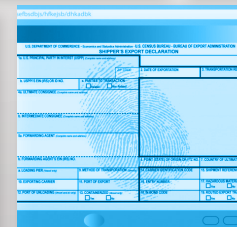
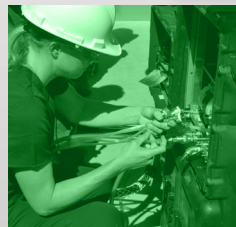
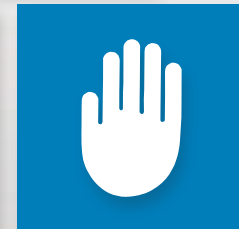
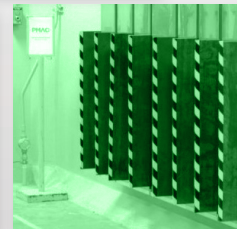
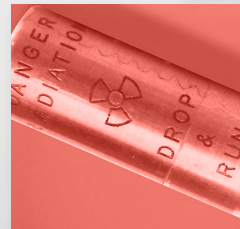
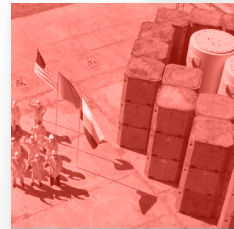




OFFICE OF
**NONPROLIFERATION AND
ARMS CONTROL (NPAC)**

FY 2019 IMPACT REPORT

YEAR IN REVIEW



National Nuclear Security Administration

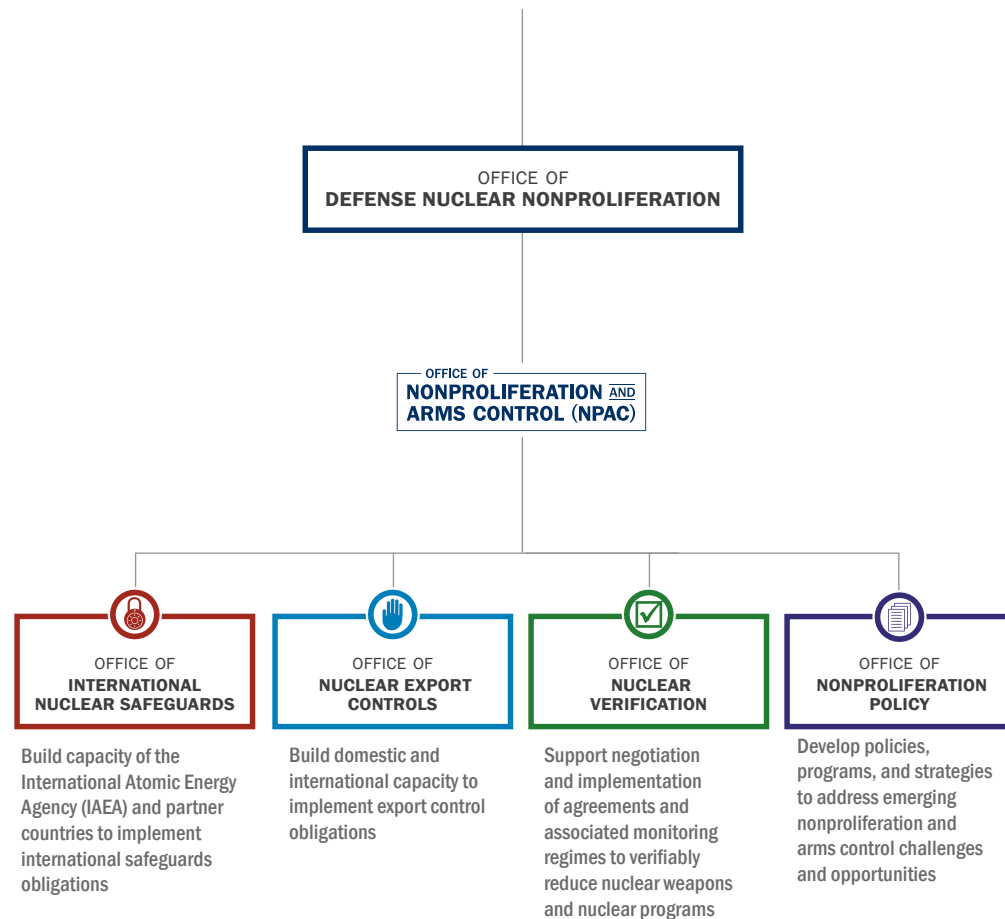
National Nuclear Security Administration (NNSA) is responsible for strengthening our nation through nuclear security. NNSA maintains and enhances the safety, security, and effectiveness of the U.S. nuclear weapons stockpile without nuclear explosive testing; works to reduce the global danger from weapons of mass destruction; provides the U.S. Navy with safe and effective nuclear propulsion; and responds to nuclear and radiological emergencies in the United States and abroad.

