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CIRRPC
FOURTH ANNUAL REPORT

June 30, 1988

Committee on Interagency Radiation
Research and Policy Coordination

Alvin L. Young, Chairman

Office of Science and Technology Policy,
Executive Office of the President
Washington, DC 20506

The **Committee on Interagency Radiation Research and Policy Coordination** (CIRRPC) is chartered through the Federal Coordinating Council for Science, Engineering and Technology (FCCSET), Office of Science and Technology Policy, Executive Office of the President, Washington, D.C. 20506.

NOTICES

The opinions expressed herein do not necessarily reflect the opinions of the sponsoring institutions of Oak Ridge Associated Universities.

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* **Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Housing and Urban Development, Interior, Justice, Labor, State and Transportation: Environmental Protection Agency, Federal Emergency Management Agency, National Aeronautics and Space Administration, National Security Council, Nuclear Regulatory Commission, Office of Management and Budget, and the Veterans Administration.**

COMMITTEE ON INTERAGENCY RADIATION RESEARCH AND POLICY COORDINATION

Fourth Annual Report

July 1, 1987 to June 30, 1988

I. INTRODUCTION

This is the fourth annual report of the Committee on Interagency Radiation Research and Policy Coordination (CIRRPC). CIRRPC was chartered April 9, 1984 under the Federal Coordinating Council for Science, Engineering and Technology (FCCSET) and reports to the Office of Science and Technology Policy (OSTP), Executive Office of the President. Its overall charge is to coordinate radiation matters between agencies, evaluate radiation research, and provide advice on the formulation of radiation policy.

Subcabinet and senior policy level representatives and senior scientists from member agencies constitute CIRRPC and its scientific component, designated as the Science Panel. There are eighteen CIRRPC member agencies at this time, with fourteen agencies having representatives on the Science Panel.

A listing of the Executive Committee members, agencies' representatives, Science Panel members, and Science and Policy Panel participants are contained in Section IV.A. CIRRPC's reporting and organizational structure and Oak Ridge Associated Universities (ORAU) technical assistance staff are contained in Sections IV.B. and IV.C.

II. SUMMARY

During its fourth year, CIRRPC completed five reports which:

- Set forth guidelines for use of the National Institutes of Health (NIH) radioepidemiological tables in adjudicating radiation injury claims by veterans;
- Outlined the extent to which the recommendations of the Science Subpanel on Radon Protection and Health Effects are being addressed by the concerned federal agencies;
- Confirmed and augmented the agricultural implications of a major nuclear war as outlined in SCOPE 28, Volume II;
- Sponsored a comprehensive account by the National Council on Radiation Protection and Measurements (NCRP) of the radiation exposure of the U.S. population from all sources;
- Provided an overview of the FY 85 federally-sponsored radiation research addressing the biological effects at low levels of exposures; and

REPORTS COMPLETED

DOCUMENT TITLE	Calendar Year																			
	1984		1985				1986				1987				1988					
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
VA Assessment of Veterans with Military Service at Sites of Temporarily Augmented Ionizing Radiation	•																			
Review of the Draft Report of the National Institutes of Health Ad Hoc Working Group to Develop Radioepidemiological Tables			•																	
Review of the Report of the National Institutes of Health Ad Hoc Working Group to Develop Radioepidemiological Tables					•															
Report on Identification of Federal Radiation Issues							•													
International Activities Report									•											
Radon Protection and Health Effects										•										
SI Metric Radiation Units											•									
Update of the International Activities Report												•								
The Federal Ionizing Radiation Research Agenda Related to Low Level Biological Effects: FY85																•				
Review of Scope 28 Report on Environmental Consequences of Nuclear War: Volume II, Ecological and Agricultural Effects																•				
Federal Programs on Indoor Radon																				•
Use of Probability of Causation by the Veterans Administration in the Adjudication of Claims of Injury Due to Exposure to Ionizing Radiation																				•
A Compendium of Major U.S. Radiation Protection Standards and Guides: Legal and Technical Facts																				•

- Responded to the Environmental Protection Agency's (EPA) request for a definition of issues on EPA's proposed TRU guidance.

