

MASTER

THE SAFETY OF NUCLEAR POWER¹

Alvin M. Weinberg

This document is
PUBLICLY RELEASABLE
Barry Steels
Authorizing Official
Date: 10/25/06

Nuclear power plants and their subsystems have caused less damage to human health and to the environment, per kilowatt-hour, than have fossil-fueled central power stations. Thus Professor Lester B. Lave of Carnegie-Mellon University points out that from mining alone the damage imposed by coal is twelvefold greater, per kilowatt-hour, than is that imposed by nuclear energy. (Professor Lave's argument is based on the fact that some 120,000 coal miners today receive about \$300 per month compensation as the result of black lung disease.) C. Starr, M. A. Greenfield, and D. F. Hausknecht writing in Nuclear News, Oct. 1972, have compared the radioactivity hazard from nuclear plants with that from oil- or coal-fired plants. Their results show that to reach air quality standards for oxides of sulfur and nitrogen and radioactivity in Los Angeles County one could tolerate 160,000 nuclear plants of 1,000,000-kilowatt capacity, but only 10 oil-fired or 23 natural-gas plants of this size.

Granted that properly operating nuclear power plants and their sub-systems - including mining, transport and chemical reprocessing of used reactor fuel elements, and disposal of radioactive wastes - are benign and have been so demonstrated, are there concerns regarding the possibility that these systems may malfunction and cause hazard to people and

¹Based on lecture before Council for the Advancement of Science Writing Briefing on New Horizons in Science, Boulder, November 14, 1972. This version for use in a series of articles on energy, Atlantic City Press, July 1973.

NOTICE
This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED