



Class of 2020-2021 Fellow Posters



Overview

The APM-1.3 office oversees the \$6.5 billion Uranium Processing Facility (UPF) project and other high-value strategic projects at the Y-12 National Security Facility. I supported various reviews by the Operations and Security team throughout the fellowship term with a primary focus on cybersecurity considerations.

Outcomes

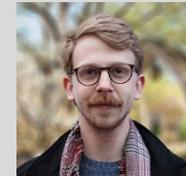
The Operations and Security team has oversight responsibilities for construction, engineering, safeguards and security, and other functional areas that impact project completion. I helped serve as a subject matter source for questions and issues regarding cybersecurity management and guidance, working to support UPF mission readiness.



Rendering of UPF completed design. UPF will ensure the long-term viability, safety, and security of enriched capabilities in the United States.

UPF project oversight seeks to ensure the contractor builds a fully functional and safeguarded facility able to deliver quality products in a secure, stable, and timely fashion. These efforts guarantee NNSA has the capabilities needed to maintain material for its national security mission for years to come.

“Working alongside such a large, diverse, and talented group of people has been an incredible learning experience. The fellowship allowed me to explore so many different elements of this huge project—the largest construction project in Tennessee history—in a way I could never have done as a contractor or federal employee.”



Dominik Booth
NA-APM-1.3 Y-12
Acquisition and Project
Management Office

Master of Diplomacy and International Commerce, Intelligence and National Security Studies, University of Kentucky Patterson School

Overview

The Office of Nuclear Materials Integration works on a variety of different projects related to the management of nuclear materials within the U.S Department of Energy complex. I had the opportunity to assist with several of the projects.



U.S. Department of Energy - Germantown, MD

Outcomes

I provided support to projects, created a project management plan for an ongoing project, and developed several writeups of successful technical projects performed by my office. This information can be used in the future when presenting or discussing the results of certain projects to interested parties.

My efforts assisted the Office of Nuclear Materials Integration in accomplishing their mission.

“The fellowship provided me with a unique glimpse into the national security enterprise and assisted me in determining my future career goals.”



Taylor Brown
NA-532 Office of Nuclear
Materials Integration

Master of Public Administration,
University of Utah

Overview

The NA-183 Office of Strategic Planning and Analysis conducts strategic planning and resource advocacy to sustain and modernize a safe, secure, and effective stockpile for the U.S. nuclear deterrent on behalf of NA-10, the Office System Engineering and Integration. I was responsible for producing the Stockpile Stewardship and Management Plan (SSMP).



The SSMP collects information across the nuclear security enterprise to communicate weapons activities

Outcomes

The SSMP is an annual report delivered to Congress detailing the 25-year plan for the nuclear security enterprise. I was an integral part of shaping messaging, collecting crucial information, and integrating program and site input through extensive networking and teamwork.

My efforts helped to develop and improve a successful congressional document that both communicates an overview of weapons activities and showcases a culmination of hard work, dedication, and commitment on behalf of the entire nuclear security enterprise.

“This fellowship provided me with the opportunity to understand the connections within the nuclear security enterprise. Working on the SSMP taught me how to integrate and communicate complex program plans.”



Megan Bruns
NA-183 Office of Strategic Planning and Analysis

Master’s of Public Health, Epidemiology Genetics and Bioinformatics, University of Texas Health Science Center in Houston

Overview

The NNSA Production Office provides programmatic oversight of the management and operating contractor operating the Pantex and Y-12 sites. I was plugged into the infrastructure projects providing oversight to the Roof Asset Management Program and Demolition & Disposition projects as well as numerous other facility upgrades.



Aerial view of Pantex Plant

Outcomes

The Pantex plant is responsible for all assembly, disassembly, and surveillance of nuclear weapons within the stockpile. When a weapon needs servicing or upgrading, it comes to Pantex. As with any operation, it depends on the infrastructure built to support it.

My role within NPO-70 supported efforts to maintain and improve that infrastructure to ensure that the mission can be carried out. This includes everything from fixing leaking roofs and replacing HVAC systems to replacing the plant's water mains and constructing new laboratory facilities.

“The fellowship gave me a look into a world I had not considered before. I see now the importance of the NNSA mission and am poised to continue supporting it in the years to come.”



Christopher Bryson
NPO-70 NNSA Production
Office, Amarillo Facilities
Infrastructure Program

Master of Science, Mechanical Engineering,
Texas Tech University

Overview

As part of the NA-53 Office of Enterprise Stewardship team, I worked on a wide range of radioactive waste management and environmental projects. This included assisting in strengthening the NNSA corporate radioactive waste management program and participating in long-term stewardship program activities.

Outcomes

I was able to impact several key areas within the NA-53 mission space. For radioactive waste management, I reviewed guidance, program plans, and strategy documents from across the national security enterprise to ensure compliance and developed summary reports.



Margaret attended the Waste Management 2021 virtual symposia

My environmental scope involved leading the effort to prepare for potential future regulatory actions regarding an emerging contaminant and coordinating with the U.S. Department of Energy Office of Environmental Management and Office of Environment, Health, Safety and Security.

“I’m grateful for the opportunity I had as a fellow to work on projects across NNSA sites, which gave me a broad perspective of radioactive waste management challenges throughout the national security enterprise.”



