Department of Nuclear Engineering
Massachusetts Institute of Technology
Cambridge, MA 02139

Grant No. DE-FG02-92ER75787

FINAL REPORT
**IMPROVING HUMAN RELIABILITY THROUGH
BETTER NUCLEAR POWER PLANT
SYSTEM DESIGN**

Prof. Michael W. Golay

submitted to
Acquisitions Management Division
ER-64, Office of Energy Research
US Department of Energy
Washington, DC 20585

23 February 1998

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standpoint to the publication or
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MP Dvorscak *Nov 4 1999*

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FINAL REPORT

IMPROVING HUMAN RELIABILITY THROUGH BETTER NUCLEAR POWER PLANT SYSTEM DESIGN

Principal Investigator: Prof. Michael W. Golay, MIT

The purpose of the project on "Development of a Theory of the Dependence of Human Reliability upon System Designs as a Means of Improving Nuclear Power Plant Performance" was to investigate the future prospects for nuclear energy use, particularly in mitigation of global warming. This was done examining such use in the context of competition from renewable energy technologies and factors working against using nuclear power technologies. These include social ambivalence about the desirability of the nuclear technologies, the possibility of growth in the number of nations possessing nuclear weapons, and difficulties in disposing of nuclear wastes.

The major vehicle for investigating these questions was the Second International Conference on the Next Generation of Nuclear Power Technology, organized at MIT by the Program for Advanced Nuclear Power Studies, Prof. M.W. Golay, Conference and Program Chairman. In this conference we organized sessions on each of the topics listed above. The purpose was to stimulate a focused discussion among the participants who were invited reflecting their individual values and expertise. Each session consisted of a keynote paper, a response paper, and roughly one hour of discussion among the participants. All are recorded in the Proceedings. The post-conference response of many participants to the event was that the conference was well-run, fair to all, and highly stimulating. Thus the goals of the conference were largely met.

From the discussions, the consensus appears to be that technological and economic conditions are not yet favorable for the renewable energy technologies, and social and economic factors remain strongly unfavorable for the nuclear power technologies.

The major factor identified that might change this situation is growing concern about global warming. At the time of the conference, such concern was not strong enough to effect events. That remains the case today.