

Cary Crawford

**Safeguards and Security Technology
Program Manager
Nuclear Science and Engineering Directorate
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OVERVIEW

Cary is an experienced Nuclear Safeguards and Security Professional with Weapons Complex operational expertise, broad DOE complex experience, and significant international engagements and support. With over 23 years in the industry, Cary has interfaced with all DOE complex sites, the IAEA, and many country engagements to include the Russian Federation, China, UK, and many more, leading to a broad international network of Safeguards, Security, and Nonproliferation expertise.

- Most recently, Cary initiated a research project to develop tools and processes to integrate the disciplines of cyber security and physical protection. This led to the development of a Vulnerability Assessment tool using the timely detection methodology commonly used in the DOE complex and integrating cyber security into the analysis. The new tool and methodology provides a more robust analysis of vulnerabilities in fixed-site security models against the modern, technically advanced, adaptive adversary. The methodology is leading to further discussions on integrated cyber/physical risk assessments to include threat, consequence, and resiliency analysis.
- Cary has spent much of his career in the field of Nuclear Materials Control and Accountability assisting the DOE complex and international community in understanding how to apply uncertainty analysis in a systematic manner to a nuclear facility as well as understanding and analyzing material flow at a national level. This has allowed Cary to spend a significant portion of his time offering training and consulting to emerging nuclear countries as well as next generation nuclear professionals. This has also led to many collaborations in the International Safeguards arena.
- For much of his career, Cary has worked to integrate all of the individual disciplines in the Safeguards and Security arena to impact policy, processes, and procedures from a systems perspective. Cary is passionate about challenging traditional approaches to get to the first principles surrounding policy and then applying more effective and efficient approaches to meeting the intent. Cary has utilized this systems engineering approach to many Best Practices workshops and conferences through his leadership in the INMM and his connections with WINS and other professional societies.

EDUCATION

University of Oklahoma, Norman, OK
MS, Applied Mathematics

EXPERIENCE

OAK RIDGE NATIONAL LABORATORY, 2016–current

Oak Ridge, Tennessee

Program Manager, Safeguards and Security Technology. Nuclear Science and Engineering Directorate

Integrate knowledge of operational programs across multiple USG Agencies and International organizations as well as a broad range of technical capabilities contributing to those programs into the Science and Technology of ORNL. Apply knowledge of operational deficiencies and challenges to the research agenda of the Nuclear Science and Engineering Directorate.

PACIFIC NORTHWEST NATIONAL LABORATORY, 2001–2015

Richland, WA

Technical Group Manager, Physical Protection Implementation, National Security Directorate.

- ✦ Leadership of *Protective Force, Nuclear Materials Control & Accounting, International Nuclear Safeguards, Physical Protection, Explosives Breaching and Vulnerability Assessment (VA)* capability
- ✦ Initiated Program with Department of Homeland Security Science and Technology Directorate engagement on integrated Cyber/Physical Risk Informed Security Methodology
- ✦ Initiated Directorate-level LDRD and Directorate Strategic Objective integrating Cyber and Physical Security Risk Assessments
- ✦ Nuclear Material Control & Accountability expert and Project/Program Manager
- ✦ Vulnerability Assessment/Risk Management trainer and advisor
- ✦ Training Subject Matter Expert in Nuclear Safeguards and Security
- ✦ PM for combined Russian Technical and Training Center Programs (all Safeguards and Security Training Centers in the Russian Federation)

DEPARTMENT OF ENERGY NATIONAL TRAINING CENTER, 1997 – 2001

Senior Instructor, Nuclear Material Control and Accountability, Safeguards Training Department.

- ✦ Safeguards Statistician
- ✦ MC&A, VA, and various Nuclear Security course development and delivery throughout DOE complex
- ✦ DOE-wide policy and inspection teams and working groups
- ✦ Consultant to DOE on MC&A policy

PANTEX PLANT, 1993 – 1997

Senior Project Scientist, Nuclear Material Control and Accountability, Safeguards Department.

- ✦ Safeguards and Security Performance Testing SME
- ✦ Nuclear Weapons Program Safeguards Statistician
- ✦ Nuclear Material Inventory Control
- ✦ Internal Self-Assessment Program
- ✦ MC&A representative for site Authorization Basis decisions, special projects, and new starts

AWARDS & HONORS

Member-At-Large, 2014-Current
Institute of Nuclear Materials Management

MC&A Division Chair, 2010-2014
Institute of Nuclear Materials Management