

Relevant Experience

Oak Ridge National Laboratory **Oak Ridge, Tennessee**
International Safeguards Research and Development Engineer December 2010 – Today

Developed new concepts, approaches and systems to improve safeguards on the front end of the fuel cycle with a focus on enrichment plants.

- Led the effort to develop and demonstrate new technical measures to detect excess production at gas centrifuge enrichment plants (GCEP). I mentored several interns and post masters research associates and worked closely with other subject matter experts to develop and evaluate load cell data collection, analysis and visualization tools (including 3D models to display real time and historical data in intuitive ways).
- Designed, developed, and field tested a new system for the IAEA to detect higher than declared enrichment at a GCEP. As a key member in the team of three for the Online Enrichment Monitor (OLEM), I led the cyber and data security integration, and contributed significantly to the component selection, systems engineering, and tamper indicating enclosure design.
- Integrated several systems into an Unattended Cylinder Verification Station which is designed for the IAEA to measure the full volume assay of UF₆ in model 30B and 48Y cylinders. My role included deploying a secure Virtual Private Network (VPN) solution over a cellular network to securely move data to a remote repository and integrating camera systems including the NGSS which the IAEA is deploying around the world due to its unique data authentication measures.
- Worked with subject matter experts to identify and document the cradle to grave path of model 30B and 48Y cylinders used at conversion, enrichment and fuel fabrication facilities.

International Atomic Energy Agency **Vienna, Austria**
Junior Professional Officer June 2008 – June 2010
Contractor at the IAEA employed by AWST Aug 2006 – Jan 2007
Intern funded through Brookhaven National Laboratory July 2005 – July 2006

Provided systems analysis, software development, software contract management, and end user training services for the software IAEA inspectors use to analyze and review the operations at the Rokkasho Reprocessing Plant.

- Initiated, planned and executed the move to a new technology to deliver business data to the inspectors more efficiently, effectively and securely. The new technology provided inspectors a more meaningful high level view of the RRP facility operations.
- Monitored the state of health of the Rokkasho unattended systems and maintained the proper operations of the software sub-systems.
- Planned and designed portions of the normal operations system test for the unattended systems and software at RRP. Analyzed the test data and presented results at the IAEA intern symposium and the Institute of Nuclear Materials Management (INMM) annual meeting.

Other

Washington University in St. Louis	St. Louis, MO
Master of Science in Computer Science	May 2005
National Science Foundation Graduate Student Fellow	
Master of Business Administration	May 2003
Bachelor of Science in Mechanical Engineering	May 2003
Kenyon College	Gambier, OH
Bachelor of Arts in Physics	May 2002

Certifications

Certified Information System Security Professional (CISSP)

Publications

Author or coauthor on over 15 INMM, ESARDA or IAEA Safeguards Symposium papers related to safeguards at bulk handling facilities