U.S. DEPARTMENT OF ENERGY (DOE)
NATIONAL NUCLEAR SECURITY ADMINISTRATION (NNSA)
DEFENSE NUCLEAR NONPROLIFERATION (DNN)

# DNN Sentinel

DEFENSE BY OTHER MEANS

VOL. IV, NO. 1

IN THIS ISSUE:



## From the Acting Deputy Administrator

NNSA's nuclear security enterprise is at the forefront of protecting our nation's security. Reducing the threat of nuclear terrorism and nuclear proliferation, as well as preventing an attack against the homeland, remain some of the chief challenges facing the United States today. I am proud to say that DNN confronts this challenge head-on by providing technical expertise to formulate sound national security policies, developing advanced technologies that protect our country, and maintaining state-of-the art capabilities to carry out our mission. In this issue of the *Sentinel*, I wanted to illustrate how DNN's unique suite of activities and expertise helps shape the broader U.S. homeland security infrastructure. Whether it is working with our interagency partners to improve radiation detection technology deployed at our borders or providing 24/7 space-based nuclear detonation detection capabilities, DNN's approach to securing the homeland is vigilant, comprehensive, and sustainable. This approach is underpinned by our critical partnerships with U.S. industry, States, international organizations, and foreign countries. Through this issue of the *Sentinel,* I hope you'll come to appreciate like I do DNN's essential role in helping to fortify the homeland against some of the gravest threats we face today.

David Huizenga
Acting Deputy Administrator for
Defense Nuclear Nonproliferation

DNN SENTINEL:
DEFENSE BY OTHER MEANS

VOL. IV, NO. 1

http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation-0



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NNSA BLOG

## DNN QUICK LINKS

*Follow the links below to learn more about recent NNSA and DNN activities.*

### Press Releases

**Uranium Processing Facility Project achieves key milestone with completion of Construction Support Building**

https://nnsa.energy.gov/mediaroom/pressreleases/uranium-processing-facility-project-achieves-key-milestone-completion

**NNSA Delivers Annual Reports to Congress on Progress of Stockpile Stewardship, Nuclear Nonproliferation**

https://nnsa.energy.gov/mediaroom/pressreleases/nnsa-delivers-annual-reports-congress-progress-stockpile-stewardship-nuclear

### Blogs

**Nuclear nonproliferation Consortium for Verification Technology meets in Michigan**

https://nnsa.energy.gov/blog/nuclear-nonproliferation-consortium-verification-technology-meets-michigan

**NNSA-sponsored program fosters new research staff and innovative safeguards solutions**

https://nnsa.energy.gov/blog/nnsa-sponsored-program-fosters-new-research-staff-and-innovative-safeguards-solutions

**NNSA reaches milestone in developing new nuclear fuel for U.S. high-performance research reactors**

https://nnsa.energy.gov/blog/nnsa-reaches-milestone-developing-new-nuclear-fuel-u.s.-high-performance-research-reactors

**NNSA celebrates nonproliferation conversion milestone**

https://nnsa.energy.gov/blog/nnsa-celebrates-nonproliferation-conversion-milestone

**NNSA partners with the Philippines to identify and repatriate U.S.-origin radiological material**

https://nnsa.energy.gov/blog/nnsa-partners-philippines-identify-and-repatriate-u.s.-origin-radiological-material

**NNSA strengthens partnerships to reduce reliance on high-activity radioactive sources**

https://nnsa.energy.gov/blog/nnsa-strengthens-partnerships-reduce-reliance-high-activity-radioactive-sources

# DNN R&D and Small Business: Achieving Our National Security Goals

By E. Travis Gitau

One of the ways the Office of Defense Nuclear Nonproliferation Research and Development (DNN R&D) puts its technologies and capability developments into the hands of the user community is by partnering with industry. DNN R&D sets aside 3.65% of its R&D budget, more than $7 million in 2017, to fund small business research in coordination with the Department of Energy Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. By tapping into the broad U.S. small business research base, DNN R&D is able to transition innovative technical capabilities to U.S. Government stakeholders that need commercially available systems to support their mission needs.