Margaret Butzen
NA-53 Office of
Enterprise Stewardship

Doctor of Philosophy Civil and Environmental Engineering and Earth Sciences, University of Notre Dame

Bachelor of Science, Geological Engineering, Geology and Geophysics, University of Wisconsin

Overview

I served as the Program Liaison for NNSA Production Office's projects and programs, covering the Enriched Uranium, Depleted Uranium, and Special Materials Programs.



The Uranium Processing Facility at Y-12 progresses toward its 2025 completion date

Outcomes

When my office mentor was selected for a special assignment, I was assigned to help cover his responsibilities while he was away. I have been serving as the acting program liaison for the Enriched Uranium, Depleted Uranium, and Special Materials Programs.

A major portion of my work has focused on successfully developing processes and technologies aimed to meet the future production demands of these programs. While I hope that my work has been beneficial to the mission and my office, I know that it has been more beneficial to me.

"I am grateful for the professional development my time with the NNSA has given me and the chance to give back to our great nation. However, I am most grateful for a better understanding and commitment to the NNSA's mission that I gained."



Austin Clark
NPO NNSA Production
Office, Y-12

Doctor of Philosophy*, Chemical Engineering,
Brigham Young University

Overview

NA-18 supports Defense Programs by providing the framework for successful portfolio execution. My work focused on improving the complex systems needed to conceptualize, build, and maintain products.



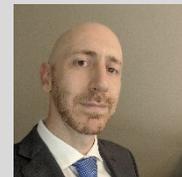
Ryan visited Defense Nuclear Weapons School in Albuquerque, a unique opportunity to take coursework and visit the school's museum

Outcomes

Systems Engineering and Integration focuses on people, product, and processes. I focused on improving the business processes for Defense Programs. I led the effort to resolve comments from our management and operations partners on an improved product realization process. We focused on improved planning, increased communication, and greater rigor in program execution.

Alongside this, I built an educational tool to help nuclear security enterprise staff navigate the Defense Programs Business Process System. This work will improve schedule performance and reduce cost overruns.

"I have a much deeper understanding of the complex systems needed to build and sustain products. More importantly, I have a new appreciation for what it takes to improve on those systems."

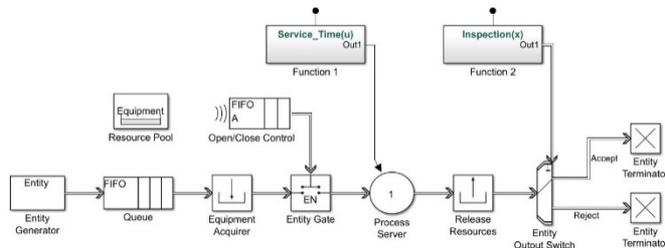


Ryan Coogan
NA-181 Policy and Requirements

Master of Science, Nuclear Engineering,
Texas A&M University

Overview

The Office of Analysis and Evaluation provides independent technical analysis, such as cost estimates, planning studies, and analyses of alternatives, to decision makers for large capital acquisition programs and weapon programs.



Model diagram for discrete event simulation

Outcomes

I contributed to multiple studies through data collection, analysis, and model development; performed an escalation rate evaluation; and authored technical publications for internal and external audiences.

I evaluated price indexes for estimating future escalation rates for programmatic equipment recapitalization.

I also developed a discrete event simulation model to identify equipment required for a capital acquisition planning study and published a manuscript describing how discrete event simulation can enhance cost estimates.



Thomas Cook
NA-MB-92 Office of
Analysis and Evaluation

Doctor of Philosophy, Chemistry, Stanford

“This fellowship provided the opportunity to work on challenging problems, be part of a team, and gain broad exposure to the nuclear security enterprise.”

Overview

I helped plan and execute capacity-building workshops with MENA partners and supported the office's work related to the International Atomic Energy Agency (IAEA) verification in Iran, IAEA safeguards on nuclear material at KAMS, a bilateral technical exchange with Israel, and a safeguards partnership with the UK.



Our work helps build the IAEA's and partner countries' capabilities to implement safeguards obligations

Outcomes

My work helped the office deliver two first-of-a-kind events: a virtual regional workshop with representatives from 13 MENA countries and a bilateral virtual safeguards and security workshop with Sudan's nuclear regulatory agency.

I deepened my understanding of the many component parts of the international safeguards regime as I helped prepare and deliver instructional materials to partner countries.

“NGFP was a key steppingstone on the path toward my dream career. The training and experience I have gained will inform my work for years to come.”



Ashley Curtis
NA-241 Office of
International Nuclear
Safeguards

Master of Arts, International Relations and Economics, Johns Hopkins School of Advanced International Studies

Overview

NNSA Defense Program's Office of Strategic Partnership Programs (NA-10.1) develops and maintains partnerships with both federal and non-federal entities to help sustain the nation's nuclear deterrent and broader national security mission. The Office of Strategic Partnership Programs is separated into three functional pillars: Partnerships, Institutional Programs, and Cross-Cutting Support. My work transected all three of the organizational activities.



2021 NNSA Technology Transfer Calendar

Outcomes

Within Partnerships, I acted as the point of contact between NNSA and DARPA to facilitate the acquisition of special material for a DARPA project. For Institutional Programs, I assisted in creating memoranda for the concurrence of projects with foreign entities and coordinated the creation of the 2021 NNSA Technology Transfer calendar. Involving Cross-Cutting Support, I

represented NNSA in the U.S. Department of Energy-wide Research Technology Investment Committee along with the NNSA working group member. I also aided the Defense Programs Science Council on queries of science, technology, and engineering, as well as the intersection of technology and policy within Defense Programs.