Because of the inability of the Science Panel to agree on the report by the Science Subpanel on Effects of Nonionizing Radiation, its draft report, along with comments, were forwarded to the initiating agency, EPA.

LOOKING AHEAD

Activities currently in progress are expected to result in reports in the following five areas during the next year:

- A report on the proposed increase in the neutron quality factor;
- The CIRRPC sponsored BEIR V report by the National Research Council of the National Academy of Sciences (NRC/NAS) on the biological effects of low levels of ionizing radiation on populations;
- A report on the development of a research program that will provide a basis for more precisely determining the biological effectiveness of neutron radiation;
- A report addressing the question of advance planning of health effects research following a major nuclear accident; and
- A report on the feasibility of coordinating a federal position on ionizing radiation risk assessment.

LEGISLATIVE MONITORING

Periodically the Executive Committee is briefed on Congressional activities related to radiation matters which may be of interest to the member agencies. During the past year, legislative briefings pertained to the following topics:

- The Price-Anderson Act;
- Department of Energy (DOE) Nuclear Facilities Safety Oversight Board;
- Appropriations;
- Radiation-Exposed Veterans Compensation Act of 1988;
- Radon;
- Nuclear Regulatory Commission (NRC) Reorganization;
- Veterans' Radiation Exposure Disability and Death Benefits Act of 1987;
- Uranium Revitalization, Mill Tailings, and Enrichment Act; and
- High Level Waste.

BRIEFINGS AND MEETINGS

During the past year there were 76 meetings, including meetings of the CIRRPC members, the Executive Committee, the Science Panel, and the science and policy subpanels. In addition, there were a number of meetings and briefings involving members of the Executive Committee and representatives of member agencies.

- Visits were made by the Executive Committee to the Department of Defense (DOD), Department of Interior (DOI), DOE, and the Department of Transportation (DOT) to carry out the announced plan to visit each of the member agencies on a two-year cycle. The purpose of these meetings is to update the staffs of the agencies, which are concerned with radiation matters, on the activities of CIRRPC and learn of any new radiation issues related to their responsibility.

- During their visit to the United States, Dr. Roger H. Clarke and Mr. Goeff Webb, of the United Kingdom National Radiation Protection Board, met with the Executive Committee to discuss matters of mutual interest.

- In response to a request from the Assistant Secretary for Defense Programs, DOE, the Executive Committee presented a briefing on CIRRPC activities.

- CIRRPC representatives met with staffs of all the areas of the DOE concerned with the possible change in the neutron quality factor to set forth the results of the activities of the Science Subpanel on the Scientific Basis of Radiation Protection Standards.

- The CIRRPC chairman, Dr. Alvin L. Young, met with the NRC to discuss a potential CIRRPC review of the NRC report, *Naturally Occurring and Accelerator-Produced Radioactive Materials - 1987 Review.*

III. OPERATIONS

USE OF PROBABILITY OF CAUSATION METHODOLOGY IN RADIATION COMPENSATION

In February 1985, CIRRPC undertook an effort at the request of the Veterans Administration (VA) to examine how the NIH report on radioepidemiological tables might be used in adjudicating veterans' claims of radiation injury. Based on decisional criteria published by the VA, CIRRPC's Science Panel adopted as a statement of its task the following question:

"To what extent can the NIH Report be used credibly to assist in adjudicating a veteran's claim of radiation injury in a manner that satisfies the 'no reasonable possibility' and the 'at least as likely as not' criteria stated by the VA and that is consistent with the VA's 'reasonable doubt policy' acting in the claimant's favor?" To meet this objective, the Science Panel prepared a listing of radiogenic cancers applicable to such claims and using the NIH probability of causation methodology developed a screening procedure for selecting only those cases having some reasonable degree of merit for consideration. The report has been completed and is expected to be published and available during the summer of 1988. A follow up report will address policy implications on various segments of society and federal programs use of the probability of causation methodology in addressing compensation issues.

