97-0000131

Department of Energy
Washington, DC 20585

January 21, 1997

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, N.W.
Suite 700
Washington, D.C. 20004

Dear Mr. Chairman:

The Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 93-2 requires an annual status report. Enclosed is the Department of Energy's annual status report for 1996.

During the coming year, the Department will institutionalize a nuclear criticality predictability capability by establishing a firm long-term program commitment. Once this is accomplished, closeout of this recommendation should be possible.

Sincerely,

Victor Stello, Jr.
Principal Deputy Assistant Secretary
for Safety and Quality
Defense Programs

Enclosure

cc:
Mark Whitaker, S-3.1, w/encl.

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1996 ANNUAL STATUS OF THE IMPLEMENTATION PLAN FOR DEFENSE NUCLEAR FACILITIES SAFETY BOARD RECOMMENDATION 93-2

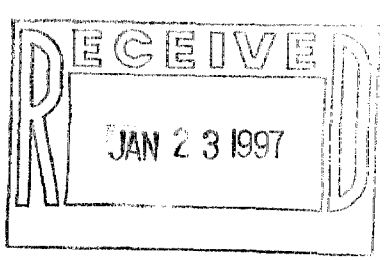
During 1996, the Nuclear Criticality Experiments Steering Committee (NCESC), as delineated in the Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 93-2, began laying the foundation for institutionalizing a viable nuclear criticality predictability (NCP) capability within the Department. The rigorous review of criticality predictability requirements vis a vis identified and emerging Departmental needs, which occurred from 1994 through 1995, culminated in the publication of a capability maintenance definition document early in 1996. Throughout the remainder of 1996, the NCESC worked hard to secure interim funding for Fiscal Year (FY) 1997 to allow time for a stable funding plan for the out-years to be developed. Late in 1996, the NCESC published a five-year plan which provides a framework for maintaining criticality predictability capability for the planning period. Specific accomplishments during 1996 are as follows:

- In late 1995, the NCESC and its two supporting technical subcommittees completed an extensive review of the full program requirements which provide the basis for maintaining the Department's NCP capability. The results of this review were documented in a report entitled, "The Department of Energy Nuclear Criticality Predictability Program," dated January 17, 1996. Along with presenting programmatic requirements, the NCESC report recommended a course of action for institutionalizing this capability. The Assistant Secretary for Defense Programs (DP) concurred with the NCESC recommendation, and on February 13, 1996, sent a memorandum to the affected Program Secretarial Officers requesting their support.

- In March 1996, the NCESC conducted its annual NCP capability review at the Los Alamos Critical Experiments Facility (LACEF). This review highlighted accomplishments and issues requiring resolution in each of the five major program element areas. One noteworthy accomplishment announced at the review was that the LACEF had recently won the Don Summers/Los Alamos National Laboratory Quality Excellence Award. Candidates for this award were evaluated through a rigorous process similar to that used for the prestigious Malcolm Baldridge award for business excellence. This was truly a significant accomplishment by the LACEF staff.

- As directed by the Under Secretary, the NCESC Co-Chairmen conducted briefings for the Principle Deputy Assistant Secretaries (or their representatives) from the Offices of Environmental Management (EM); Environment, Safety and Health (EH); Energy Research (ER); Nuclear Energy; and Human Resources on the January 17, 1996, NCESC Report. At the briefings, each office agreed that maintaining a viable NCP capability was absolutely essential.

- In August 1996, with support from DP, EM, EH, and ER management, the NCESC received the following interim funding commitments for FY 1997:



FROM	AMOUNT
DP	$5.5 million
EM	$3.3 million
EH	$220 thousand
ER	$675 thousand (in-kind)

The ER in-kind support maintains, in a state of readiness, the Oak Ridge Electron Linear Accelerator (ORELA) and associated experimental apparatus for acquisition of nuclear cross-section measurements relevant to NCP. In addition, ER will provide a technical expert, up to full time, for liaison to users of the ORELA facility.

- In September 1996, the Methodology and Experiments Subcommittee of the NCESC revalidated the priority experiments list. During 1996 at the LACEF, the following experiments were either in the planning phase, being conducted, or having results analyzed:

EXPERIMENT #	EXPERIMENT TITLE	STATUS
102	Large Array of Small Units	Planning
206	Solution High-Energy Burst Assembly (SHEBA) Reactivity Parameterization	Ongoing
207	SHEBA Reactivity Void Coefficient	Ongoing
502a	Absorption Properties of Waste Matrices	Planning
503	Validation of Criticality Alarms and Accident Dosimetry Program	Ongoing
504	Accident Simulation and Validation of Accident Calculations Program	Initiated
505	A Program to evaluate Measurements of Sub-critical Systems	Initiated
601	Critical Mass Experiments Program for Actinides	Initiated
609	Intermediate Energy Spectrum	Initiated

- In December 1996, the NCESC developed a five-year NCP capability maintenance plan to provide a framework, including funding requirements, to maintain criticality predictability capability for the planning period. This plan sustains the necessary infrastructure to address DOE's NCP needs and will serve as basis for a stable long-term program commitment within the Department.

- Six hands-on nuclear criticality safety courses were conducted at the LACEF during 1996. Over 90 people from throughout the DOE complex attended this training.

The Department continues to make progress in addressing key issues surrounding maintenance of its NCP capability. In the coming year, the Department will institutionalize this capability by establishing a stable long-term program commitment. Priority of effort will be given to securing stakeholder funding in FY 1998 at levels similar to the FY 1997 levels to maintain program stability while an NCP capability maintenance activity can be established as part of the FY 1999 budget process. The five-year NCP capability maintenance plan will be updated annually and provide a program framework, including funding requirements, to sustain criticality predictability maintenance activities for the planning period. Once a long-term program commitment is established and the NCP capability maintenance plan has been implemented, closeout of this recommendation will be possible.