Camera Foster, Ph.D.
**NA-10.1 Strategic
Partnership Programs**

Doctor of Philosophy, Materials Science and Engineering, The University of Tennessee, Knoxville

"This fellowship gave me a unique opportunity to experience the impact of science and technology outside of my familiar academic setting. It also provided a network essential to my professional career development."

Overview

The Sandia Field Office provides oversight for Sandia National Laboratories (SNL). I supported programmatic and environmental oversight by reviewing Laboratory-Directed Research and Development proposals, water quality reports, and reports on the environmental restoration and long-term stewardship programs at Sandia.



Oversight of test areas located in the foothills limits environmental impact further enabling mission success

Outcomes

I had the opportunity to support the programmatic and environmental oversight of SNL. This allowed me to understand the relationships between the NNSA and the national laboratories. Additionally, I worked with SNL and the field office to ensure environmental reports and permits were submitted to federal, state, and local agencies enabling mission success.

I coordinated communication between the field office, SNL, the U.S. Department of Energy Office of Environmental Management, and the New Mexico Environment Department. This experience helped me understand the variety of information that must be considered when making decisions at sites impacted by past activities.

“This fellowship allowed me to see how environmental regulations and concerns impact daily work within the NNSA and national laboratories.”



Anastasia Fox
NA-SN Sandia Field Office

Masters of Environmental Engineering, Texas Tech University

Overview

I lead the coordination of official correspondence and taskings for the Office of Nonproliferation and Arms Control (NPAC), including drafting briefing materials for high-level principals and developing messaging and products for Congress and the interagency. I also develop and coordinate NPAC studies on disinformation and its impacts on nonproliferation, which will lay the groundwork for future thinking within the organization in this space.

Outcomes

I co-created NPAC's inaugural "Space Camp," which brought together space experts from across the U.S. government and nongovernmental organizations to discuss NPAC's role in the emerging space frontier, associated opportunities and threats, and how the new U.S. administration should respond. Space Camp was a crucial launching point for NPAC to begin adapting its programs to consider emerging capabilities in space and the implications for NPAC equities.



Snapshot from the NPAC Holiday Party that I planned and hosted

As a founding member of the NPAC Staff Development task force, I am paving the way for NPAC to establish a new approach to integrating new staff into the organization and fostering constructive engagement with peers and mentors. The program is designed to build a cohesive office identity and empower NPAC staff through leadership development, technical skills building, mentorship, and knowledge transfer.

“Despite being fully remote, the NGFP fellowship was an invaluable opportunity to deepen my understanding of nuclear policy issues, grow my network of peers and mentors, and get my career in national security off the ground.”



Gillian Gayner
NA-24 Office of
Nonproliferation and
Arms Control

Master of Arts, Security Studies, Georgetown University

Overview

NA-234 supports Convert, Remove, Dispose, and Nonproliferation Construction with financial execution, analysis, and monitoring the earned value performance of ongoing work.

I helped to maintain effective internal controls, financial management, records management, quality assurance, and risk management.

Outcomes

Much of NA-234's work and responsibilities adhere to cyclical schedules based on the federal budget timeline. Each program (Convert, Remove, and Dispose) and Construction requires monthly, quarterly, and yearly analysis and reviews to maintain compliance with Appropriation Law and DOE-NNSA policies and procedures.

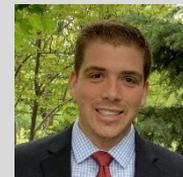


**MATERIAL MANAGEMENT
AND MINIMIZATION**
CONVERT, REMOVE, DISPOSE

NA-234 is part of M3 – Material Management and Minimization

I had the opportunity to work with coworkers on analyses and projects concerning the three programs, learning about the many aspects of federal budgeting and program management and evaluation.

“This fellowship helped me to grow professionally as well as personally. I worked with a fantastic team to learn more about what NA-234 does for M3 and about the NNSA as a whole through trainings, seminars, and conferences.”



Nicholas Girard
NA-234 Office of
Nonproliferation
Construction and
Program Analysis

Master of Arts, International Affairs,
Johns Hopkins University

Overview

I helped implement governance and oversight of Los Alamos National Laboratory's prime contractor by supporting contractor performance and assessment planning and supported Public Affairs communications and performance assurance.



Flanged tritium waste container

Outcomes

I gained experience in contracts management, public and intergovernmental affairs, and contractor performance through effective governance and oversight. I learned the importance of contract management administration over the \$3 billion management and operating contract of the Los Alamos National Laboratory.

I coordinated and completed the Fiscal Year 2020 Site Integrated Assessment Plan for the Los Alamos National Laboratory. I gained valuable practical experience in assisting with NA-LA's first-ever virtual Public Information Meeting on Flanged Tritium Waste Containers. I am currently serving as lead in the transition of a current issues management tool for NA-LA.

“This fellowship gave me practical knowledge in governmental oversight and Public Affairs. I served as a vital contributor to a \$3.8 billion annual operating contract while contributing to internal and external Public Affairs outreach.”