RADON

As a follow-up action to the Science Panel's activities on indoor radon, a policy subpanel was formed in December 1986. The charges to the subpanel were to review the recommendations of the Science Panel report and to determine the extent to which they are being addressed by the various federal agencies. These recommendations were:

- Note those areas that were not being addressed, or areas where there were unnecessary duplications;
- Review recent additions to the Superfund Act, and determine if additional work was indicated beyond those items identified in the Science Panel report.

Mr. Raymond Kammer, Department of Commerce (DOC), was selected as chairman for the subpanel.

The policy subpanel review of federal activities indicated no major deficiencies nor overlaps in programs addressing previously identified issues. Some improvements in coordination of federal programs were recommended.

The policy subpanel report was completed and sent for CIRRPC review and approval in January 1988. It was approved by the CIRRPC member agencies. The CIRRPC Policy Report, *Federal Programs on Indoor Radon*, was completed on May 17, 1988.

SI METRIC RADIATION UNITS

The Policy Subpanel on Metrication of Radiation Units completed its report in December 1986 and the report was transmitted by the President's Science Adviser, Dr. William R. Graham, to the DOC, as the federal agency responsible the Federal Government's programs on metrication.

Notice of the report's availability, together with the report recommendations, were published in the *Federal Register* by the DOC on February 17, 1988.

NEUTRON QUALITY FACTOR IN RADIATION PROTECTION

The Science Subpanel on Scientific Basis for Radiation Protection Standards is further examining the issue of increasing the quality factor for neutrons by a factor of two for purposes of radiation protection. Comments received from outside review of the subpanel's draft report are under consideration for inclusion in the final report. The findings of the subpanel were that evidence does not support a change in the quality factor at this time.

HIGH-LET RADIATION

The charter of the Science Subpanel on High-LET Radiation was approved by the Science Panel on December 9, 1985. Responsibilities of this subpanel include:

- Maintaining an awareness of relevant review and assessment activities being carried out by national and international organizations addressing High-LET radiation research and/or protection issues;

- Serving as an information focus and coordination point for federal agencies with respect to High-LET research activities;
- Identifying High-LET research needs; and
- Reviewing proposed agency research agendas related to High-LET radiation, as requested by CIRRPC.

Since June 1987, the subpanel and its associated task group have met quarterly to discuss the task group's effort to develop a conceptual research plan to address the uncertainties in and lack of scientific data on neutron biological effectiveness, especially as it pertains to the protection of human health. The draft report of the task group identifies needed research in the areas of:

- Physics and dosimetry;
- Chemical and molecular mechanisms, including underlying cellular responses;
- Cellular effects;
- Non-neoplastic effects in tissues and organs;
- Late effects in populations, including carcinogenesis, life span shortening, and hereditary effects; and
- Models of effects.

The task group is currently narrowing down the extensive list of neutron research needs identified in each area into a shorter list of specific research recommendations for both short and long term research. The final draft of their report is expected to be ready for review by Fall 1988.

NON-IONIZING RADIATION

Based on the recommendations of the Science Panel, the Science Subpanel on Future Research Needs in Health-Related Effects of Non-Ionizing Radiation was disbanded. Mr. J. Craig Potter, EPA, was informed of the decision by the chairman of CIRRPC on February 9. The draft report of the subpanel as submitted to the Science Panel was forwarded to Mr. Potter without changes.

PRE-DISASTER PLANNING FOR HUMAN HEALTH EFFECTS RESEARCH

This subpanel was established on March 24, 1987. The charges to the subpanel include determination of where gaps exist in our knowledge of human health effects of ionizing radiation, and where information might be collected in the event of disasters that will help fill those gaps. A composite draft report made up of individual contributions was circulated to the subpanel for review in May 1988. A revised report with recommendations is planned for early in the next quarter.