### Tracking and monitoring nuclear materials

One example of the successful technologies bolstered by DNN R&D is a new family of advanced radiofrequency identification tagging technologies for tracking and monitoring nuclear materials, and other high value assets. The tags, developed by Dirac Solutions Inc. (DSI), provides secure, encrypted signal reception and transmission without the need for a battery. During development, DSI worked with DNN R&D to assess the benefit this technology could provide in nuclear security applications. Through this cooperation, the technology found uses supporting first responders with the NNSA Joint Tactical Operations Team in Albuquerque, NM, and the NNSA Radiological Assistance Program teams based in Texas, Idaho, and California. The success borne of this DNN R&D-funded research in NNSA environments also has garnered the interest of the International Atomic Energy Agency (IAEA) and Schlumberger, a leading provider of oilfield services and technologies. DSI also is marketing this technology for tracking other high value items.

DSI's Harsh Environment Tags provide battery-free inventory automation with optional data security and sensor integration capability. (The pen helps show their relative size.)

### Radioactive source replacements

Radioactive source replacements are sought to mitigate the risk from accidental release or malicious use of commercial radioisotope sources, such as those found in medical irradiation systems, well logging practices, sterilization systems, and industrial testing and evaluation equipment. DNN R&D is developing alternative technologies that can replace the functional capability of currently employed systems or practices without the use of radioisotopes. Currently, six SBIR/STTR projects are in various stages of progression, as well as a major multi-university effort that incorporates expertise from the National Laboratories.

### Radioactive source detection

In another DNN R&D-sponsored industry project, the PHDS Company developed a compact, lightweight form-factor, germanium-based detection system for analyzing radioactive sources. This successful project advanced its product from low technical readiness to a mission-ready. PHDS Company dramatically increased the detection range and imaging resolution for germanium detectors while reducing the size, weight, and power consumption of hand-held systems. Virtually simultaneously with the conclusion of the project, PHDS Company had a commercially viable system available for the marketplace.


The PHDS Company's GeGI Germanium Gamma-ray Imaging Detector uses compact electronics developed by the High Rate Germanium Detector development project sponsored by NNSA.

By teaming with industry, NNSA provides opportunities for U.S. Government organizations and the commercial marketplace to leverage advanced technology development funded through the DNN R&D Program. Often, these projects directly support the national security mission, but spin-offs to other commercial markets also are possible.

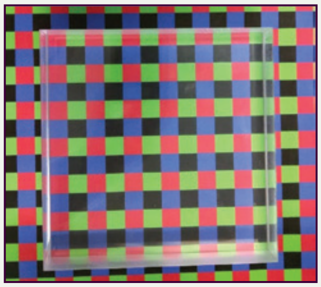
Travis is a Leidos Inc. contractor providing technical support to DNN R&D since 2017.

# DNN Works with DHS to Improve Plastic in Rad Detectors

By Paul Dimmerling

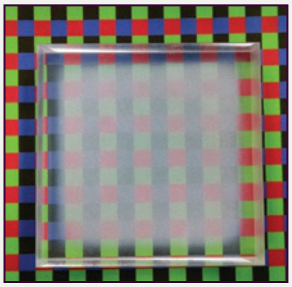
Security personnel deploy gamma radiation detectors in many different environments around the world to scan people and cargo at border crossings. The detectors can indicate the presence of radioactive materials being smuggled into a country or otherwise out of regulatory control. In some gamma radiation detectors, gamma rays interact with plastic scintillators, which emit visible light that can be measured by fast electronic circuitry to indicate the presence of radioactive materials.

**Before Testing**



The new plastic scintillator is clear (as expected).

**After Testing**



The plastic scintillator is foggy.

Two scintillating materials in particular, polyvinyl toluene and polystyrene, have become the material of choice for radiation detectors because of their durability, high sensitivity, and low cost. Plastics in scintillators are very similar in their material properties and physical characteristics to commercial plastics such as Lucite or Plexiglass. One characteristic that is fundamental to their ability to detect the presence of radioactive materials is their glass-like transparency.