Kamel Greene
NA-LA Los Alamos
Field Office

Master of Public Administration, Federal, Project Management, Intergovernmental Relations, Brigham Young University

Overview

The Defense Threat Reduction agency funds a variety of programs that contribute to the mission of reducing threats posed by weapons of mass destruction through international cooperation, treaty verification, and development of technological capacity.



Defense Threat Reduction Agency

Outcomes

The chem/bio detection and diagnostics division is specifically concerned with ensuring we have the capacity to sense and identify threats posed by chemical, biological, radiological, and novel agents.

Over the past year I have contributed to assessments of various research proposals that will continue to improve our nation's ability to detect and counter such threats.

“Like any adventure I have had, it is the people who mattered most. I cannot thank the fellowship enough for the people I have met and possibilities they helped me see.”



Robert Hanson
Defense Threat Reduction Agency, Chem/Bio Detection and Diagnostics Division

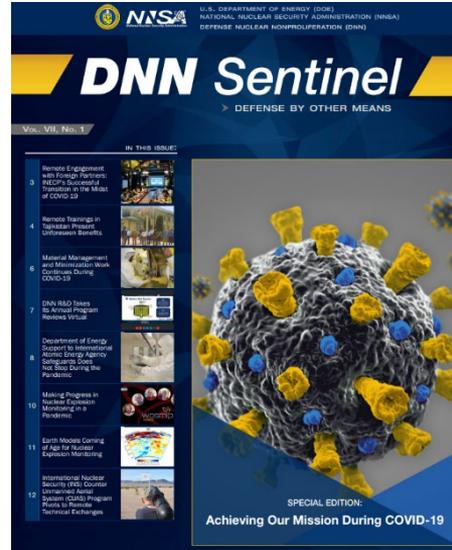
Doctor of Biochemistry, Brigham Young University

Overview

The Defense Nuclear Nonproliferation (DNN) Sentinel is a biannual publication highlighting recent accomplishments and program updates from DNN's four program offices. The October 2020 issue, "Achieving Our Mission During COVID-19," spotlighted innovative efforts by DNN programs working with national laboratories to forge ahead with DNN's U.S. national security mission in a telework posture and maintain critical relationships with international partners through an array of virtual engagements.

Outcomes

In the fall of 2020, I led the production of the October 2020 Sentinel, which required rigorous adherence to a lengthy development process. This long-term project necessitated coordination with leadership from DNN, NNSA's offices of General Counsel and Public Affairs, and the U.S. Department of Energy Office of Classification. Managing the production of this publication allowed me to gain broad exposure to DNN's role in preventing nuclear weapons proliferation and reducing the threat of nuclear or radiological terrorism. Delivering the DNN Sentinel and other written products has strengthened my professional skillset and communications skills as I continue to pursue a career in public service.



DNN Sentinel October 2020 Edition

“Throughout my fellowship in the DNN Front Office, I have acquired valuable experience in project management by providing customer support across the DNN program offices, NNSA, and with interagency partners.”



Ryan Henderson
NA-20 Office of Defense
Nuclear Nonproliferation

Master of International Affairs, International Security Policy, Columbia University – School of International and Public Affairs

Overview

The future of the nuclear security enterprise starts in NA-115, which aims to develop and mature technologies to support the current and future stockpile. I was placed under the Technology Demonstrators team, which works to demonstrate and mature technologies through capabilities like flight and ground testing with the goal of reducing risk and increasing opportunities for stockpile insertion.

Outcomes

I worked with the team to develop the Demonstrator Initiative Execution Plan. This initiative served to restructure Technology Demonstrators to better align the program objectives with the overarching office objectives and foster collaboration between federal program managers, offices, sites, and other stakeholders.



Sounding rocket launch for HOTSHOT flight test demonstrator

Throughout the fellowship I also assisted in key program activities including working with the sites to keep track of demonstrator schedules, building a risk register and mitigation strategy, and collecting program feedback from federal program managers.

“Through the fellowship I was able to learn and apply new project management skills with which I can better lead a project, team, and even myself.”



Eric Jackson
NA-115 Office of
Engineering and
Technology Maturation

Master of Science, Organic Chemistry,
Howard University

Overview

The Nevada Field Office (NFO) conducts oversight activities for the Nevada National Security Site (NNSS). The NNSS is a multi-user facility where a variety of programs are conducted to help ensure the security of the United States. As a NFO fellow, I had the opportunity to learn about the NNSS operations, shadowed leaders in the NFO, and aided with the programs.



Tunnel at the U1a Complex

Outcomes

While a fellow at the NFO, I worked with the Program Analyst and the Physical Scientists in the Assistant Manager for Mission and Infrastructure. I learned so much in a short period of time. My group was always there whenever I needed anything. I participated in many programming meetings with NFO, NA-10, NA-50, NA-52, NA-80, and others. In addition, I assisted the contact for the Nuclear On-site Transportation Safety Document.

Even though COVID-19 prevented many things from happening, I was involved in multiple programs in our group.

Overall, this opportunity has given me an in-depth understanding about NFO and made me realize that this is a career that I want.

“One of the best decisions that I made is that I took the NGFP fellowship with the Nevada Field Office. This fellowship allowed me to participate in programs in the Nevada National Security Site.”



