U.S. Department of Energy
and the
National Science Foundation

December 5, 2013

Dr. Donald Geesaman
Chair, DOE/NSF Nuclear Science Advisory Committee
Argonne National Laboratory
9800 South Cass Avenue
Argonne, Illinois 60439

Dear Dr. Geesaman:

This letter is to request that, in accordance with direction given to the DOE in the National Defense Authorization Act (NDAA) for FY2013, the Nuclear Science Advisory Committee (NSAC) form a Subcommittee to assess the effectiveness of the National Nuclear Security Administration-Global Threat Reduction Initiative's (NNSA-GTRI) Domestic Molybdenum-99 (Mo-99) Program.

As you may know, the primary mission of the GTRI Convert Program is to reduce and eliminate the use of highly enriched uranium (HEU)-235 in civilian applications, including in the production of medical isotopes. Technetium-99m (Tc-99m) is the decay product of the radioisotope Mo-99 and is used in diagnosing heart disease, cancer treatment, and studying organ structure and function. Present day technology for producing Mo-99 relies heavily on recovering Mo-99 from HEU targets irradiated at research reactors and processed at isotope production facilities located outside the United States. For this reason, the NNSA GTRI Convert program works with international producers to convert isotope production from the use of HEU targets to low enriched uranium targets, without negatively impacting the Mo-99 supply. In recent years, planned and unplanned outages at facilities producing Mo-99 outside the United States have greatly increased the urgency of NNSA GTRI supported efforts to also accelerate the establishment of a domestic supply of Mo-99 produced without the use of HEU.

As a part of the GTRI stewardship of establishing a domestic supply of Mo-99, NNSA entered into cooperative agreements in FY2009 and FY2010 with four commercial entities, each pursuing unique, non-HEU-based technologies to develop the capacity to produce 3,000 six-day curies of Mo-99 per week.

The American Medical Isotopes Production Act of 2012 (Act), formerly known as S.99 and H.R. 3276, was incorporated into the National Defense Authorization Act (NDAA) for FY2013. On January 2, 2013, President Obama signed the NDAA into law, enacting this legislation. A stipulation of the NNDA under section 3173 - *IMPROVING THE RELIABILITY OF DOMESTIC MEDICAL ISOTOPE SUPPLY* is that:

"... the Secretary [of Energy] shall... use the Nuclear Science Advisory Committee to conduct annual reviews of the progress made in achieving the [NNSA GTRI] program goals and make recommendations to improve program effectiveness."

Accordingly, we request that NSAC form a Subcommittee to provide an initial assessment of the following charge elements:

- Are NNSA GTRI programmatic goals for establishing a domestic supply of Mo-99 well defined?
- Have the risks in implementing those goals been fully identified?
- What is the current status of implementing these goals?
- Is the strategy for implementing the NNSA goals complete and feasible, within an international context?
- What steps should be taken to improve NNSA program effectiveness in establishing a domestic supply of Mo-99?

This Subcommittee will be constituted as a standing subcommittee of NSAC for three years. It is requested that an initial assessment be submitted to the Office of Science by April 30, 2014. Subsequent assessments are to be provided annually.

We are aware that this charge represents an additional burden on your time. However, the involvement of NSAC is essential to inform the Agency regarding the effectiveness of efforts to steward Mo-99, an isotope essential for the health and well being of the Nation.

Sincerely,

Patricia M. Dehmer
Acting Director
Office of Science

F. Fleming Crim
Assistant Director
Directorate for Mathematical
and Physical Sciences