NUREG/CR-2239

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

November 15, 1982

MEMORANDUM FOR: Lynn Scattolini, Chief
Public Document Room
Office of the Secretary

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

SUBJECT: TRANSMITTAL OF INFORMATION ON SANDIA NATIONAL LABS' SITING GUIDANCE STUDY

On Wednesday, November 10, 1982, the NRC staff briefed the Commission on the "Description of Risk and Risk Extremes in the Sandia Siting Study". As a result of this briefing a package of related material is enclosed. This material includes: (1) a summary statement, read at the briefing, from the staff to the Commission stating the staff position on the Sandia work; (2) the briefing notes and backup information; (3) a copy of the raw data from the study; and (4) a CRAC-2 Draft User's Guide.

To assure that there is no confusion concerning the estimation of the probability of the maximum consequences another explanation is given: The probability of maximum consequences equals the probability of core melt, P_{CM}, multiplied by the probability of a large release given a core melt, P_{LR}, multiplied by the probability of the worst combination of weather and population given a core melt and large releases, P_{WP}. Typical numbers for these probabilities are $P_{CM} = 1 \times 10^{-4}$, $P_{LR} = 0.1$, and $P_{WP} = 1 \times 10^{-4}$. Therefore, the probability of the maximum or peak consequences is about one in a billion or 1×10^{-9}. In addition, it is of interest to note, that even given a large scale release ($P_{CM} \times P_{LR}$--which has a typical probability of about 1×10^{-5}), there is only a one in ten chance of anyone being killed immediately. Thus, there is about one chance in a million per reactor year of one early fatality, and one chance in a billion for the maximum number of early fatalities.

Also enclosed are the raw data in the form of microfiche of all of the computer runs that were generated for the study. These data should only be used by analysts who have considerable experience with the CRAC-2 computer code. The numbers in the output can be easily misinterpreted and thus are prone to misuse. If there are any questions concerning any of this material, please contact David Aldrich at Sandia National Laboratories, 505-844-9164, or Roger Blond at the U. S. Nuclear Regulatory Commission, 301-443-5960.

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

Enclosures:
As stated

Date

ROUTING AND TRANSMITTAL SLIP 11/18/82

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Lynn Scattolini, Chief, PDR		
2.		
3.		
4.		
5.		

	Action		File		Note and Return
	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate		Signature
	Coordination		Justify		

REMARKS

Please file the attached notice with the microfiche you received as an enclosure to a memo dated November 15, 1982 from Robert M. Bernero, subject: Transmittal of Information on Sandia National Labs' Siting Guidance Study.

Roger Blond

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
Roger M. Blond, RES/DRA/RR3	5650 NL
	Phone No. 443-5960

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

NOTICE

This file contains raw computer output from the CRAC2 code which was generated in the Sandia National Laboratories studies on "Technical Guidance for Siting Criteria Development," NUREG/CR 2239, SAND81-1549. This preliminary information is not part of the documentation of the study. The calculations are based on assumptions very specific to the objectives of the siting sensitivity investigations. The information should not be used to evaluate risk or accident consequences for actual plants at US sites.