IONIZING RADIATION RISK ASSESSMENT

At the direction of the CIRRPC Executive Committee, the Science Panel established a Subpanel on Ionizing Radiation Risk Assessment in response to the DOD's request to assist in the development of a coordinated federal position on risk

assessment. Dr. Aurel Goodwin, Department of Labor (DOL), was appointed chairman. The initial action of the subpanel involves reviewing the NRC/NAS report entitled, *The Effects on Populations of Internally Deposited Alpha-Emitting Radionuclides: 1987*, also known as BEIR IV.

Initial meetings of the subpanel addressed member agency programs that could be impacted by BEIR IV and the preparation of detailed reviews of individuals chapters devoted to specific alpha-emitters.

REVIEW OF SCOPE 28, VOLUME II

Science Panel Report No. 5, entitled *Review of SCOPE 28 Report on Environmental Consequences of Nuclear War: Volume II, Ecological and Agricultural Effects*, was published in March 1988 by CIRRPC, and by letter was transmitted to the Assistant Secretary of Agriculture, Dr. Orville G. Bentley, by the Science Adviser to the President.

The Scientific Committee on Problems of the Environment (SCOPE), a part of the International Council of Scientific Unions (ICSU), released a two-volume report, *The Environmental Consequences of Nuclear War*, in September 1985. Volume I of the report concentrated on physical and atmospheric effects, whereas Volume II examined ecological and agricultural effects. An "acute" phase involving drastic reduction in light and temperature lasting for days to weeks, and a "chronic" phase with slowly clearing skies and gradual recovery of warmth, lasting for a year or longer, are assumed in the SCOPE-28 analysis. The SCOPE-28 authors concluded that agricultural production would be so disrupted that many of the acute phase survivors would starve during the chronic phase.

The agricultural implications of such a nuclear exchange were sufficiently serious that an independent evaluation of Volume II was deemed necessary. Accordingly, CIRRPC formed an ad hoc review group to conduct the review. The charge to the committee was to review Volume II based on a scenario described in Volume I.

Although the ad hoc review group did not evaluate the validity of data used in the models, it concluded that the methodology was sound. However, the panel believes that several important factors were not adequately treated and should have received additional emphasis. Among these are the loss of large areas of irrigated agricultural land due to destruction of dams, the severe disruption of production, processing, and distribution caused by destruction of the complex infra-structure needed for the U.S. food and agricultural system, and the accurate response of major crops to a wide range of temperature and solar radiation. Given the large uncertainties in the physical hypothetical parameters affecting these studies and the significant changes in the SCOPE-28, Volume I source terms, updates will be needed to keep abreast of new developments.

COMPENDIUM OF RADIATION PROTECTION STANDARDS AND GUIDES

Tasked by CIRRPC, ORAU is finalizing a compilation of major U.S. radiation protection standards and guides applicable to workers and the general public. Legal and technical facts on requirements are

summarized for twenty three such standards. Included in the compendium are Federal Guides on radiation protection approved by Presidential signature and standards promulgated, or proposed, by the EPA, NRC, Occupational Safety and Health Administration (OSHA), Mine Safety and Health Administration (MSHA), and the Food and Drug Administration (FDA). The report includes protection requirements and notation of other standards that are somewhat related to a given standard. The final ORAU report is expected to be published and submitted to CIRRPC in Fall, 1988.

U.S. POPULATION RADIATION EXPOSURE ASSESSMENT

The NCRP published NCRP Report No. 93 entitled, *Ionizing Radiation Exposure of the Population of the United States*, in November 1987. The report acknowledges the "support and stimulation" of CIRRPC in their undertaking to provide a comprehensive account of the exposure of the U.S. population from all sources. Major sources contributing to the 360 mrem (3.6 mSv) average annual effective dose equivalent to the U.S. population included: natural radioactivity, occupational, nuclear fuel cycle, consumer products, miscellaneous environmental, and medical sources.

