

March 7, 2003

Dr. Raymond Orbach  
Director, Office of Science  
USDOE  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Dr. Orbach:

Your letter of December 18, 2002 charged NSAC to assess what new or upgraded facilities will best serve the nation's scientific needs in nuclear science over a long-term time horizon of 20+ years. You asked which facilities will position the Office of Science and its research portfolio at the forefront of scientific discovery. For each facility, we were requested to consider both the importance of the science and its readiness for construction and to categorize each facility according to tiers but not to rank order them. NSAC formed a sub-committee, chaired by Charles Glashauser of Rutgers University, to prepare a response to this charge.

This sub-committee has completed its work and presented its report to NSAC at a meeting on March 6, 2003. NSAC accepted the report and a copy is enclosed with this letter. The report speaks for itself, but it is worth stressing that the recently completed NSAC Long Range Plan for Nuclear Science and its recommendations provide a solid foundation, supported by the entire nuclear science research community, for the present review. We also note that the beginning of the report makes several significant remarks concerning the sub-committee's interpretation of the different tier levels in the context of nuclear science in the U.S. and of decisions made during the Long Range Planning Process.

With the facilities assessed in this report, nuclear science would constitute a vibrant, exciting, and balanced field with exceptional discovery potential spanning important scientific questions ranging from the origin of the elements and the structure of exotic nuclei to the underlying quark-gluon structure of hadronic matter, the deconfinement phase transition and the nature of the quark-gluon plasma, and the robustness of fundamental symmetries and the Standard Model. Construction of these facilities, starting with RIA, the CEBAF 12 GeV upgrade, and GRETA, will foster major discoveries and new understanding. This will enable the U.S. to maintain its world leadership position in this field which is so vital to the progress of science, to myriad practical applications, and to national security.

NSAC most strongly urges the Office of Science to provide the resources to follow up on these evaluations with an appropriately staged program of initiatives that will provide the technological basis for decades of important and innovative scientific research discoveries.

Sincerely,

Richard F. Casten  
Chair, NSAC

cc: Hunt  
Dehmer  
Keister  
Rosen  
Kovar  
NSAC members