Monia Kazemeini
NA-NV Nevada Field
Office

Doctor of Philosophy and Bachelor of Arts,
Mechanical Engineering, University of
Nevada, Las Vegas

Overview

The Office of Nuclear Material Integration (OMNI, NA-532) manages the Nuclear Material Management and Safeguards System (NMMSS). NMMSS tracks nuclear material transactions and inventories. The office also supports Material Control and Accountability projects and promotes integration of activities across NNSA.



Sandia's Mighty Mouse and Sandia Hand are two examples of advanced technological solutions with applications for nuclear material handling

Outcomes

As an NGFP fellow, I led ONMI's newly established Robotics and Autonomous Solutions Working Group. This group brings subject matter experts together to facilitate the implementation of advanced technological solutions in nuclear material handling. I helped the members develop the working group's purpose, scope, guiding principles, goals, and objectives.

I also received training in NMMSS tracking and collaborated on a project that helped track DOE Project Number histories. These activities improved my understanding of data management.

"This fellowship gave me the opportunity to lead a new working group made up of technical experts. I gained experience in project management and improved my analytical and communication skills."



Maura Lapoff
NA-532 Office of Nuclear Material Integration

Master of Arts in Interdisciplinary Studies (in progress), concentrating in Computational Social Science, George Mason University
Bachelor of Science, Neuroscience, University of Miami

Overview

The Ballistic Missile Weapons Division supports the maintenance, sustainment, and health of the U.S. Nuclear Weapons Stockpile. I specifically worked with the Submarine Launched Ballistic Missile and Intercontinental Ballistic Missile warheads.



Intercontinental Ballistic Missile joint flight test

Outcomes

The Ballistic Missile Weapons Division interfaces with several stakeholders including the Department of Defense, national laboratories, and managing and operations partners. I gained experience working with each of these stakeholders. I organized risk analysis management for the W76 program while also tracking action items at program reviews and provisioning meetings for the W78 and W87 programs.

Program reviews coordinate activities across the sites to support surveillance work such as building Joint Test Assemblies for flight tests, as seen in the picture above. I am also working on documentation that will help streamline the coordination between the NNSA, Air Force, and Navy, including the management of nuclear weapon activities at Pantex.

“This fellowship provided insight into how the federal government manages the nuclear deterrent. It also connected me with fantastic colleagues, mentors, and leaders throughout the nuclear security enterprise.”



Kristin Mackowski
NA-122.2 Ballistic Missile
Weapons Division

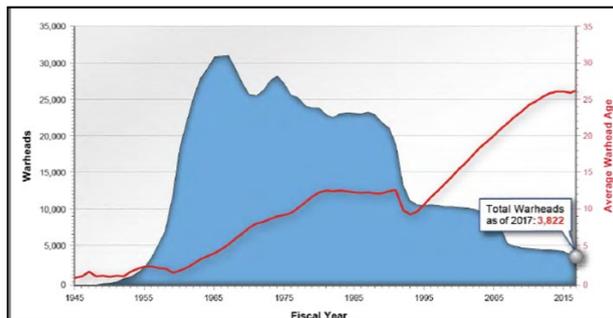
Master of Science, Material and Metallurgical Engineering, New Mexico Institute of Mining and Technology

Overview

The Defense Programs (DP) mission is to maintain a safe, secure, and reliable nuclear stockpile through the application of unparalleled science, technology, engineering, and manufacturing. To carry out this mission, NA-10 has responsibility for the policies, processes, and procedures for assuring effective integration of activities and implementation of programs across the nuclear weapons complex, and with other programs and staff offices in the NNSA, including the Office of the Administrator.

Outcomes

As an active player in the DP Front Office, I primarily managed the NA-19 Office of Production Modernization portfolio, including working with subject matter experts to review and develop materials supporting DP and NNSA leadership. I also coordinated and liaised activities, events, and information between NNSA offices, laboratories, the interagency, the White House, and Congress, and developed talking points and briefing materials



U.S. Nuclear Weapons Stockpile, 1945-2017

for senior leadership. I was also given the opportunity to work with NA-81 and NA-21, where I assisted with transitioning in-person nuclear incident response preparedness trainings to virtual platforms, and where I helped the Global Material Security Working Group assess COVID-19 impacts to mission areas, identify gaps, and develop recommendations for leadership.

“This fellowship provided me with indispensable experience and learnings specific to the projects, programs, and (wonderful) people of Defense Programs as well as exposure to the many facets of the larger nuclear security enterprise.”



Savannah MacLean
NA-10 Office of Defense Programs

Master of Arts, International Security, George Mason University

Bachelor of Arts, Political Science - International Affairs, Cultural Studies, and Communications, Clark University

Overview

The Office of Cooperative Threat Reduction seeks to prevent proliferator states from developing weapons of mass destruction and proliferating sales of advanced conventional weapons. I worked on projects throughout the Office of Cooperative Threat Reduction and had a large focus on advanced conventional weapons proliferation.



Angely hosts a virtual engagement with foreign partners

Outcomes

The Office of Cooperative Threat Reduction is divided into several teams working on different functional areas. I helped with capacity-building efforts targeting partner nations on issues relating to sanctions, illicit financing, and sales of advanced conventional weapons.

These efforts help to inform partners on sanctions risks and the risk of doing business with proliferator states of concern.

“This fellowship gave me a great insight into the many facets of international security. Working at the State Department gave me an understanding of how the department’s mission is implemented in offices.”