BEIR V REPORT

The contract between ORAU and the NRC/NAS for BEIR V, an update of the comprehensive BEIR III report on the somatic and genetic risks to populations due to low levels of ionizing radiation, became effective July 1, 1986.

When completed, the BEIR V report will include among its new findings those made following reassessment of the dosimetry for the survivors of the atomic weapons detonated during World War II and a summary of findings in the BEIR IV report on the effects of internally deposited alpha-emitting radionuclides. The findings reported are expected to be in a form suitable for use in making health risk assessments, assigning share values for radiation as a causative disease agent, and formulating radiation exposure control decisions. Like previous BEIR reports, it is expected that the BEIR V report will be both an important scientific document used in developing U.S. policy on radiation protection and a much referenced document used, for example, in the U.S. court system.

The Committee of NAS, established to prepare the BEIR V Report, has met quarterly to discuss the content of the report, to identify new animal and human data bases, and to discuss new concepts in radiobiology since the 1980 BEIR III report. The final report is expected at the end of 1988.

FEDERAL RADIATION RESEARCH AGENDA

In March 1988, ORAU completed a report on *The Federal Ionizing Radiation Research Agenda Related to Low Level Biological Effects: FY 1985.* This report was developed in response to a request from the CIRRPC Executive Committee that ORAU prepare an overview of federally supported radiation research on

a comparative FY 81 versus FY 85 basis. The number of projects and funding levels are compared for the two years for six research categories: physics, chemistry, and related areas; biological sciences; epidemiology and the health sciences; sources of exposure to ionizing radiation; and support services. In addition to showing trends in federal support for radiation research, the report notes previously-identified research needs that were not addressed in either FY 81 or FY 85 and offers recommendations with regard to future reports. The CIRRPC Science Panel is now considering recommendations for future reports and future research directions and what follow-up actions to take relative to the ORAU report.

TRANSURANICS IN THE ENVIRONMENT

As a result of discussions at the Executive Committee meeting on March 3 and the Policy Panel meeting on March 10, an ad hoc group on TRU guidance was established. The task of the group was to prepare a response to a request by the EPA to define the unresolved issues related to EPA's draft report on the subject. CDR R. Thomas Bell, DOD, was asked to lead the effort.

A report defining those unresolved issues was completed in June 1988. The report will be transmitted to the Administrator, EPA, encouraging the establishment of an interagency working group to address the issues before the guidance is promulgated.

IV. ORGANIZATION AND REPORTING STRUCTURES

A. CIRRPC MEMBER AGENCIES AND REPRESENTATIVES
Policy and Science Subpanel Participants

Executive Committee

Chairman
Dr. Alvin L. Young
Office of Agricultural Biotechnology
U.S. Department of Agriculture

Vice Chairman
Mr. J. Craig Potter
Environmental Protection Agency

Executive Secretary
Mr. Robert L. Brittigan
Department of Defense

Chairman, Science Panel
Dr. Randall S. Caswell
Department of Commerce

Vice Chairman, Science Panel
Dr. Marvin Rosenstein
Department of Health & Human Services

Executive Secretary, Science Panel
Dr. Percival D. McCormack
National Aeronautics & Space Administration

Technical Assistance Director
Mr. John E. Rudolph
Department of Energy

Member Agency Representatives

Department of Agriculture
Dr. Mary E. Carter
Dr. James W. Glosser, alt.
Dr. Jane F. Robens
Dr. Ronald Engel, alt.

Department of Commerce
Mr. Raymond G. Kammer
Dr. Randall S. Caswell (alternate to Policy Panel)
Mr. Charles M. Eisenhauer
Dr. George P. Lamaze, alt.

