



***National Nuclear Security Administration
Nonproliferation Research and Development***

R&D Opportunities for HBCUs

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Mission & Vision/Objectives

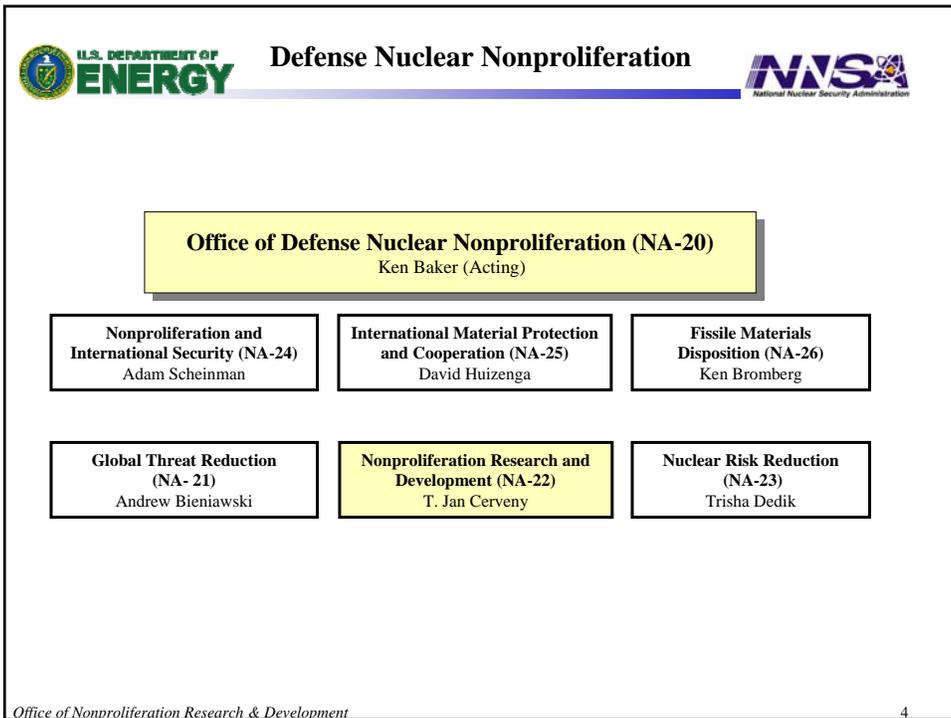
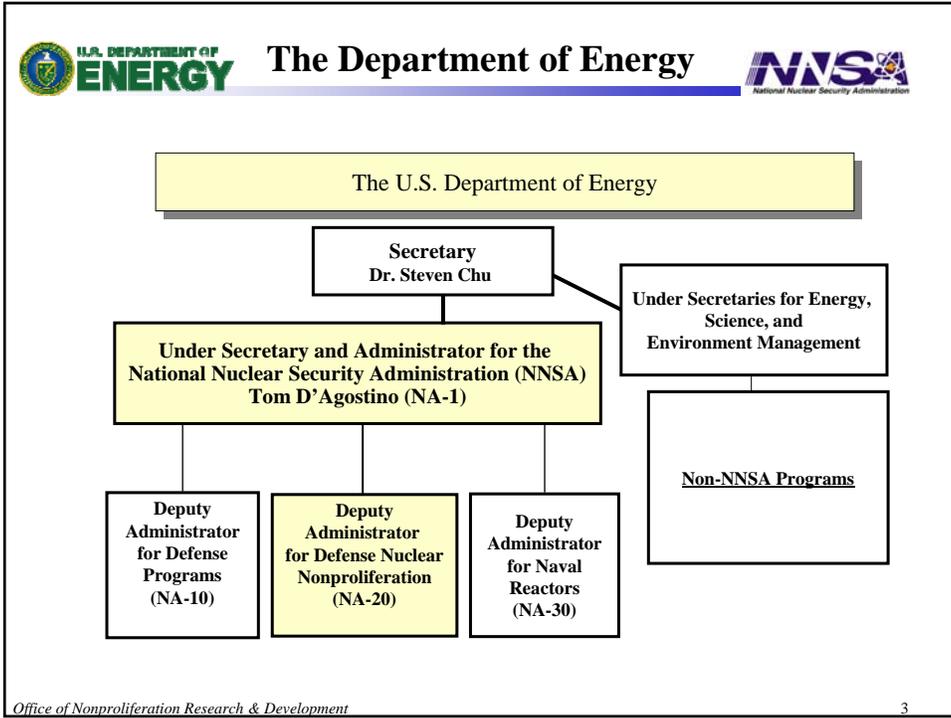


