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Title: Low-Dose Risk, Decisions, and Risk Communication

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Progress Report

Research Objectives: To conduct basic research on how people receive, evaluate, and form positions on scientific information and its relationship to low-dose radiation exposure. There are three major areas of study in our research program. First is the development of theories, frameworks and concepts essential to guiding data collection and analysis. The second area is a program of experimental studies on risk perception, evaluation of science information, and the structure of individual positions regarding low-dose exposures. This involves the study of existing knowledge and the evaluation of science information presented within a variety of formats, as educational information, news media stories, and alternative communication methods (personal contact, small group interaction, email & internet, etc.). Third is the community-level studies to examine and record how the social conditions, under which science communications take place, influence the development of attitudes and opinions about: low-dose exposures, the available management options, control of radiation risks, and preferences for program and policy goals.

Research Progress and Implications: This report summarizes work after 20 months of a 36-month project (October 1999 to September 2002). During the first eight months of the project the research guidelines and procedures were put in place, personnel were recruited and assigned work areas, experiments to examine radiation exposure attitudes and perceptions were designed, and a workshop was organized and held (June, 2000) with experts from the U.S., Canada, and Europe to discuss the theoretical and empirical work in risk communication. Subsequently, the experimental work was initiated and is ongoing with the major working papers listed below. Theoretical work focused on the Social Geography of Risk Communication framework and earlier this year additional

attention was directed toward development of a paper on the topic of the Social History of Radiation with implications for public perceptions of radiation exposure. A program of community-based studies was designed. Fourteen possible sites with radiation exposure issues were screened with site visits and key informant interviews. Three community study areas were selected. These communities are located adjacent to DOE facilities at Rocky Flats, Colorado, Fernald, Ohio, and Brookhaven, New York. Researchers are currently conducting the historical review of available data, extensive interviews key informants and community residents, and participant-observer fieldwork. A survey of each study community is in the final phases of development and will be implemented within the next 90 days. These survey data will allow us to compare and contrast the general public responses to key questions with the key informant interviews. The focus of this work is on how the community social context serves to form public opinion about radiation exposure and related issues. As part of the community work we are initiating a small group study to examine how much social agreement can be achieved among people with distinctly different points of view. This effort will focus on the parameters of understanding differing values, considering necessary tradeoffs, and reaching acceptable process and outcome decisions.

Planned Activities: The three areas of work (Theory & Concept Development, Experimental Studies, and Community & Small Group Studies) will continue over the next year with increasing emphasis on analysis and reporting of the research findings. One major focus in the final year will be on defining the range of decision processes within the many public groups we are studying and the implications for risk communication on radiation exposure issues.

Information Access: Decision Research maintains a web site at: www.decisionresearch.org. This site has a section on the research being done for this project and it lists contact information for researchers. A complete bibliography of Decision Research publications is also available on-line.

The following papers and manuscripts are in progress and will be posted on-line as the review drafts are completed.

Flynn, J., MacGregor, D., and Slovic, P. (working paper). The Social Geography of Risk Communication.

MacGregor, D., Flynn, J., Slovic, P., and Mertz, C.K. (working paper). Perception of Radiation Exposure. Part I: How "Natural" is Natural Background Radiation?"

MacGregor, D., Flynn, J., Slovic, P. (working paper). Perception of Radiation Exposure. Part II: Communicating about Radiation Exposure and Health Effects.

MacGregor, D., and Flynn, J. (working paper). Public Perception of Nuclear Materials in Space Research.

MacGregor, D., Slovic, P., and Flynn, J. (working paper). Ionizing Radiation: A Tutorial on Sources and Exposures.

The following presentations have been made:

- Flynn, J. American Chemical Society Symposium on Radiation Health and Safety: Myth and Reality, "The Social Context for Communication about Radiation Risk," 221st ACS National Meeting, San Diego, CA. April 2001
- Flynn, J. DOE Workshop on the Communication of the Low-Dose Radiation Research Program, "The Confusion of Risk Perception," Freedom Forum World Center, Arlington, VA, March 2001.
- Flynn, J. Gordon Conference, "Radiation Risk, Decisions, and Risk Communication," Sawyer-Colby College, New London, CN, July 2000.
- Flynn, J. International Conference on Trust, "Trust and Risk Management Communications," Western Washington State University, Bellingham, WA. June 2000.
- Flynn, J. National Cancer Institute/ Center for Disease Control, Workshop on I-131 fallout from Nevada Test Site, "The Social Context for Risk Communication," Rockville, Maryland, January 2000.
- Flynn, J. Society for Risk Analysis, "The Role of Risk Communication in Response to Technological Stigma," Atlanta, GA., December 1999.
- Flynn, J. Board on Radioactive Waste Management, National Research Council, "The Role of Stigmatization in Public Risk Perceptions of High-Level Radioactive Wastes," Irvine, CA, November 1999.