Office of Defense Nuclear Nonproliferation

NNSA's Office of Defense Nuclear Nonproliferation (DNN) works to develop and implement policy and technical solutions to eliminate proliferation-sensitive materials and limit or prevent the spread of materials, technology, and expertise related to nuclear and radiological weapons and programs around the world.

Office of Nonproliferation and Arms Control

Within DNN, the Office of Nonproliferation and Arms Control (NPAC) works to prevent proliferation, ensure nuclear material and capabilities are used only for peaceful purposes, and enable verifiable reductions in nuclear weapons.



IMPACT AREAS

WHY IT MATTERS

WHAT NPAC DOES



INTERNATIONAL NUCLEAR SAFEGUARDS

The International Atomic Energy Agency (IAEA) uses a set of technical measures, or safeguards, to provide credible assurances to the international community that nuclear material is accounted for and not being diverted for illicit purposes.

The Office of International Nuclear Safeguards builds capacity of the United States, International Atomic Energy Agency (IAEA), and partner states and organizations to detect and deter diversion of nuclear material and undeclared nuclear activities.



NUCLEAR EXPORT CONTROLS

Threats of nuclear proliferation and nuclear terrorism are ongoing challenges to U.S. national security and to the international community. In particular, the risk of nuclear and dual-use materials, equipment, technologies, or information being diverted to non-peaceful purposes persists.

The Office of Nuclear Export Controls builds U.S. and global export control capacity to detect and prevent the illicit or inadvertent transfer of nuclear and dual-use materials, equipment, and technology.



NUCLEAR VERIFICATION

Extensive technical expertise is vital to prepare for and implement nuclear monitoring and verification activities with foreign partners, including the development and implementation of arms control treaties and other international agreements focused on nuclear weapons and materials limitations.

The Office of Nuclear Verification supports the development and implementation of arms control and other government-to-government agreements focused on weapon limitations and weapons material monitoring and verification. The Office of Nuclear Verification monitors compliance with and implementation of treaties and other international agreements, supports the negotiations of nuclear weapon reduction initiatives, and develops and exercises the U.S. capability to monitor and verify compliance.



NONPROLIFERATION POLICY

Containing global proliferation and implementing U.S. nonproliferation initiatives to address enduring and emerging challenges requires the development of innovative policies and approaches.

The Office of Nonproliferation Policy develops technical and policy solutions to address enduring and emerging nonproliferation and arms control challenges and opportunities.



OFFICE OF
**INTERNATIONAL
NUCLEAR
SAFEGUARDS (OINS)**

“

Growing interest in civil nuclear power, particularly in the developing world, could increase the number of latent nuclear-threshold states, underscoring the importance of DOE/NNSA's contribution to strengthening the international nuclear safeguards regime.

