National Security Technologies LLC
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Isotope Production Agreement to Benefit Medical Patients Locally and Nationwide

LAS VEGAS – Medical patients, both locally and potentially nationwide, should be the beneficiaries of the first-ever public-private partnership agreement between National Security Technologies, LLC (NSTec), and Henderson, Nevada-based Global Medical Isotope Systems, LLC (GMIS), the two companies announced today. The agreement on research and development aims to enable production of an essential radioactive isotope used in millions of medical diagnostic imaging procedures every year.

"This partnership will make a critical, yet diminishing, resource more accessible to the medical imaging community, and take advantage of NSTec's expertise in radioactive materials handling which dates back to the early 1950s and the operations at the Nevada National Security Site," said Dr. Francis Tsang, GMIS's Chief Technology Officer (CTO.)

Dr. Chris Deeney, the NSTec Vice President for Program Integration and CTO added: "We are excited to have our first Cooperative Research and Development Agreement (CRADA), and doubly excited that it's with a hi-tech business right here in southern Nevada."

Known primarily as the management and operations contractor for the Nevada National Security Site (NNSS), NSTec is leveraging its traditional national security role with the signing of its first CRADA. CRADAs are routinely used by the Department of Energy laboratories to enhance skills while supporting non-laboratory partners. The agreement describes NSTec's technical integration, modeling, materials, and design support to GMIS's mission in the development and deployment of a ground-breaking approach in the production of the radioactive isotope - molybdenum-99 (Mo-99).

"By introducing a safe, decentralized, on-demand production system using non-enriched uranium, we're answering the critical supply needs of the medical imaging community, while

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complying with the nuclear nonproliferation objectives of the U.S." said Dr. Francis Tsang, GMIS's Chief Technology Officer.

Technetium-99m (Tc-99m), is a decay by-product of Mo-99, is a pure gamma-ray emitter with a half-life of about 6 hours. This unique physical characteristic makes Tc-99m the most widely used medical diagnostic isotope in nuclear medicine. Its short half-life allows it to be used in body-scanning procedures that collect data rapidly but keeps total patient radiation exposure low. These factors make the isotope an ideal imaging agent.

Since Tc-99m has such a short half-life, it is next to impossible to keep an inventory of the material. Presently, there are about 40 million imaging and diagnostic procedures performed worldwide per year, of which 80-85 percent use Tc-99m. Of those 40 million procedures, more than 20 million are performed in North America, and about 1.5 million are performed in Canada. Approximately 15,000 imaging and diagnostic procedures are performed in southern Nevada each year.

The United States terminated its domestic Mo-99 production in the 1990s, but continues to import the isotope from Canada and Europe. In addition, U.S. and global demand for Mo-99 has grown substantially in recent years.

GMIS is currently developing a stand-alone system to produce the critical isotope on-demand in the Las Vegas area and ultimately nationwide. The company anticipates employing more than 50 people in high-paying jobs in Henderson within two years.

"Our system is also scalable, allowing for custom deployments to other areas of the country and the ability to respond to unplanned emergency needs," said Zane Wilson, GMIS Chief Executive Officer. "GMIS intends to operate facilities that supply the needed Mo-99 for medical isotope production and to possibly license the technology globally to other countries on a regional basis."

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The five-year CRADA calls for NSTec researchers to provide technical integration, modeling, materials, and design support to GMIS's mission. The CRADA will utilize the capabilities of NSTec's Remote Sensing Laboratory (RSL), located at Nellis Air Force Base in Las Vegas and at Joint Base Andrews near Washington, D.C. In its national security role, NSTec develops advanced technologies for radiation detection and has substantial radiological emergency response capability.

The company brings to the CRADA staff of nuclear and health physicists, skilled physics and electronics technicians, a variety of radiological materials, and an extensive inventory of radiation detection equipment that will greatly benefit the mission of GMIS. These capabilities include the ability to assist with experimental work, perform computer simulations, provide guidance and direction, and furnish equipment as needed to support the goals of the CRADA.

"Our contributions in science and technologies have helped national security for decades, from the Cold War to the war on terror," said Deeney. "We see this agreement as a chance to apply our expertise to improving global security by helping others to improve global health."

He credited a "real team effort" for reaching this important milestone, extending kudos to Redhills Ventures, a Nevada investment company, for funding GMIS; the University of Nevada, Las Vegas (UNLV) for helping to develop the chemistry behind the isotope production process; and GMIS for designing, developing and advancing the technology. He pointed out that NSTec is exceptionally proud of their skilled team and its reputation that was built by decades of support from the Department of Energy and the National Nuclear Security Administration.