Department of Defense
Dr. Robert B. Barker
VADM J. T. Parker, alt.
CDR R. Thomas Bell
COL George Irving, III, alt.
Dr. Lawrence S. Myers, Jr., former

Department of Energy
Ms. Mary L. Walker
Mr. Garry W. Gibbs
Dr. Richard Starostecki, alt.
Dr. Robert W. Wood
Dr. Robert G. Thomas, alt.
Dr. Charles DeLisi, former

Department of Health & Human Services
Mr. John C. Villforth
Dr. Marvin Rosenstein, alt.
Dr. Gilbert W. Beebe
Dr. Bruce W. Wachholz, alt.

Department of Housing & Urban Development
Mr. Richard H. Broun
Mr. James F. Miller (and alt. to Policy Panel)
Mr. Joel Segal, alt.

Department of Interior
Mr. James F. Devine
Dr. Clement F. Shearer, alt.
Mr. Allan B. Tanner

Department of Justice
Mr. Jeffrey Axelrad, alt.
Mr. Ralph H. Johnson, alt.
Mr. Robert L. Willmore, former

Department of Labor
Mr. Robert Copeland
Dr. Aurel Goodwin (and alternate to Policy Panel)
Dr. Sheldon R. Weiner
Mr. William R. Reise

Department of State
Dr. Charles M. Newstead

Department of Transportation
Ms. M. Cynthia Douglass
Dr. Frank Hassler
Mr. Michael E. Wangler, alt.

Environmental Protection Agency
Mr. J. Craig Potter
Mr. Sheldon Meyers, alt.
Mr. David E. Janes
Dr. Jerome Puskin, alt.

Federal Emergency Management Agency
Mr. David McLoughlin
Mr. Richard Krimm, alt.
Mr. George C. Meyer
Mr. Carl R. Siebentritt, Jr., alt.

National Aeronautics & Space Administration
Mr. Leven B. Gray
Mr. Robert H. Thompson, alt.
Dr. Percival D. McCormack
Mr. E. G. Stassinopoulos, alt.

National Security Council
(No formal representative)

Nuclear Regulatory Commission
Dr. Denwood F. Ross
Mr. Robert Bernero, alt.
Mr. Robert E. Alexander
Dr. Donald A. Cool, alt.

Office of Management and Budget
Mr. Robert Damus
Mr. John Carley
Ms. Wendy Gramm, alt.

Veterans Administration
Mr. Donald L. Ivers
Mr. Robert E. Coy, alt.
Dr. Roger H. Shannon
Dr. W. Ross Adey, alt.
Dr. Arthur D. Graham, former

Science Subpanel on Future Research Needs in Health Related Effects of Non-Ionizing Radiation
Dr. Ross Adey, VA (Chairman)
Mr. David E. Janes, EPA
Dr. Elliot Postow, HHS
Dr. Charlotte Silverman, HHS
Ms. Janet Healer, DOC

Science Subpanel on High-LET Radiation
Dr. Bruce Wachholz, HHS (Chairman)
Dr. J. Joseph Coyne, DOC
Dr. D. Stuart Nachtwey, NASA
CDR Gary H. Zeman, DOD
Dr. Lawrence S. Myers, Jr., consultant

Science Subpanel on Ionizing Radiation Risk Assessment
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Dr. Richard A. Albanese, DOD
Dr. James Smith, HHS
Dr. Shlomo Yaniv, NRC
Dr. Jerome Puskin, EPA
Dr. Robert Thomas, DOE

Science Subpanel on Pre-Disaster Planning for Human Health Effects Research
Mr. Charles M. Eisenhauer, DOC (Chairman)
Dr. Thomas MacVittie, DOD
Dr. Robert Young, DOD
Dr. Robert Goldsmith, DOE
Mr. James A. Martin, NRC
Dr. Gilbert Beebe, HHS
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Mr. Robert Wilkerson, consultant
Dr. Daniel Weiss, consultant

Science Subpanel on Radioepidemiological Tables
Dr. J.W. Thiessen, former DOE, (Chairman)
Dr. Lawrence S. Myers, Jr., former DOD
Dr. Bruce Wachholz, HHS
Mr. Robert Alexander, NRC
Dr. Ethel S. Gilbert, consultant
Dr. Peter G. Groer, consultant