### Surprise: The Plastic Material Can Degrade

During a 2011 meeting of the Border Monitoring Working Group, an international coordinating organization for nuclear detection, the Canada Border Services Agency presented its findings with scintillating plastic detection degradation, sharing actual samples of plastic exhibiting material fogging, or internal crazing, visible to the naked eye. Subsequently, DNN radiation detection specialists observed that some radiation detectors seemed to be losing sensitivity in specific cold-weather environments.

DNN investigated this issue further by subjecting new, never-deployed detectors to environmental testing in a controlled laboratory environment. This testing resulted in confirming the surprising discovery: plastic scintillators can become opaque or foggy when subjected to cold temperature and high humidity cycles. This fogging may impact the detectors' performance.

### Interagency Collaboration

DNN shared the test results with interagency colleagues from the Department of Homeland Security's Domestic Nuclear Detection Office (DNDO), which separately had noted the same issue. DNN and DNDO agreed to combine and organize efforts to identify the root cause and solutions.

Since 2014, DNN and DNDO's joint research has identified the fundamental variables and conditions that lead to fogging. Currently, DNN and DNDO are validating mitigation solutions for sealing plastic detectors that already have been manufactured. These solutions will be implemented as part of standard maintenance activities.

This work also has led to the discovery of new plastic scintillator compositions that may be moisture resistant and not require complex and costly sealing. DNN and DNDO's collaboration in this area demonstrates the value of interagency collaboration to understand and mitigate technical challenges in nuclear security.

Paul Dimmerling is a General Engineer at DOE/NNSA Headquarters and Deputy Manager of the Science and Engineering Team that carries out research efforts for the Nuclear Smuggling Detection and Deterrence (NSDD) Program. He has degrees in Mechanical Engineering and Health Physics with an additional ten years of experience managing detector development and testing projects to design, test, and evaluate radiation detection equipment for national and international security applications.

# Campaign Focuses on Radiological Security of U.S. Cities

By Nick Butler

*It only takes a small amount of high-activity radioactive materials—less than the amount to fill a saltshaker—to make an RDD that could have significant consequences.*

Radioactive materials do a great deal of good: They treat cancer, eliminate certain blood transfusion complications, and are invaluable tools for industry both at home and abroad. But if lost or stolen, these materials can pose a risk to people, cities, and economies. A terrorist could use these sources to make a radioactive dispersal device (RDD), or "dirty bomb."

### ORS 2020 Cities Initiative

DNN's Office of Radiological Security (ORS) prevents high-activity radioactive materials from being used in acts of terrorism. While ORS already has secured over 930 buildings in the United States and provided training and equipment to thousands of law enforcement professionals, there is still a significant number of sites and responders in our most heavily populated cities that have not yet volunteered for ORS security enhancements and training.

The ORS 2020 Cities Initiative focuses on enhancing radiological security in major U.S. cities by 2020 by providing security enhancements to sites that house high-activity radioactive materials and training to law enforcement professionals responsible for responding to a theft of these materials.

### Securing Our Businesses, Communities, and Country

To secure radiological materials in U.S. cities where the consequences of radiological terrorism would be most severe, ORS is working to protect, remove, and reduce these materials.


The ORS 2020 Cities Initiative offers federally-funded security enhancements, disposal of disused sources, and financial incentives to users interested in removing and replacing their cesium irradiators with X-ray devices. Through the Cesium Irradiator Replacement Project, ORS offers participating sites an opportunity to achieve permanent radiological risk reduction. For law enforcement, ORS provides centralized monitoring systems that integrate critical alarms and video from local sites into operations centers along with response training.

The success of the ORS 2020 Cities Initiative requires full support and collaboration with a wide range of partners including businesses, law enforcement, city and state leaders, as well as federal agencies and other organizations. ORS has launched an outreach campaign to connect with these audiences, providing radiological security best practices and information about the incentives and services offered by ORS. Through a series of short videos, print materials, case studies, news releases, speaking engagements, and workshops, ORS is providing timely radiological security information and awareness to build on success and secure our businesses, our communities, and our country.

Nick Butler has been involved in nuclear and radiological security internationally since 2004 and domestically since 2008. Currently, he manages a team of dedicated and hardworking professionals in DNN's Office of Radiological Security Domestic Program, who work tirelessly to secure, remove, and encourage a transition away from radiological materials.