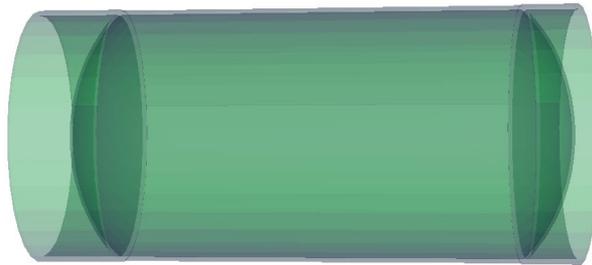


Angely Martinez
DOS-CTR Department of State, Cooperative Threat Reduction

Master of Arts, Political Science, Syracuse University

Overview

N-Program of the Global Security directorate at Lawrence Livermore National Laboratory supports research and development in nuclear threat reduction. I assisted the efforts of the Radiation Detection Analysis (RDA) group within N-Program on projects associated with NA-213, NA-22, NA-241, and Department of Homeland Security Customs and Border Protection.



Model of UF_6 cylinder used for synthetic spectra generation. The resulting spectra were used for research related to nuclear safeguards.

Outcomes

During my time with the RDA group, my efforts were split into three categories:

- Using radiation transport simulations to create high-fidelity gamma-ray spectra for projects related to nuclear safeguards.
- Developing feature auditing tools to gauge software performance.
- Creating feature extractors used to train machine learning models for nuclear threat reduction purposes.

In addition to my work with the RDA group, I shadowed Defense Nuclear Nonproliferation liaisons at the Livermore Field Office. This allowed me to interact with leaders in the NNSA and Lawrence Livermore National Laboratory's Global Security directorate.

Furthermore, I attended technical and policy-based trainings related to the nuclear security enterprise.

“The fellowship allowed me to strengthen my technical skills while gaining insight on the shared national security efforts of the NNSA and the national laboratories. Furthermore, I was able to work on career development with the guidance of senior leaders within the nuclear security enterprise.”

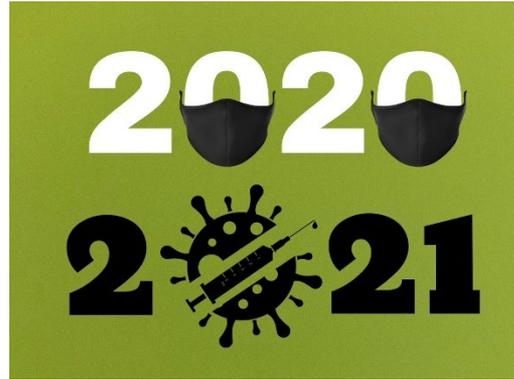


Noah McFerran
NA-LL Livermore
Field Office

Doctor of Philosophy, Nuclear Engineering,
University of Florida

Overview

I joined the front office of Secondary Stage Production Modernization (SSPM), NA-195, supporting the Director, Deputy Director, and the Federal Program Managers with task management during a stage where the office was understaffed. I created and maintained a comprehensive task tracking system and provided program documentation updates and data visualization.



Outcomes

I supported the office by tracking deliverables at all levels, coordinating with Federal Program Managers and other staff to ensure strategic and program documentation was updated according to regulations, and through the creation of data visuals to help inform decision makers. This work helped ensure SSPM fulfilled over 225 leadership taskings.

These efforts contributed to the SSPM mission of restoring and increasing manufacturing capabilities for the secondary stage of nuclear weapons in the nuclear security enterprise.

“The fellowship provided me with a broad understanding of the mission of the NNSA and how Secondary Stage Production Modernization contributes to that mission. The training I attended provided opportunities to develop both technically and as a leader.”



C. Annie Migli
NA-195 Secondary Stage
Production Modernization

Master of Business for Veterans, Business Administration, University of Southern California

Overview

The Nevada Field Office Assistant Manager of Operations and Safety was responsible for oversight of the Nevada National Security Site (NNSS) and North Las Vegas facilities. I was tasked with providing technical assistance so that the experiments and operations were performed safely.



Jack and other fellows in front of the Fat Man ballistics case at the National Atomic Testing Museum

Outcomes

The NNSS is responsible for high-hazard operations, testing, and training supporting Stockpile Stewardship, Defense Nuclear Nonproliferation, Emergency Response, and other activities as well as diagnostics and instrumentation, materials staging, and the primary criticality experimentation platforms. In my fellowship, I had to familiarize myself by being involved in each of these subject areas.

As a result of visiting numerous facilities at all corners of the NNSS, my mentor and I made a ranking list of each non-nuclear and high-explosives facility based on hazard identification according to U.S. Department of Energy orders and standards.

“This fellowship gave me opportunities I never thought I’d be able to see by allowing me to be at the Nevada Test Site, and once the fellowship ends I know I will not have the chance to do them again.”



Jack Morrison
NA-NV Nevada Field
Office

Master of Science, Nuclear Engineering and Radiological Sciences, University of Florida

Overview

Highlights from this year include:

- Supporting the Green Border Security Initiative Team in combatting radiological/nuclear smuggling.
- Facilitated office branding and briefing updates.
- Joined overnight workshops, exercises, and trainings to support international partners remotely during the COVID-19 Pandemic.
- Federalizing in June 2021.



