

# LOS ALAMOS ASSISTANCE TO THREE MILE ISLAND INVESTIGATIONS

Sidebar 4:

Los Alamos National Laboratory was a source of considerable technical assistance to groups investigating the Three Mile Island accident. These groups called on Laboratory staff for direct participation in the investigations and for relevant information. Providing this assistance was a satisfying experience for those involved. Needless to say, the efforts mentioned below were supported by those of many other Laboratory personnel.

William IL Stratton was a member of the Technical Assessment Task Force of the president's Commission on the Accident at Three Mile Island (also known as the Kemeny Commission). In addition to his investigative and advisory duties, Stratton was principal author of "Technical Staff Analysis Report on Alternative Event Sequences," an assessment of the consequences of postulated variations of the accident.

Five Laboratory scientists served as consultants to the Technical Assessment Task Force. One of these, Beverly Washburn, had been the licensing project manager for the Three Mile Island Unit 2 plant while on loan to the Nuclear Regulatory Commission from 1973 to 1975. His familiarity with many of the details of the plant proved valuable. He was author of the staff reports "Radiation Releases and Venting of Tanks Friday Morning, March 30, 1979" and "The Evacuation Recommendations on Friday Morning, March 30, 1979." He assisted in preparation and review of other staff reports and participated in some of the staff depositions.

Three other consultants, John R. Ireland, Walter L. Kirchner, and Peter K. Mast, were authors of "Fuel Damage Estimates with the Transient Reactor Analysis Code (TRAC)." Robert D. Burns, also a consultant, and Kirchner were among the authors of "Consequences of a Hypothetical Fuel Melting Accident at TMI-2," "Potential for Damage to Reactor Vessel or Containment Due to Steam Explosions Associated with Fuel Melting Accidents," and "Penetration of the Concrete Basemat." Burns was among the authors of "Fission Products Within the Reactor Containment Building as a Consequence of the Hypothetical Fuel Melting Accident." (All these reports are included in "Technical Staff Analysis Report on Alternative Event Sequences.") Burns was also sole author of "Technical Staff Analysis Report on WASH 1400-Reactor Safety Study," a review of the relationship between the accident probabilities and risk estimates of that study and the Three Mile Island accident.

At the request of the Commission, John R. Ireland, Peter K. Mast, Thomas R. Wehner, Paul B. Bleiweis, Walter L. Kirchner, and Michael G. Stevenson submitted TRAC analyses of Unit 2's response for the first 3 hours of the accident and estimates based on these analyses of core damage and hydrogen production. They also

supplied TRAC analyses of Unit 2's response to postulated variations of the accident sequence. This information was used extensively by the Commission staff in preparation of "Technical Staff Analysis Report on Alternative Event Sequences" and by staff of the Nuclear Regulatory Commission Special Inquiry Group in preparation of a section of "Three Mile Island: A Report to the Commissioners and to the Public" (the Rogovin report). The information has also been published as "Preliminary Calculations Related to the Accident at Three Mile Island" [Los Alamos Scientific Laboratory report LA-8273-MS (March 1980)].

Donald G. Rose provided information to the Commission about the response of the pressure vessel to a hydrogen explosion and of the containment building to a steam explosion; he also prepared the staff report "Pre- and Post-Accident Security Status at Three Mile Island."

Eddie R. Claiborne, Richard L. Cubitt, Roy A. Haarman, and John L. Rand supplied the Commission with the study entitled "Three Mile Island Sabotage Analyses."

Talmadge R. England and William B. Wilson used the Laboratory-developed computer program CINDER to furnish the Commission with information about Unit 2's post-accident decay power. This information has been published as "TMI-2 Decay Power: LASL Fission-Product and Actinide Decay Power Calculations for the President's Commission on the Accident at Three Mile Island" [Los Alamos Scientific Laboratory report LA-8041-MS, Revised (March 1980)].

John W. Bolstad and Roy A. Haarman submitted TRAC analyses of postulated reactor transients quite similar to the Three Mile Island accident. These analyses, which had been completed before the accident as part of a sabotage study, provided the Commission with a better understanding of some aspects of the accident. They have since been published as "Summary of Thermal-Hydraulic Calculations for a Pressurized Water Reactor" [Los Alamos Scientific Laboratory report LA-8361-MS (May 1980)].

Jay E. Boudreau was a Task Group Leader of the Three Mile Island Special Investigation carried out by the Subcommittee on Nuclear Regulation for the Committee on Environment and Public Works of the U. S. Senate. He was author of "Recovery at Three Mile Island" in "Nuclear Accident and Recovery at Three Mile Island," which reports the findings of the Special Investigation. In addition, he was principal author of a study for the Subcommittee of two industry-sponsored groups involved in reactor safety entitled "Review of the Nuclear Safety Analysis Center and the Institute for Nuclear Power Operations." ●