ORS' 2020 Cities Initiative puts protect, reduce, and remove strategies into action to secure remaining high-priority U.S. cities by 2020.

Cesium Irradiator Replacement Project offers permanent risk reduction through removal of cesium sources and incentives for replacement with X-ray devices.


Facilitating implementation of best security practices.

Integrate security of high-priority sites with local law enforcement.

Site security, including security enhancements and training, at remaining high-priority sites.

ORS
Office of Radiological Security
*Protect · Remove · Reduce*

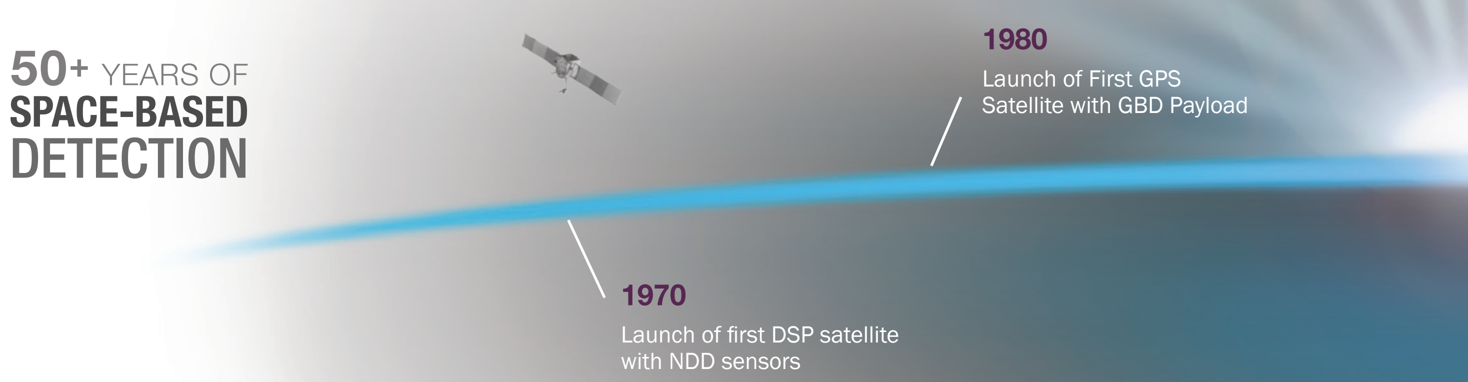
Back to Table of Contents

# DNN Delivers Enduring Space-Based Nuclear Detonation Detection Capability

Space-based nuclear explosion sensors are a vital U.S. capability to both monitor compliance with treaties such as the Limited Test Ban Treaty and the Threshold Test Ban Treaty, and to support the nuclear warfighting mission. NNSA's Defense Nuclear Nonproliferation Research and Development (DNN R&D) Program and its predecessors, along with other government partners, have been providing this space-based detection capability to the U.S. Government for more than 50 years. Beginning in 1963, the Atomic Energy Commission and the U.S. Air Force launched the first of 12 *Vela* satellites to detect aboveground nuclear testing in the atmosphere or in space. In subsequent years, more advanced sensors have been hosted on the Defense Support Program, Global Positioning System (GPS), and other U.S. Government satellites. These systems monitor the entire globe, 24/7, for nuclear detonations—offering timely information to U.S. policymakers and the Department of Defense (DoD).

Sandia National Laboratories and Los Alamos National Laboratory, both with a highly skilled workforce, leverage their unique nuclear weapons design and phenomenology knowledge to develop, integrate, and test the sensor payloads for the NNSA. This work includes close collaboration with government stakeholders, host satellite owners, satellite industry contractors, and U.S. Air Force operators to ensure these systems accomplish the mission. The most recently deployed systems are the Global Burst Detector (GBD) payloads on GPS satellites and the second Space and Atmospheric Burst Reporting System (SABRS) payload on a U.S. Government satellite.