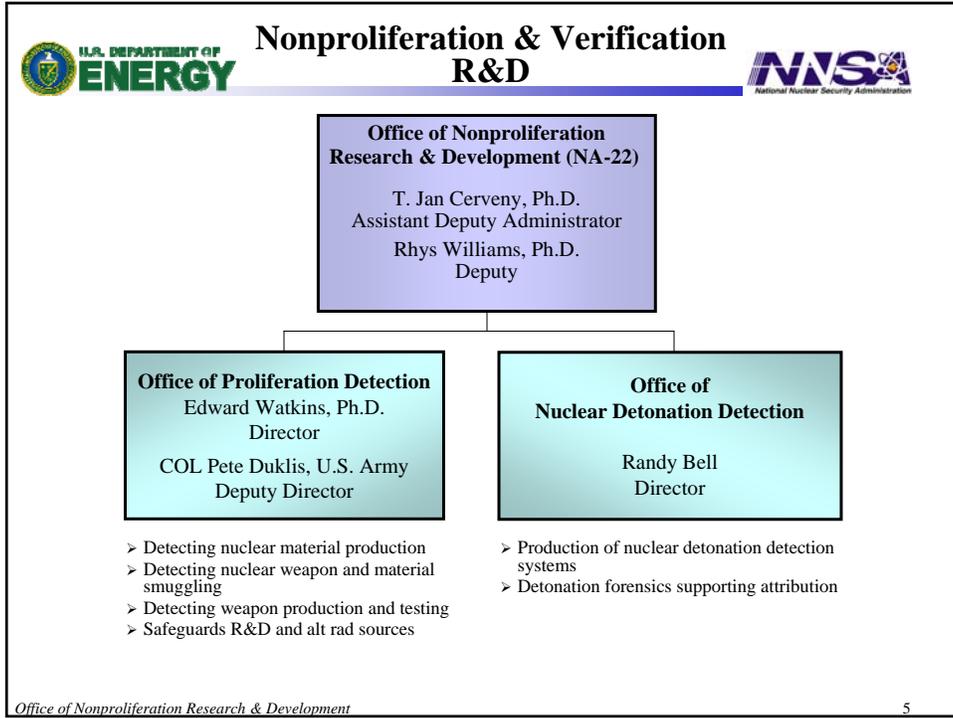
Mission:

Reduce the threat to national security posed by nuclear weapons proliferation/detonation or the illicit trafficking of nuclear materials through the long-term development of new and novel technology.

Vision/Objectives:

- Develop and demonstrate technologies for detecting the stages of a foreign nuclear weapons program
- Develop, demonstrate, and deliver technologies to detect, report, locate, and identify worldwide nuclear detonations
- Conduct the highest quality, most innovative research and development





U.S. DEPARTMENT OF ENERGY **How We Work** **NNSA**
National Nuclear Security Administration

➢ **Intramural Research**

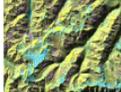
- ~80% of budget
- Annual call for proposals based on individual R&D program “Goals, Objectives, and Requirements” (GOR) Documents
- Peer review and selection of new work, followed by negotiation to better coordinate proposals with other efforts in programs
- Typical effort funded for 3 years
- DOE and NNSA National Labs