Science Subpanel on Scientific Basis for Radiation Protection Standards
Mr. David Janes, EPA (Chairman)
Dr. Elmer Eisenhower, DOC
Dr. Robert G. Thomas, DOE
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Mr. Robert Alexander, NRC
Mr. Kenneth Groves, consultant

Policy Subpanel on Indoor Radon
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Mr. Carl J. Schafer, DOD
Dr. Donald L. Fox, DOD
Dr. J. W. Thiessen, former DOE
Dr. Susan L. Rose, DOE, alt.
Mr. Richard H. Broun, HUD
Mr. James Miller, HUD, alt.
Mr. Ralph H. Johnson, DOJ
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Mr. Brian Mannix, OMB
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Policy Subpanel on Radioepidemiological Tables
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Mr. Robert Brittigan, DOD (Alternate Chairman)
Mr. Richard Staufenberger, DOL
Ms. Ruth Berger, DOL, alt.
Mr. Robert Willmore, former DOJ
Mr. Richard J. Riseberg, HHS
Mr. Bob Lanham, HHS, alt.
Ms. Sandra Schneider, DOE/GC, alt.
Mr. Ralph Johnson, DOJ, alt.

Task Group on High-LET Radiation

Dr. George Casarett (Chairman)
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Ad Hoc Review Group for SCOPE 28: Volume II

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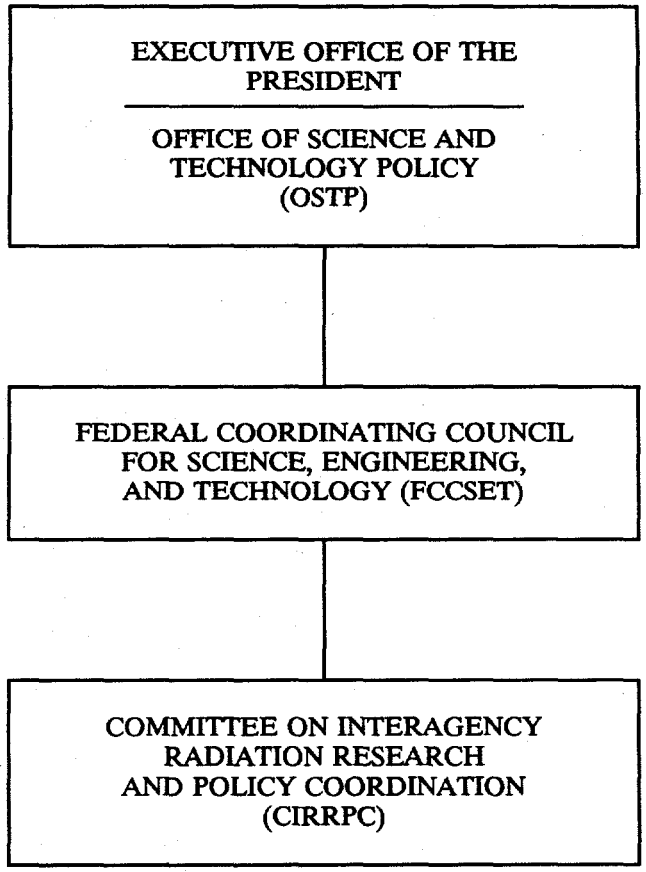
Dr. Dale N. Moss
Department of Crop Science
Oregon State University

Dr. Norman Rosenberg
Resources for the Future

Dr. Elise Rose
Consultant

B. CIRRPC ORGANIZATION



C. ORAU TECHNICAL ASSISTANCE STAFF

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David S. Smith

Technical Specialist
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Technical Secretary
Lisa A. Beaver*

Technical Secretary
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Staff shared with other ORAU programs:

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Anthony H. Ewing

Senior Administrative Officer
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