”

**PREVENT, COUNTER AND RESPOND—NNSA'S PLAN TO
REDUCE GLOBAL NUCLEAR THREATS FY 2020–FY 2024**

62

Bilateral and
multilateral
safeguards events

35

U.S. universities
engaged through
safeguards educational
opportunities

13

Training courses offered to
IAEA safeguards staff through
the U.S. Support Program to
IAEA Safeguards

85 COUNTRIES &

5 REGIONAL AND
INTERNATIONAL
ORGANIZATIONS

STRENGTHENING THE NUCLEAR NONPROLIFERATION REGIME THROUGH INTERNATIONAL ENGAGEMENT

OINS engaged 85 countries and five regional and international organizations to improve the international nuclear safeguards system. For example, although Liberia and Benin joined the NPT in 1970 and 1972, respectively, neither country had a Comprehensive Safeguards Agreement with the IAEA. After holding bilateral safeguards outreach workshops in Liberia and Benin in FY 2019, both countries brought into force all nuclear safeguards agreements, including Additional Protocols.

6 
SAFEGUARDS
TOOLS AND
TECHNOLOGIES

IMPROVING THE INTERNATIONAL NUCLEAR SAFEGUARDS SYSTEM THROUGH TECHNOLOGY TRANSFER

OINS developed and transferred six safeguards tools and technologies to the IAEA and partners to improve the international nuclear safeguards system. Notably, OINS developed and transferred to the IAEA a statistical analysis tool kit to improve the IAEA's ability to evaluate and interpret particle data from environmental samples. Tool kit functions include assessments of historic data to identify a range of a nuclear facility's operating conditions, comparisons of historic and new data to confirm nuclear facility operations have not changed, and simulations of what-if scenarios for analytical hypothesis testing.

8 
PHYSICAL
PROTECTION
ASSESSMENTS

ASSESSING NUCLEAR SECURITY AT FOREIGN SITES HOLDING U.S.-OBLIGATED NUCLEAR MATERIAL

The OINS Bilateral Physical Protection Assessment Program ensures the security of U.S.-obligated nuclear material held or expected to be held in foreign facilities by leading physical protection assessment visits. The Program exceeded its yearly metric, conducting eight physical protection assessment visits in four countries.



OFFICE OF
**NUCLEAR
EXPORT
CONTROLS**
(ONEC)



DOE/NNSA also supports the promise of peaceful nuclear applications around the world enshrined in Article IV of the NPT through its contributions to the Peaceful Uses Initiative (by building) domestic and international export control capacity to prevent the proliferation of weapons-relevant materials, equipment, and technology.



**PREVENT, COUNTER AND RESPOND—NNSA'S PLAN TO
REDUCE GLOBAL NUCLEAR THREATS FY 2020–FY 2024**

79

Export control trainings for U.S. enforcement agencies and foreign partners

5,310

License applications reviewed in FY 2019

2,007

Technical reviews provided for interdiction cases in FY 2019

342

PROPOSALS REVIEWED



ENSURING NONPROLIFERATION THROUGH NATIONAL LABORATORY FOREIGN ENGAGEMENT REVIEWS

ONEC reviewed 342 proposals by the National Laboratories, plants, and sites for engagements with foreign entities in compliance with DOE Policy 485.1 to advise national laboratories on any nonproliferation or export control concerns associated with planned foreign engagements.

80%

OF REVIEWS COMPLETED AHEAD OF SCHEDULE



PREVENTING PROLIFERATION THROUGH EXPORT LICENSING APPLICATIONS & INTERDICTION REVIEWS


ONEC conducts efficient and effective statutory licensing reviews and interdiction analyses. ONEC surpassed a new OMB metric on export licensing reviews, completing 80% of incoming reviews in the first 25 days of the review period, five days ahead of the mandated 30-day deadline.

1ST

EXPORT CONTROL ASSISTANCE PROGRAM ESTABLISHED

IMPROVING EXPORT COMPLIANCE ACROSS THE UNITED STATES

ONEC's Export Compliance Assistance Program (ECAP) seeks to raise awareness of export compliance responsibilities, assist in developing strategies for complying with U.S. export control laws and regulations, and provide export compliance training to federal employees, their staff, and contractors at DOE HQ, laboratories, sites, and plants. ONEC established a website, a call-center for incoming assistance requests, and a ticketing system to document and track requests for assistance.