➢ **Extramural Research**

- Annual Broad Agency Announcements: academia and industry as principle investigators, DOE labs can only participate as collaborators
- Small Business Innovation Research (SBIR) for NNSA

SOLICITATION FOR PROPOSALS
FOR THE
NATIONAL NUCLEAR SECURITY ADMINISTRATION

NNSA
National Nuclear Security Administration



BROAD AGENCY ANNOUNCEMENT REGARDING
NONPROLIFERATION RESEARCH AND DEVELOPMENT FOR
PROLIFERATION DETECTION (POP SAA 08)
SOLICITATION NUMBER DE-ARE1-07NAMBIF

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Proliferation Detection



Office of Proliferation Detection

Nonproliferation Mission Areas

- > U-235 Production Detection
- > Pu Production Detection
- > SNM Movement Detection/Radiation Sensing
- > Detection of Nuclear Weapons Production and Testing
- > Safeguards and Alternate Radiation Sources

Nonproliferation Enabling Technologies

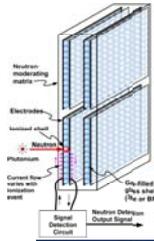
- > Advanced Materials (radiation detection focus)
- > Simulation, Algorithms and Modeling
- > Nuclear Fuel Cycle Remote Sensing
- > Tools, Techniques, Infrastructure and Demonstrations

Signatures & Observables

- > Identify & characterize relevant proliferation signatures and observables in support of PD mission areas



Uranium gas centrifuge detection



Neutron detection:
gas-filled glass beads



Fuel cycle production signature collection

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Where We Focus



Proliferation Detection Office

- > **Address challenging problems related to detection, localization, and analysis of WMD global proliferation**
- > **Develop tools, technologies, techniques, and expertise**
- > **Special emphasis on nuclear weapon technology and diversion of special nuclear materials**
- > **Safeguards and Alternative Sources**

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Nuclear Detonation Detection



Office of Nuclear Detonation Detection

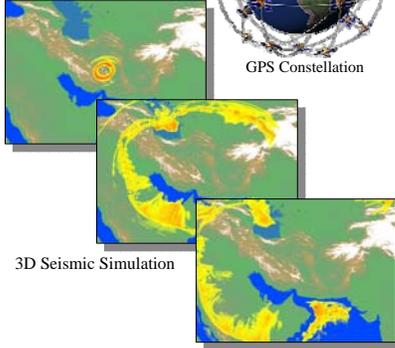
- Space-Based Systems

 - Surface & Atmospheric Burst Detection
 - High Altitude & Space Burst Detection
- Ground-Based Systems

 - Seismic Detection Methods
 - Trace Radionuclide Detection Methods
- Detonation Forensics

 - Prompt Signatures
 - Radionuclide Debris Analysis





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Where We Focus



Nuclear Detonation Detection Office

- **Produce the nation’s operational sensors for space-based nuclear detonation detection**
- **Calibrate and provide analysis tools for the nation’s operational ground-based nuclear detonation detection**
- **R&D to improve nuclear detonation detection and address changing mission emphasis for the future**
- **R&D for prompt signatures and radionuclide debris sampling for post-detonation technical forensics**

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U.S. DEPARTMENT OF ENERGY

BAA-funded Institutions



NNSA
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Funding Paths



NNSA
National Nuclear Security Administration

- Partner with National Labs
- SBIR RFP:
<http://www.science.doe.gov/SBIR/>
- University RFP:
<https://na22.nnsa.doe.gov/cgi-bin/prod/coord/index.cgi?Page=Proposals>
- Contact information for getting into the database and announcement group:
 - *Title (Dr., Mr., etc)
 - *Name (First, Middle Initial, Last)
 - *Organization (name and acronym)
 - *Email address
 - *Phone number
 - Mailing address
 - * Required information.

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