

The 21ST Century National Security Mission at BNL

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BROOKHAVEN
NATIONAL LABORATORY

a passion for discovery

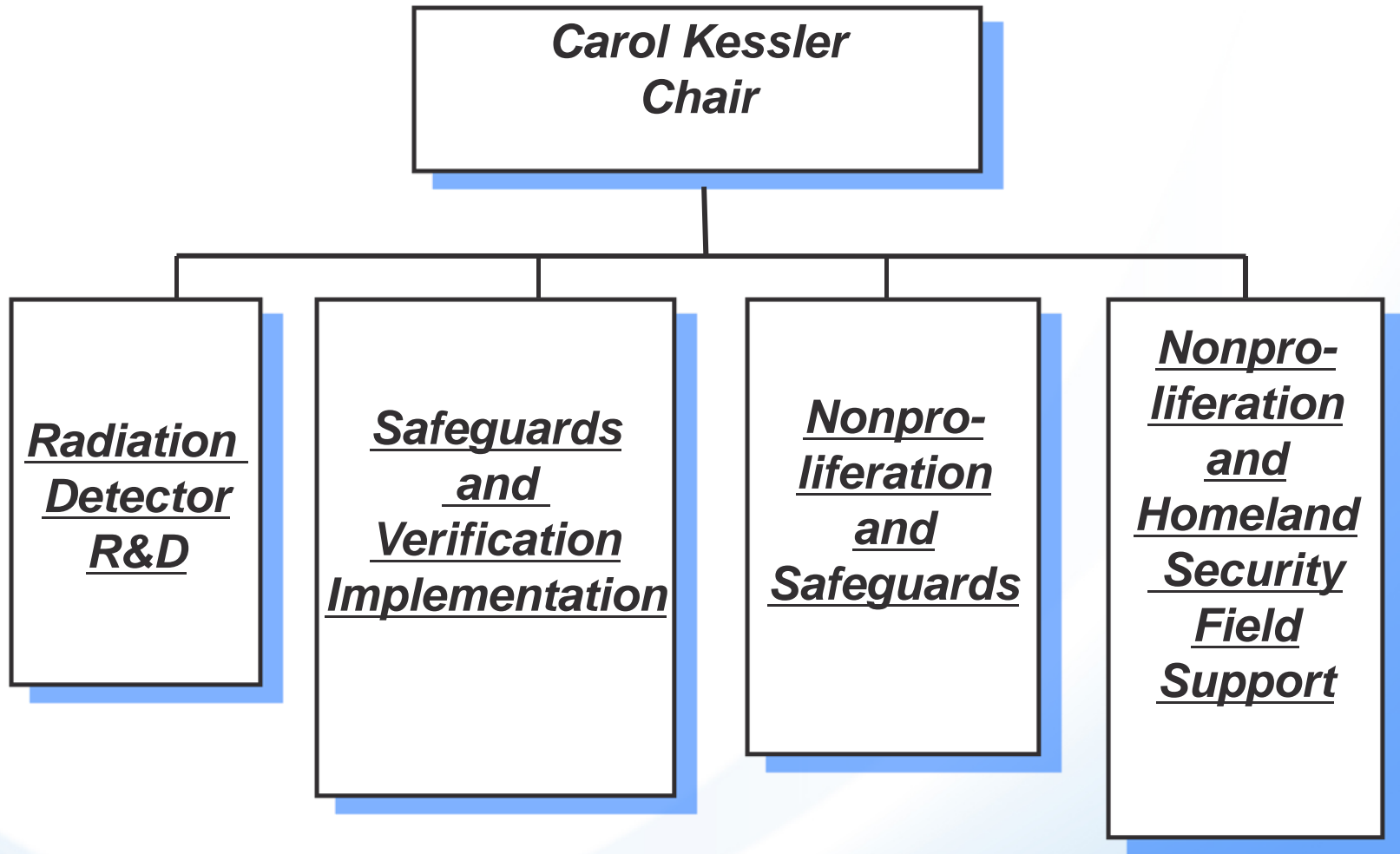


Nonproliferation and National Security is Priority at BNL

- Protect public from weapons of mass destruction
- Develop tools/equipment to enable International Atomic Energy Agency
 - Nonproliferation Treaty
 - Not members- India, Pakistan, Israel
- Build equipment, train first responders and respond to incidents of concern in homeland



