



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

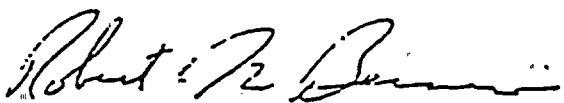
January 22, 1982

MEMORANDUM FOR: Dr. Eisenhut, DL, NRR
S. Hanauer, DST, NRR
R. Mattson, DSI, NRR
C. Michelson, AEOD
T. Murley, ROGR
H. Thompson, DHFS, NRR
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FROM: Robert M. Bernero, Director
Division of Risk Analysis
Office of Nuclear Regulatory Research

SUBJECT: ACCIDENT SEQUENCE PRECURSOR PROGRAM DRAFT REPORT

The attached Accident Sequence Precursor report is currently being edited by ORNL with expected publication in late March 1982. We are providing a limited distribution of the draft report for information purposes. The techniques and methodology used in the report are somewhat controversial. For example, a question has been raised of whether the correct probabilities (absolute vs. conditional) were calculated and used to determine severe core melt probability. We are reviewing this and other methodology questions within DRA. The Precursor Report tends to indicate a core melt probability higher than calculated in typical PRAs. The report indicates core melt probability in the range of 10^{-3} /reactor/year vs. 10^{-4} /reactor/year for typical PRAs. The precursor program tentative findings were presented by ORNL (Joe Minarek) to NRC in meetings on 9/18/81 and 12/9/81. Two earlier draft versions of this report were given limited distribution within NRC, the first in early 1981 and the second draft report was distributed following the 12/9/81 meeting. We have indicated to ORNL that we will provide them timely comments before report publication. Please provide us with any comments you may have on this report by February 20, 1982.

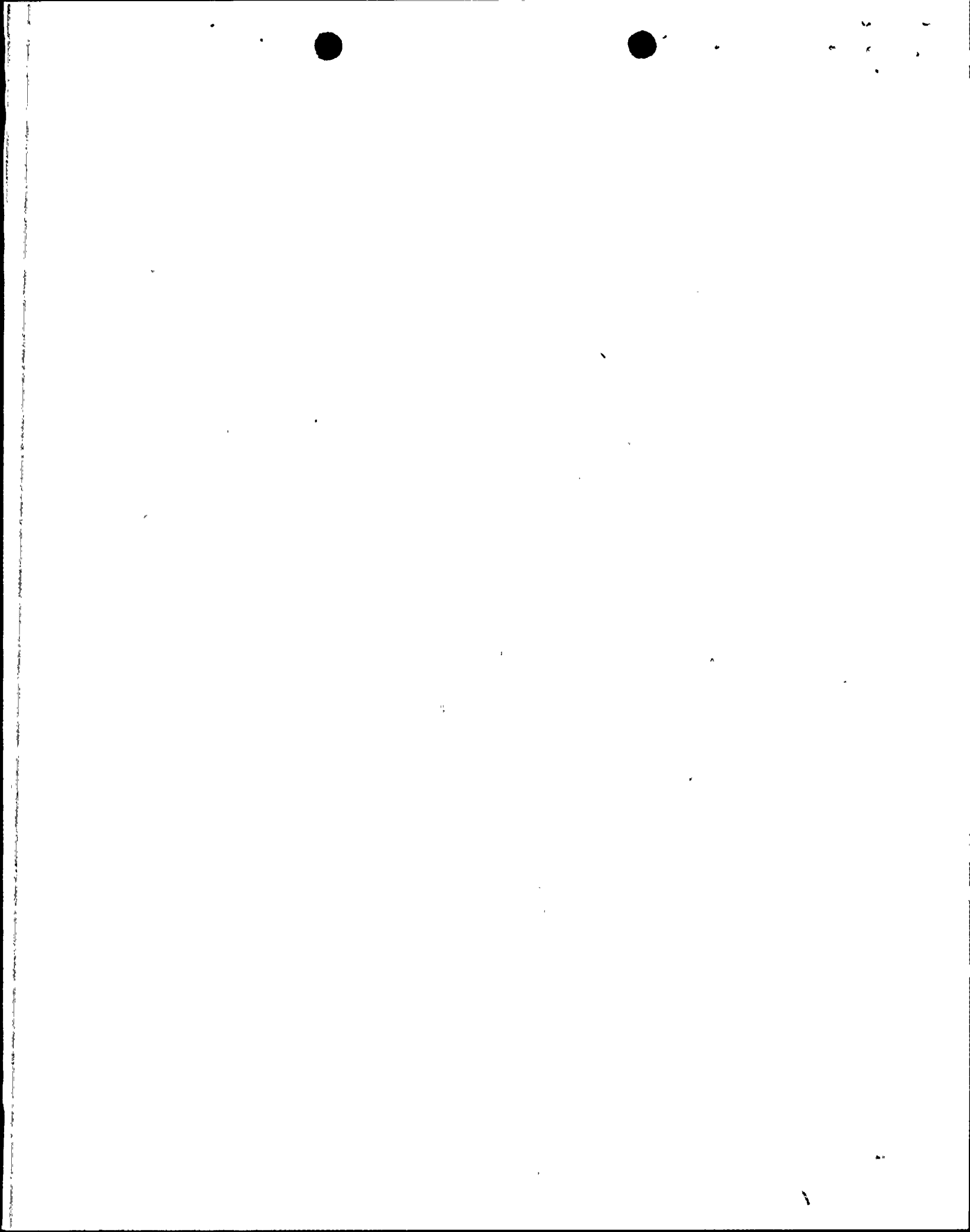

Robert M. Bernero, Director
Division of Risk Analysis
Office of Nuclear Regulatory Research