OFFICE OF
**NUCLEAR
VERIFICATION**
(ONV)



An ever-changing geopolitical environment, including evolving threats from rogue states and terrorists, coupled with the ever-increasing pace of scientific and technological advancement, may necessitate revision to the traditional security frameworks to address the threat landscape of the future.

**PREVENT, COUNTER AND RESPOND—NNSA'S PLAN TO
REDUCE GLOBAL NUCLEAR THREATS FY 2020–FY 2024**



11

Countries with active scientific engagements with U.S. experts to build seismic monitoring capacity, including for nuclear explosion monitoring

14

Days after receipt of notification for ONV's on-site monitoring and verification teams to deploy.



6
YEARS OF A U.S.-
U.K. PARTNERSHIP



10
MOBILIZATION
TRAINING AND
EXERCISE
ACTIVITIES

PARTNERSHIP DEVELOPS NEW MONITORING SYSTEM

ONV successfully demonstrated the U.S.-U.K. jointly-designed Portal Monitor for Authentication and Certification (PMAC) system at the Pantex Plant, the culmination of a six-year, multi-site research efforts that significantly increased understanding and capability to deploy monitoring and verification equipment during sensitive operations at sensitive sites as part of potential future arms control initiatives.

SPECIALIZED VERIFICATION TEAMS READY TO DEPLOY

ONV refined detailed specific monitoring and verification concepts of operations for potential near-term deployment and trained and exercised specialized verification teams (Health & Safety, Uranium Verification, and Plutonium Verification Teams) on monitoring and verification scenarios and tools.



24
OF 27
REACTORS

RUSSIAN AND U.S. REACTORS REMOVED FROM MONITORING DUE TO SUBSTANTIAL DISMANTLEMENT STATUS

When the Plutonium Production Reactor Agreement (PPRA) was signed in 1997, it originally monitored 13 Russian reactors at three sites and 14 U.S. reactors at two sites, along with over nine metric tons of Russian weapons-grade plutonium. In FY 2019, the United States and Russia agreed to remove from future monitoring all but two U.S. reactors and one Russian reactor due to their substantial dismantlement status. U.S. and Russian technical experts thoroughly surveyed the last Russian reactor to determine future monitoring and enhanced biannual Russian plutonium monitoring.



OFFICE OF
**NONPROLIFERATION
POLICY (ONP)**



In the coming decades, scientific advances and manufacturing improvements may create new pathways to nuclear weapons, presenting the prospect of sudden, unexpected changes in the nuclear threat. Adapting to this shifting global terrain will require a high degree of institutional agility.

**PREVENT, COUNTER AND RESPOND—NNSA'S PLAN TO
REDUCE GLOBAL NUCLEAR THREATS FY 2020–FY 2024**



16

Studies completed on technical, market, and proliferation issues facing U.S. decision-makers

3

Emerging Challenges Studies completed

1.5 Million

Viewers engaged through South Asia Voices program, which provides greater visibility and deepened debate to strategic nuclear thinkers during times of fragile stability in South Asia

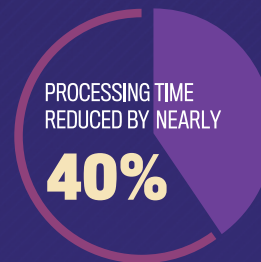
14

PROLIFERATION RESEARCH AND ANALYSIS PROJECT STUDIES

IMPROVING UNDERSTANDING OF NONPROLIFERATION CHALLENGES

ONP completed 14 studies for the Proliferation Research and Analysis Project (PRAP), which seeks to build deep knowledge on understudied, emerging, or evolving technical, market, or political developments that challenge U.S. nonproliferation policy. The PRAP Program also seeks to develop a community of experts at the laboratories to address such challenges into the future.