An example of updated graphic design on Green Border Security Initiative briefing materials

Outcomes

Achieved several certificates during the year:

- American Graphics Institute, Certificate of Graphic Design
- Cornell University, Certificate of Negotiation Mastery
- Texas A&M University, Center for Nuclear Security Science and Policy Initiatives, Professional Certificate in Nuclear Security Fundamentals
- Texas A&M University, Center for Nuclear Security Science and Policy Initiatives, Professional Certificate in Nuclear Security Fundamentals
- Virginia Tech, School of Public and International Affairs, National Security Executive Leadership Program
- National Nuclear Security Administration, Aspiring Leaders Certificate Program

“Through the NGFP, I was able to federalize in my office after completion of the program and pursue six unique fully funded professional certificates. I could not be more thrilled to continue my work in the Office of Nuclear Smuggling Detection and Deterrence.”

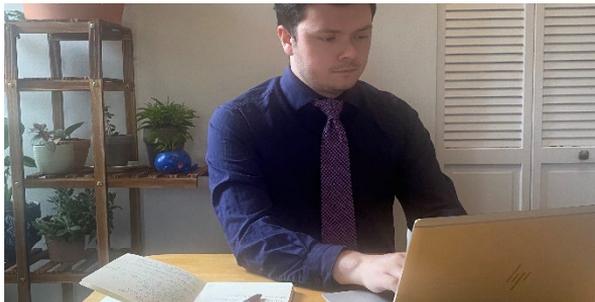


Erin Morrissey
NA-213 Office of Nuclear Smuggling Detection and Deterrence

Master of Arts, International Relations, The University of Rhode Island

Overview

The Office of Experimental Sciences is divided into three main teams: Weapons Physics and Design Capabilities, Facility Operations and Experimental Support, and Strategic Integration and Future Innovation. I work on projects that investigate future experimental capabilities and diagnostics.



Daniel working on a presentation for an X-Ray Detector Development Workshop

Outcomes

My projects have given me opportunities to communicate and coordinate across the national security enterprise to learn about x-ray detection and diagnostic development. This work has culminated in the creation of an X-Ray Detector Development Workshop to focus on scientific gaps concerning high repetition-rate detectors.

I am involved in projects concerning next-generation scientific facilities. I developed an assessment to gauge future scientific needs for facilities and how to fit in long-range planning with capital acquisitions.

Finally, I am the Academic Degree Scope Lead for Defense Program's Academic Five-Year Strategic Plan. I previously worked on data capturing and processing of our various programs for presentation at the Academic Programs Review.

“The fellowship provided me with opportunities to learn from leaders across the nuclear security enterprise. I also gained a new understanding of how federal programs are managed.”



Daniel Mulrow
NA-113 Office of
Experimental Sciences

Doctor of Philosophy Candidate, Chemistry
(December 2021), Washington University
in St. Louis

Overview

The Office of Material Disposition works to safely and securely disposition surplus weapons-grade plutonium and uranium. This mission includes permanently eliminating more than 160 metric tons of highly enriched uranium (HEU) by downblending it into low enriched uranium (LEU), which can be burned in commercial power reactors.



Tennessee Valley Authority nuclear reactors burn LEU produced by downblending HEU

Outcomes

I worked with our contractor partners at Y-12 on the HEU disposition program. Most of this work is accomplished through the Downblend Offering for Tritium (DBOT) program, which downblends HEU into LEU reactor fuel. DBOT provides permanent disposition of weapons-usable HEU while supporting national security missions through tritium production in these reactors.

Throughout the fellowship I was introduced to a wide range of program management functions including working with contractor partners to develop the program budget, tracking progress toward key milestones, and coordinating mid-year and end-of-year reviews.

“My fellowship allowed me to explore a broad range of nuclear security and nuclear nonproliferation topics and provided the opportunity to develop new skills and pathways for my career.”



Terri Poxon-Pearson
NA-233 Office of Material
Disposition

Doctor of Philosophy, Nuclear Physics,
Michigan State University

Overview

The Office of Radiological Security (ORS) enhances global security by preventing high-activity radioactive materials from use in acts of terrorism. I supported the ORS front office as an action officer and provided program support to both the Domestic and the International Reduce Alternative Technology (Alt Tech) Portfolios.

Outcomes

In working with Alt Tech, I coordinated with the portfolio managers to update and create fact sheets and update informational documents. Additionally, I facilitated a meeting between headquarters staff and laboratory partners to discuss future opportunities for engagement, challenges, and future areas the Reduce Portfolio could have an impact.



From left to right: Nick Butler, James Bradshaw, and Brian Rabaey attend a socially distanced meet-up

I assisted the ORS front office in responding to high-level requests from senior officials, various partners, the interagency, and Congress, and prepared weekly reports in a timely manner; prepared and disseminated meeting notes; and served as an editor for the ORS Informer Newsletter.

I also assisted in the effort to consolidate the various office calendars into a single Master Calendar that supports the needs of the entire office.

“Throughout the fellowship, I rapidly increased my knowledge of Radiological Security while gaining valuable experience and skills learned from consummate professionals throughout the NNSA.”



Brian Rabaey
NA 212 Office of
Radiological Security

Master International Affairs, The Bush School of Government and Public Service, Texas A&M University

Overview

The NNSA's Nevada Field Office (NFO) performs oversight and related activities at the Nevada National Security Site (NNSS). I am situated within the NFO Assistant Manager for Operations and Safety group. I participate in various oversight operations and am especially interested in chemical life cycle management and explosives safety and testing.