The next generation of GBD payloads hosted on GPS satellites will launch in 2018. After delivery by the NNSA to the U.S. Air Force, GBD payloads will continue with integration and testing at the satellite production facility, then ship to the payload and launch processing facilities near Cape Canaveral, FL. Following successful launch operations, the DoD and NNSA lab teams will complete deployment with early on-orbit testing, ensuring the GBD is operational.



Members of the GBD III 1-8 Team celebrate the final production delivery of the III 1-8 Blk. Pictured from left to right: Bridget McKenney, Robert Lezia, Jaime Gomez, Jose Falliner, and Dylan Bryant

The second Space and Atmospheric Burst Reporting System (SABRS-2) payload, which was deployed in 2016.

The U.S. Air Force Space Test Program satellite STPSat-6 will host the next SABRS payload scheduled to launch in 2019. The SABRS payload is in the final stages of integration and testing at Los Alamos, anticipating delivery to the STPSat-6 satellite production facility in the summer of 2018. From there SABRS will proceed to Cape Canaveral for integration with its rocket and deploy into geostationary earth orbit.

In addition to the next SABRS payload, STPSat-6 also will host an experimental NNSA payload called SENSER. The SENSER payload will reduce the development risk for future nuclear explosion detection sensors by testing and evaluating critical technologies in the space environment before production and integration into the next generation of systems. This long-range planning, combined with continued close collaboration among mission stakeholders and partners, is critical to ensuring the vital nuclear detonation detection capability is continuously ready to secure the United States' national security interests.

Dylan Bryant and Bridget McKenney of Sandia National Laboratories and Charles Light and Mark Wallace of Los Alamos National Laboratory contributed to this article.

**2012**
SABRS-1 Launch

**2016**
Final Launch of GPS-IIF block

**2016**
SABRS-2 Launch

**2018**
First of latest generation of GBD payloads to launch on GPS satellite

**2019**
Latest SABRS payload scheduled to launch on USAF satellite

# U.S. Compliance with IAEA Safeguards Demonstrates Global Citizenship

By Melissa Einwechter

President Johnson, when signing the Treaty on the Non-Proliferation of Nuclear Weapons, announced that the United States would allow the International Atomic Energy Agency (IAEA) to apply safeguards at eligible U.S. facilities. This acceptance of IAEA safeguards—made 50 years ago—demonstrates that the United States, a nuclear weapon state, willingly accepts the same requirements placed on non-nuclear-weapon States. DNN's Office of Nonproliferation and Arms Control represents DOE/NNSA in U.S. interagency deliberations on policy and technical issues for the implementation of IAEA safeguards in the United States.

### Voluntary Offer Agreement

Under the U.S.-IAEA Safeguards Agreement ("Voluntary Offer Agreement" or VOA), the IAEA has the right, but not the obligation, to apply safeguards on all source or special fissionable material in eligible facilities in the United States.

Based on the terms of the VOA, the United States annually provides the IAEA with a list of all nuclear facilities in the country that are not associated with activities of direct national security significance. From time to time, the IAEA selects facilities from this Eligible Facilities List (EFL) at which to apply safeguards. Since the VOA entered into force in 1980, the IAEA has conducted nearly 800 inspections in the United States at 18 different facilities. The United States has approximately 300 facilities on its EFL; however, the only facility in the United States currently being safeguarded by the IAEA is a portion of the K-Area Material Storage (KAMS) Facility at DOE's Savannah River Site in South Carolina. KAMS was the first plutonium storage facility in the world to implement a remote monitoring approach for stored plutonium, which has enabled the IAEA to improve remote monitoring techniques applied elsewhere.

### Additional Protocol

Going beyond the requirements of the VOA, the United States provides information to the IAEA regarding activities and locations otherwise not included under the U.S. VOA through the U.S.-IAEA Protocol Additional to the Safeguards Agreement ("Additional Protocol" or U.S. AP). These activities include, but are not limited to, fuel cycle research and development not involving nuclear material, nuclear sites, equipment manufacturing, and the production capacity and storage of source material.


Safeguards inspectors from IAEA help global efforts in preventing the spread of nuclear weapons.

