting research on environmental and human health effects of energy strategies. The objective of these research programs is to develop principles and broadly generalizable knowledge that will be needed to address the wide range of questions that must inevitably be faced by future generations as well as by our own. OHER, therefore, is committed to using the most advanced scientific methods and technologies to explore the fundamental issues bearing on assuring safe energy operations, for example, the molecular and subcellular mechanisms which underlie human cellular, genetic, and environmental pathology and toxicology.
2. The Office recognizes that the unique facilities and computational capabilities, as well as interdisciplinary breadth and depth of skilled scientists at the National Laboratories, offer the Nation an important opportunity for addressing a wide range of important research and development problems. Programs in the area of nuclear medicine have contributed substantially to the health and economic well being of the Nation. OHER is committed to further development of these and other areas, such as biotechnology and related capital intensive long term projects in structural biology, which fully utilize the human and technological resources of the National Laboratories.

3. OHER views the National Laboratory system, research universities, and the private sector, as members of the same team working toward the solution of some of the Nation's most important problems. The Office is, therefore, dedicated to encouraging synergism between these three research sectors by various means, including stimulating access to advanced multiuser research facilities at the National Laboratories; the support of student fellowship and faculty sabbatical programs for collaborative research at National Laboratories; and the transfer of tools and technologies developed at the National Laboratories to the private sector and universities.

To attain these goals, a number of interdependent research objectives are addressed. The major objectives of the program are to:

1. Develop new concepts, procedures, and instrumentation for detecting and measuring energy related physical and chemical agents released into the occupational and general environment;
2. Characterize the long term atmospheric transport and chemical transformation processes of radionuclides and energy related chemical effluents to improve estimates of dispersion and potential human exposure;
3. Elucidate the mechanisms that control natural ecosystems and the processes that influence cycling of nutrients and energy related materials through terrestrial and aquatic ecosystems and to measure ecological effects resulting from energy related stresses to better predict environmental impacts and resiliency;
4. Quantify the late biological effects of exposure to ionizing radiation through long term human and experimental animal research;
5. Resolve the uncertainties associated with carcinogenic,