



## UNIVERSITY OF OREGON

7 February 2001

Jim Decker  
Principal Deputy Director  
Office of the Director  
Office of Basic Energy Sciences  
U.S. Department of Energy  
19901 Germantown Road  
Germantown, Maryland 20874-1290

Dear Director Decker,

In response to a charge letter from the Office of Science dated September 7, 1999, a Basic Energy Sciences Advisory Committee subpanel was organized to conduct a review of the two spallation sources operated by Basic Energy Sciences (BES) -- the Intense Pulsed Neutron Source (IPNS) at Argonne National Laboratory and the Manuel Lujan, Jr. Neutron Scattering Center (MLNSC) at the Los Alamos Neutron Science Center at Los Alamos National Laboratory. Dr. Ward Plummer, University of Tennessee assembled and chaired the subpanel. The report on this review was requested by July 2000. However, due to some unforeseen delays, the on-site review of the two facilities occurred during the week of November 13-18, 2000.

The focus of the review was on the science and the user programs at each facility. The subpanel also took into consideration the relationship of these facilities with the construction of the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory, and the proposed upgrade at MLNSC. The latter is funded jointly with the Office of Defense Programs. The subpanel considered the capabilities of these facilities in the timeframe leading to the commissioning of the SNS and beyond. The composition of the subpanel included those in the science enabled by neutron scattering and individuals capable of assessing such attributes as the vision for the future, the effectiveness of the user program and the availability, dependability, and reliability of each facility. The subpanel evaluated the full range of activities at IPNS and MLNSC.

The findings and recommendations are summarized as follows:

### Findings

Given that the present national policy is to bring the U.S. into a leadership position in the use of neutrons for science, medicine, and national defense and with the flagship being the \$1.41B Spallation Neutron Source (SNS), which will be commissioned in the summer of 2006 and reach full power in 2008, the Subpanel made the following findings, resulting in three recommendations:

- It is imperative that every spallation source in the U.S. is utilized to its full potential to assure that a sufficiently large and well-trained user community exists when SNS is fully operational in ~2008.
- It is essential to substantially increase the neutron user community in order to fully exploit the SNS. This will not occur in a timely fashion without an active program.
- IPNS is an extremely reliable source with a talented and experienced staff. However, the facilities (source and some instruments) are, in need of improvements to make them more competitive and to maintain reliability.

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- LANSCE/Lujan Center has a competitive source, and the facility could be world-class. However, the governance is dysfunctional, and the management scheme is not compatible with effective stewardship and operation of a national user facility.

### Recommendations

- Establish a program to expand the university user base for neutron scattering. The only way to build the user base required to be internationally competitive is to enhance the participation from academic institutions. An immediate injection of funds to support the exploitation of pulsed neutron sources for science by the U.S. academic community is needed.
- Immediately enhance activities at the IPNS facility. The timely realization of the enhancement of the source, the instrument suite, and the level of scientific exploitation of IPNS are essential to the ongoing development of the user base in the ramp-up to the SNS (2006-2008).
- Restructure LANSCE/Lujan Center to deliver an internationally competitive user facility. In order to render LANSCE/Lujan Center a viable user center in time to generate the needed impact for the SNS ramp-up in 2006-2008, the governance and management of LANSCE/Lujan Center must be fundamentally restructured.

A full committee meeting was held in Washington, DC., on December 11, 2000 for the subpanel to report its findings. Acceptance of the subpanel report was achieved by votes of members present on December 11th, and additional later votes obtained by absent BESAC members responding by e-mail. BESAC accepted the recommendations provided that any additional funds allocated to these centers as a result of the review be competitive with the core BES program. To ensure an adequate close to this BESAC activity, a full committee meeting is scheduled this month at which time the subpanel review and report will be summarized. Basic Energy Sciences, LANL, and ANL will provide updates and status since the review.

Sincerely,

/s/ by

Geraldine L. Richmond  
Chair  
Basic Energy Sciences Advisory Committee

cc: Iran Thomas  
Pat Dehmer  
Sharon Long