Nonproliferation and National Security Department



Support Major USG Programs

- Materials Protection, Control & Accounting
- International Safeguards
- Next generation of experts
- Radiation Detection R&D
- Homeland Security



Secure Former Soviet Union Nuclear Material and Facilities

- Fall of Soviet Union in 1991 brought concerns about security of nuclear material and nuclear weapons in new states formed from USSR
- MPC&A program began in 1992 to stem loss or theft of nuclear material or weapons
- BNL played significant role since 1993



MPC&A Activities

- Perimeter upgrades – fences, etc.
- Radiation detection equipment
- Radioactive material measurement equipment
- Protective force needs
- Personnel and facility monitoring system
- **Tabletop exercises**



Nuclear Material and Facilities Safeguarded by IAEA

- States must cooperate to ensure nuclear materials not developed for weapons and weapons never used
- IAEA coordinates cooperation and inspects facilities to verify countries' peaceful use commitments
- Higher international confidence in IAEA safeguards, the more countries will rely on IAEA and not take nuclear concerns into own hands



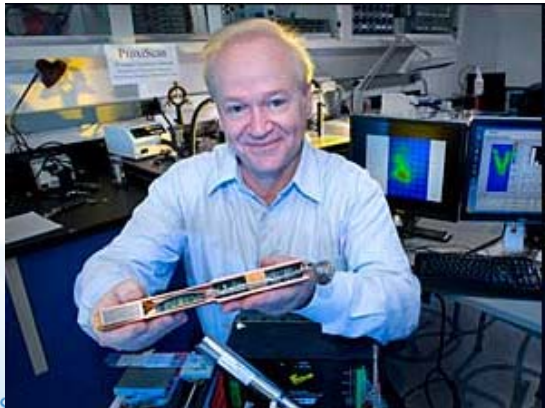
BNL Strengthening IAEA Safeguards Since Mid 1970s

- Two Groups in Department focused on IAEA
- coordinates project and personnel support to IAEA Safeguards Dept
- Second executes projects:
 - For IAEA directly under USG Support Program
 - For IAEA or other countries under National Nuclear Security Administration



Leaders in Radiation Detection R&D

- Semiconductor room-temperature radiation detectors
 - Grow semiconductor crystals - cadmium-zinc-telluride (CZT), Cd-Mn-Te, Cd-Zn-Se
 - Prepare crystals for use in detectors
 - Characterize crystal defects and feedback results
 - Design and build detectors, including electronics
 - Work with industry to improve their/our work
 - medical uses - early detection of prostate cancer
- Neutron detectors for **disarmament** use



Next Generation of Nuclear Experts

- Safety, security and safeguards highly dependent on world class staff
- Dearth of nuclear scientists, engineers and policy analysts nationally and internationally
- Nuclear energy not popular career during 1980s and 1990s
- Even if the U.S. doesn't, others will pursue nuclear energy.
- U.S. needs to set standard on safety, security, safeguards and excellence in staffing
- U.S. needs to lead by doing



Next Generation Education and Training is Ongoing

- 3 week course on Nonproliferation, Nuclear Security and Safeguards
- Developing “Nuclear Forensics Course” for Syracuse University
- Train regional and local radiological/nuclear emergency responders
- Train IAEA inspectors
- Future training program for Russian young nuclear industry and government managers



Homeland Security is National and Regional Priority

- Since 9/11, U.S., and New York especially, focused on increased likelihood of radiological or nuclear terrorism
- Access to these types of materials anywhere in world can result in their use in attack on NYC or anywhere in nation
- Both a national and regional imperative to find/detect and secure these materials.



Brookhaven Science Associates



NN Strengthens Homeland Security

- Ensure science, technology and training keep pace with threat
 - Design and build improved nuclear detectors
- Technical analysis of likelihood terrorist might use radiological dispersal device and what material might be used
- Radiological Assistance Program to prevent where possible, and respond when needed, to regional and national emergencies



- And
 - Training local and regional first responders for nuclear/radiological emergencies
 - Calibrating NY Police Department first-responder detectors



Thank you.
Questions?