Attachment: As Stated

cc: R. Dennig, AEOD
D. Okrent, ACRS
D. Ross, RES
L. Tong, RES
A. Thadani, RRAB, NRR

Dupe of

~~82-011017-0~~



DRAFT

NUREG/CR-2497

Volume 1

ORNL/NSIC-182

PRECURSORS TO POTENTIAL SEVERE

CORE DAMAGE ACCIDENTS:

1969-1979

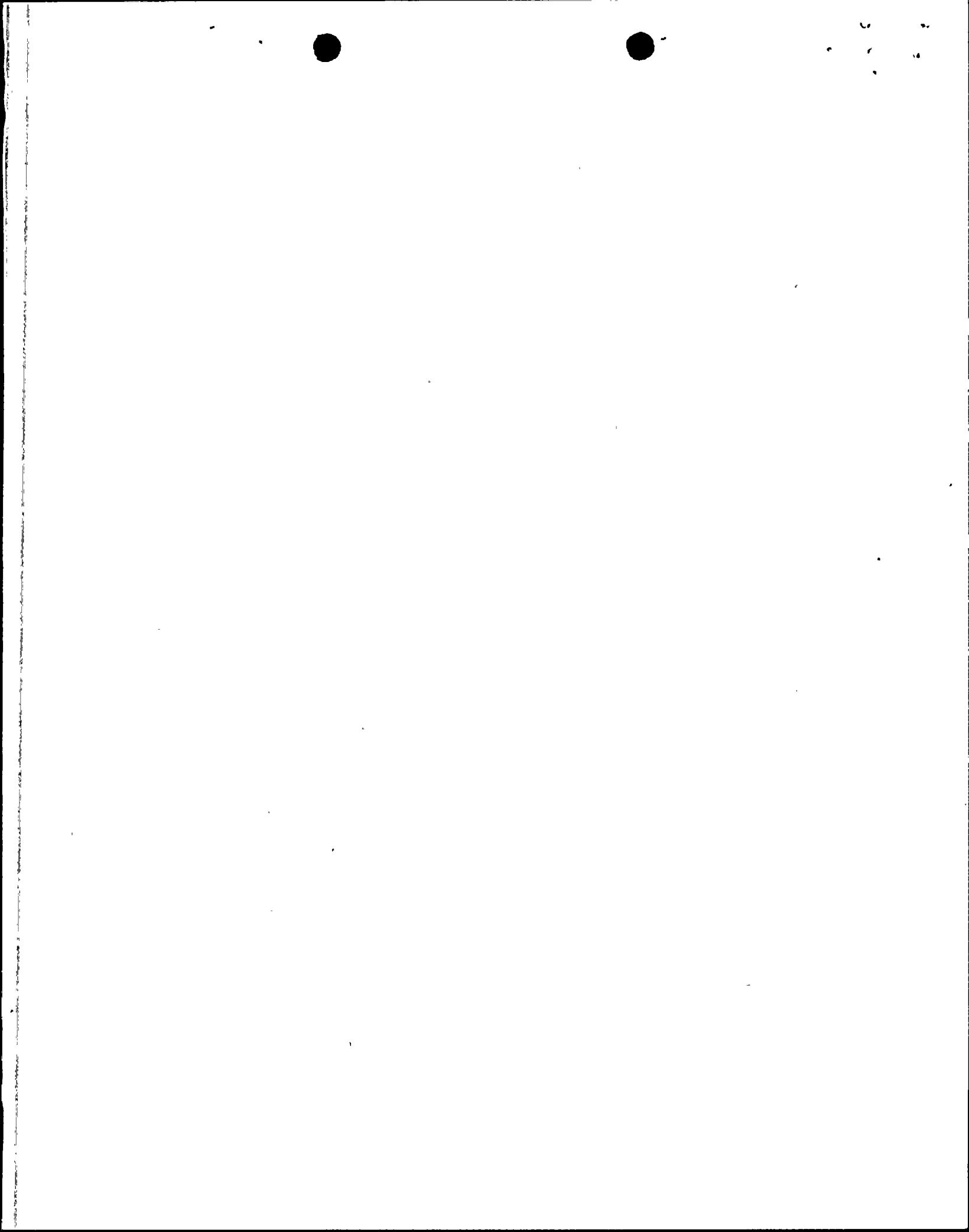
Joseph W. Minarick

Casimir A. Kukielka

Prepared for the U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Under Interagency Agreements, DOE 40-551-75 and 40-552-75

NUCLEAR SAFETY INFORMATION CENTER

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ABSTRACT

Descriptions of 170 operational events, reported as LERs, which occurred at commercial light water reactor plants during 1969-1979 and which are considered to be potential precursors to severe core damage are presented, along with associated event trees and categorizations and subsequent analyses. The report summarizes work in (1) the development of methods used to screen about 19,400 LER abstracts for potential precursors, (2) the initial screening of those abstracts to determine which should be reviewed in detail, (3) the detailed review of those selected LERs which then yielded the 170 events, (4) the categorization of the 170 events, (5) the calculation of function failure estimates based on precursor data, (6) the use of probability-of-severe core damage estimates to rank precursor events and the identification of 52 events considered significant, (7) trends analyses of significant events, (8) the identification of the other events of interest which occurred within one month of significant events, and (9) calculation of an estimate of severe core damage probability per reactor year based on the event rankings.

DUE TO THE VOLUME OF THIS REPORT, ONLY THE ABSTRACT IS BEING SENT.
THE BODY OF THE REPORT IS AVAILABLE UPON REQUEST.

