

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 31, 1995

MEMORANDUM FOR: G. W. Cunningham, Technical Director

COPIES: Board Members

FROM: J. Deplitch

SUBJECT: Report on Sandia National Laboratories-New Mexico (SNL-NM),
Emergency Response Exercise "Rubble Glow"

1. **Purpose:** This report documents observations made by the Defense Nuclear Facilities Safety Board's (Board) staff during the conduct of Emergency Preparedness and Response Exercise "Rubble Glow" which was conducted May 17, 1995, by Sandia National Laboratories, Albuquerque, New Mexico.
2. **Summary:** Overall, the Board staff observers consider that SNL marginally demonstrated its ability to respond to an emergency. However, numerous instances were observed where the response was not consistent with applicable DOE requirements and guidance. Board staff observers were J. Deplitch, D. Thompson, and C. Miller at SNL-NM, and R. Zavadoski at DOE Headquarters (DOE HQ).

The responders to the accident scene participated eagerly, responded quickly with appropriate equipment and resources, and, in most cases, showed proficiency. The Kirtland Air Force Base (AFB) and Albuquerque response teams demonstrated expertise and resources, an invaluable asset to SNL emergency response.

Command and control was weak. Even though the exercise emphasized the discovery, treatment, and evacuation of twenty-one casualties and victims, most casualties were untreated for nearly five hours. No element of the emergency response organization accounted for personnel at the accident scene at the time of the accident, or correctly determined the number of casualties and fatalities. A hazard/consequence assessment was not completed, nor was misinformation corrected in a timely manner. The Joint Information Center (JIC) did not have staff or resources to adequately inform the public.

3. **Background:** Exercise "Rubble Glow" was an emergency preparedness and response exercise intended to demonstrate the proficiency of the Department of Energy (DOE) contractor emergency response organization for responding to a simulated emergency at SNL. The exercise lasted approximately seven hours. There was extensive participation and response from SNL emergency response and medical teams, the Kirtland AFB Fire Department, and the Albuquerque Fire Department. SNL and the DOE Albuquerque Operations Office (DOE/AL) activated their

Emergency Operations Centers and Emergency Management Teams (EMT). The DOE Headquarters Emergency Operations Center (EOC) participated to the extent of notification, response and play of the Technical Operations Cadre (TOC) of the Operational Emergency Management Team (OEMT); the Executive Team did not participate. The City of Albuquerque, the State of New Mexico, and the Kirtland Air Force Base Headquarters participated to a limited degree. The On-Site Inspection Agency played in the exercise with a simulated Chemical Warfare Inspection Team to practice handling international casualties.

Exercise "Rubble Glow" was based on a simulated accident in Technical Area II (TA II), explosive handling and storage area. The simulated accident was a worker-initiated incident that resulted in an explosion of a neutron generator. The explosive drivers of 300 neutron generators (and up to 13.2 pounds of additional explosive) contributed to the explosion. The simulated explosion resulted in extensive structural damage to Building 913 and hazards from: a damaged and scattered 2-Ci, Cs-137, radioactive source; unreacted explosives; chemicals and solvents kept in the building; and scattered and broken neutron generators (tritium). A total of twenty-one people were at or near the facility at the time of the accident. Three were killed and buried in the rubble, a few seriously injured, and the rest moderately injured to dazed. Nearly all were contaminated with tritium and cesium.

Board staff observers used the Federal Emergency Management Agency (FEMA) evaluation methodology set forth in FEMA-REP-15, *Radiological Emergency Preparedness Exercise Evaluation Methodology*, dated September 1991; and Drills and Exercises (abbreviated as, DOE D&E) and DOE Emergency Exercise Evaluation Criteria (abbreviated as, DOE EEEEC) published in the DOE Emergency Management Guide, dated December 11, 1991.

4. **Discussion/Observations:** Board staff observed activities of exercise conduct and control, and activities at the accident scene, incident command post and staging area, SNL EOC, DOE/AL EOC, Joint Information Center, and DOE HQ EOC. Activities off-site in Albuquerque were not observed.