Through the U.S. AP, which was signed in 1998 and entered into force in 2009, the United States accepts all provisions of the IAEA's Model Additional Protocol, excluding only instances where its application would result in access by the IAEA to activities or locations in the United States with direct national security significance. The Additional Protocol provides for IAEA inspectors to have complementary access with as little as 24 hours' notice (2 hours if they are already on site) to confirm the absence of undeclared nuclear material or to resolve questions or inconsistencies in the information a State has provided about its nuclear activities.

The United States made its initial declaration under the U.S. AP on July 3, 2009, and updates this declaration in May each year. The initial declaration contained 264 activities and has included over 300 activities each year since. The IAEA has twice exercised its right to conduct complementary access in the United States. Both complementary accesses occurred in 2010 and were the first conducted in a nuclear-weapon State under an Additional Protocol.

The full text of U.S.-IAEA Safeguards Agreement and its Protocol can be found at https://www.ap.doe.gov/DOE-AP/DocumentViewer.aspx?docID=4.

The full text of the U.S-IAEA Additional Protocol can be found at https://www.ap.doe.gov/DOE-AP/DocumentViewer.aspx?docID=1.

Melissa Einwechter serves as an industrial specialist with the NNSA Production Office. She was previously a foreign affairs specialist in DNN's Office of Nonproliferation and Arms Control, with responsibility for IAEA safeguards implementation at DOE facilities.

# Dispositioning Excess Weapon-Grade Material Provides Uranium for Beneficial Use

DNN's Office of Material Management and Minimization's ($M^3$) Highly Enriched Uranium (HEU) Disposition Program has down-blended 158.4 metric tons of highly enriched uranium (HEU) to date, enough for 6,336 nuclear weapons. The program makes the United States and the world safer by ensuring that weapon-grade material declared excess to national security needs can never again be used in a nuclear weapon. At the same time, the program helps the country meet nonproliferation, national security, and commercial objectives by down-blending the excess HEU to low-enriched uranium (LEU). The derived LEU benefits the nation in a variety of ways, from producing strategic materials, to providing additional confidence to the nuclear energy industry, to supporting lifesaving medical procedures.

### National Security

Currently, $M^3$'s primary down-blending campaign is the Repurposed Excess Uranium, or REU, Contract. All the REU is E05 material (see sidebar) and can support defense programs. This is vital, as the United States no longer has the domestic capability to enrich natural uranium to fuel commercial reactors that produce tritium. Tritium cannot be produced with material that has peaceful use restrictions, currently making LEU from down-blending E05 material the only source of reactor fuel for tritium production.

### American Assured Fuel Supply for Industry

$M^3$ also supports critical nonproliferation missions, such as the American Assured Fuel Supply (AFS). The AFS is a reserve of six reactor fuel loads of LEU for commercial nuclear power fuel and promotes the peaceful use of nuclear energy without exacerbating nuclear proliferation risks. Through the AFS, the United States is able to encourage wider nuclear power production by setting aside a backup fuel supply for reactors in the event of supply disruption—an important assurance to industry. In addition, the AFS gives countries seeking to develop nuclear power as a clean energy source an assured LEU supply, discouraging the need to develop costly enrichment technology.

### Fuel for Research Reactors and Medical Isotope Production

The 1978 *Nuclear Non-Proliferation Act* directed that the United States be a reliable supplier of nuclear materials to countries that follow nonproliferation policy. Since then, $M^3$'s Reactor Conversion Program has successfully converted or verified the shutdown of 100 research reactors and isotope production facilities in 42 countries. Many of these reactors now rely on $M^3$ for the provision of High Assay LEU to continue operations, complementing longstanding efforts to minimize HEU use in civilian applications.

$M^3$'s HEU Disposition Program is charged with dispositioning a total of 186 metric tons of surplus HEU through two declarations.

- **The 1994 Presidential Declaration:** Applies to material that can be used only for peaceful purposes (referred to as S94 material).
- **The 2005 Secretarial Declaration:** Applies to material that cannot be reused in a weapon but can support defense programs (referred to as E05 material).

$M^3$ also supplies high assay LEU for producing molybdenum-99 (Mo-99). This lifesaving medical isotope is used to diagnose and determine the extent of a multitude of diseases, including cancer and heart disease, in approximately 41,000 U.S. patient procedures daily. $M^3$ also has started to provide high assay LEU to U.S. companies that are working to establish non-HEU-based Mo-99 production in the United States.