PROCESSING TIME REDUCED BY NEARLY 40%



ONP implements the requirements under 10 CFR Part 810 to authorize civil nuclear trade, ensuring that nuclear technologies and assistance exported from the United States will be used for peaceful purposes. As a result of ONP's ongoing efforts to improve the Part 810 process, the average processing time for approval of specific authorization requests under Part 810 has dropped from 14 months in FY 2017 to 9 months in FY 2019, a reduction of nearly 40 percent. ONP has taken a number of steps to improve the Part 810 process, including deploying an electronic submissions portal, establishing timely and realistic deadlines for internal reviews, and eliminating duplicative reviews.



BUILDING GLOBAL NUCLEAR NORMS IN SOUTH ASIA

Over 2,500 students enrolled in the Nuclear South Asia open online course, with over 74% of students from South Asia. ONP also held the inaugural nuclear technology and policy workshop for Indian journalists. In times of fragile stability in South Asia, engaging the next generation of nuclear strategists is more important than ever.

FY 2020 PLANS AND PRIORITIES

NPAC follows a disciplined approach for setting, pursuing, and evaluating plans and priorities. Across the spectrum of international nuclear safeguards, nuclear export controls, nuclear verification, and crosscutting policy issues, NPAC staff will continue to provide integrated policy, programmatic, and technical solutions to nonproliferation challenges. Key NPAC priorities for FY 2020 include:



INTERNATIONAL NUCLEAR SAFEGUARDS

- Strengthen the capacity of the IAEA and partner countries to implement and meet international safeguards obligations.
- Support the training of new safeguards professionals in the United States.
- Engage with partner countries to ensure effective and efficient implementation and fulfillment of IAEA safeguards obligations and promote the broadest possible adherence to safeguards agreements.
- Develop mature technologies to support the needs of the IAEA and partner countries in implementing safeguards obligations.
- Engage with and advise the U.S. interagency on safeguards related programs and policies.



NUCLEAR EXPORT CONTROLS

- Perform ~6,000 technical reviews of U.S. export licenses and ~3,000 interdiction technical analyses.
- Develop, maintain, and streamline, as needed, information technology systems to support licensing, interdiction, and multilateral export control regime activities.
- Provide nonproliferation and export control training and analytical support to the DOE complex, U.S. interagency, and international partners.
- Support U.S. Government sanctions activities by providing technical analysis of cases that may be subject to sanctions pursuant to the Iran, North Korea, and Syria Nonproliferation Act.
- Implement new FY2020 OMB metric to complete the review of 85% of dual-use license applications within 25 days of receipt from the Department of Commerce five days ahead of the mandated 30-day deadline.



NUCLEAR VERIFICATION

- Implement arms control and prepare the U.S. Government policy community and DOE facilities for future negotiations and requirements.
- Develop novel technology concepts for warhead verification and nuclear weapon material monitoring and verification.
- Strengthen international partnerships under current and future verification initiatives.
- Implement ongoing monitoring and verification regimes including fissile material monitoring.
- Maintain readiness for on-site monitoring and verification of nuclear programs through enhanced training exercises.



NONPROLIFERATION POLICY

- Support the negotiation and conclusion of peaceful nuclear cooperation agreements (123 Agreements) and associated Administrative Arrangements.
- Conduct technical review of Nuclear Suppliers Group (NSG) guidelines and develop comprehensive updates to the NSG Trigger List & Dual Use List.
- Further strengthen Part 810 regulatory process through the development and implementation of the Part 810 Process Improvement Plan, including the e-licensing system, and the implementation of newly authorized Part 810 civil penalty enforcement functions.
- Undertake analyses in other efforts to support DNN and NPAC strategic planning and risk assessment planning exercises.



OFFICE OF
**NONPROLIFERATION AND
ARMS CONTROL (NPAC)**

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Office of Nonproliferation and Arms Control
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<https://www.energy.gov/nnsa/missions/nonproliferation>