### Power Generation

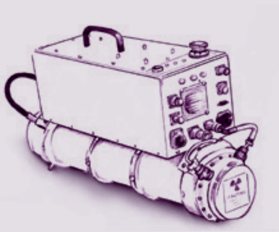
Some excess HEU cannot be down-blended to produce LEU that meets the American Society for Testing and Materials specification for commercial power reactor fuel. However, in prior years, the Tennessee Valley Authority (TVA) and NNSA were able to enter into a unique agreement to refuel TVA power reactors with slightly off-specification LEU, turning would-be waste into a valued product. Currently, two TVA reactors are licensed to use this off-specification LEU, known as blended low-enriched uranium, or BLEU.

# FAQs: Export Licensing

In order for the U.S. economy to thrive and continue to grow, U.S. industry must be able to produce and export commodities, software, services, and technology worldwide in a timely manner. However, not all commodities, software, services and technology are created equal. In the nuclear world, for example, some of the items U.S. industry produces could also be used against us. For example, a neutron generator used in well logging (a technique for making a record of the geological formations in a borehole) could be used as a component to trigger a nuclear explosion. The U.S. Departments of Energy, State, Commerce, and Treasury, and the Nuclear Regulatory Commission all play important roles in administering U.S. laws, regulations, treaties, and agreements that promote legitimate trade. At the same time, these laws and regulations are designed to prevent bad actors from acquiring nuclear or other dual-use-related equipment, material, software, and technology for illicit purposes.

### What types of items are export controlled?

Nuclear technology and technical assistance are controlled under the Atomic Energy Act, 10 CFR Part 810 administered by the Department of Energy. Nuclear equipment and material are controlled under 10 CFR 110 administered by the Nuclear Regulatory Commission. Most commercial items categorized as dual-use—because they have both legitimate commercial and potential military applications—are controlled under the Export Administration Regulations administered by the Department of Commerce. Defense/military commodities, software, services, and technology are controlled under the International Traffic in Arms Regulation administered by the Department of State.



A neutron generator in an example of a dual-use item requiring an export license.

### How do the regulations benefit U.S. industry and protect national security?

Export controls facilitate the legitimate transfer of nuclear and other dual-use items for peaceful purposes while also restricting exports that could pose a threat to U.S. national security. The U.S. interagency license review process allows for proposed exports either to be approved or denied after careful review.

### What is DNN's role in the export control licensing process?

On behalf of DOE, DNN is the lead in administering 10 CFR Part 810. These regulations empower the Secretary of Energy to authorize U.S. persons to engage directly or indirectly in the production of special nuclear material outside the United States. For regulations implemented by other federal agencies, DNN working with experts from the DOE/NNSA national laboratories, reviews dual-use export applications from U.S. industry in the nuclear, chemical, biological, and missile areas, and provides license approval or denial recommendations back to the interagency. Some of the questions DNN and its technical experts consider when reviewing applications include the quantity or size of the item to be exported, the end user, end uses, risk of diversion to a potential proliferation application, foreign availability of the item, and whether that information or item is publicly available.

### How is DNN helping industry navigate through Part 810 authorization requirements?

DNN has launched the e810 online system to manage workflow and improve visibility of applications under review. DNN also offers training and manuals to improve understanding of Part 810 requirements. To learn more, go to https://nnsa.energy.gov/aboutus/ourprograms/nonproliferation-0/npac/policy/10cfr810, register for e810 at https://e810.energy.gov/, or contact Part810@nnsa.doe.gov.

### What is DNN's role in enforcing export controls?

Under its legislative authorities, DNN provides technical support to strengthen and assist federal agencies authorized to enforce U.S. export controls. Drawing on expertise from the DOE/NNSA national laboratories, DNN staff review cases of illicit procurement attempts to help inform U.S. Government decisions on how to best stop them. DNN also provides training to familiarize U.S. law enforcement personnel with commodities of proliferation concern so they can identify and detect illicit transfers of items related to weapons of mass destruction.

Go to Table of Contents