Outcomes

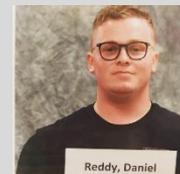
The NFO is composed of the Office of the Manager, the Assistant Manager for Mission and Infrastructure, Safeguards and Security, Operations and Safety, Business and Contracts, NFO Projects, and the Senior Technical Advisor for Field Operations. In addition, there is a close relationship with the contractor, Mission Support and Test Services, LLC (MSTS).



Posing with the “nukes” at a desert oasis (Terrible Herbst gas station near NNSS)

The greatest impact from my fellowship has been the ability to interface with the diverse organizations, projects, and technical staff within the NFO and the contractor MSTS. I learned about diverse work packages in areas like explosives, environmental and radiological monitoring, industrial hygiene, nuclear nonproliferation, and other sectors critical to national security.

“I am grateful for the immersion into nuclear security provided by NGFP. I have been able to network with professionals, attend conferences, participate in trainings, and engage in mission-critical work relevant to my career development in the national security enterprise.”



Daniel (Dan) Reddy
NA-NV Nevada Field
Office

Doctor of Philosophy, Chemistry, University of Cambridge (in progress)
Master of Science, Chemistry, Purdue University

Overview

To ensure our stockpile maintains effectiveness in the Stockpile to Target Sequence (STS), we must evaluate our warheads against threats from our adversaries. To accomplish this mission, NNSA funds development of surrogate testing techniques to ensure weapon survivability and to inform engineering design. Light Initiated High Explosives (LIHE) are one such surrogate used to provide hostile environment certification and engineering design and validation.



In-situ photograph of an LIHE Impulse Test at SNL on a surrogate warhead article. The high explosive was applied to the test article then initiated via high-energy light flashes.

“With the unequalled exposure to the entirety of the nuclear security enterprise afforded by the NGFP, this year has exposed me to new interests, influenced my career goals and shown how every person across NNSA is a valued link in the armor of our national security. I am deeply humbled and grateful for the opportunity to advance myself and my country.”

Outcomes

NNSA is developing a new LIHE capability at Lawrence Livermore National Laboratory (LLNL) and upgrading current capabilities at Sandia National Laboratories (SNL) to allow for expanded weapon certification requirements. Development of these standards was facilitated via qualification studies, a tri-lab working group, coordinating technical knowledge sharing and cooperation, as well as federal coordination with weapons programs to verify schedule alignment with warhead certification and engineering.

- ✓ Current project status maintains that the LIHE capability will be fully operational at both SNL and LLNL on time to inform engineering design and certification for modernizing weapon systems.
- ✓ New infrastructure at SNL is in final design with construction beginning in Q1 of FY22.
- ✓ Weapon certification requirements against new threats have been finalized in line with the STS.
- ✓ Specifications for using LIHE as a surrogate impulse have been determined and approved.



Brandon Rowell
NA-193 Office of High Explosives and Energetics

Master of Science, Mechanical Engineering (2021),
New Mexico Institute of Mining and Technology
Bachelor of Science, Materials Science and
Engineering, University of Tennessee

Overview

The Production Operations Division at the NNSA provides engineering and manufacturing labor, quality assurance, and programmatic equipment support for the nuclear security enterprise's weapons production mission. I worked on projects that supported communications with seven national security sites and collaboration with other NNSA Defense Programs Divisions.



Outcomes

The Production Operations Division works closely with seven national security sites: Savannah River, Y-12, Pantex, Kansas City, Sandia, Los Alamos, and Lawrence Livermore. I supported collaboration with these sites by hosting monthly meetings and assisting in data collection and preparation for the annual end-of-year review.

I also helped develop tools that enable Production Operations to efficiently track and complete action items of mid-year reviews, end-of-year reviews, and budget summits. These efforts provided me a grand picture of how each site plays a role and collaborates in support of the NNSA's mission of maintaining the nation's stockpile.

"This fellowship provided me the opportunity to work with and learn from the fantastic men and women of Defense Programs at NNSA Headquarters and at the national security sites. I was able to experience how they collaborate expertly across the nation to support the NNSA mission and how they lead their teams."



Henry Rysz
NA-121.2 Production
Operations

Bachelor of Science, Mechanical Engineering
University of Cincinnati

Overview

The Office of Material Management and Minimization (NA-23, M3) works to limit and eliminate fissile material at civilian sites around the globe to reduce the risk of proliferation and terrorists gaining access to nuclear material. I worked in the front office, which helps coordinate requests for information from Defense Nuclear Nonproliferation, NNSA, and U.S. Department of Energy leadership.



The Office of Nuclear Material Removal in action

Outcomes

Working in M3 afforded me the opportunity to learn about the nuclear security enterprise writ large but more importantly gave me the nuanced knowledge to understand the complex nonproliferation mission of the United States. Working for M3, I helped with the distribution of mission-critical tasks and information that has passed on to programmatic offices that lead to the

reduction of fissile material around the globe. The reduction of fissile material around the world is a key pillar of U.S. nonproliferation goals and helps to ensure that non-state actors are denied the ability to gain access to the nuclear material.

“Even playing a small supporting role in the reduction of fissile material around the world is an opportunity I will never forget.”



Matt Schmitt
NA-23 Office of Material Management and Minimization

Master of Arts, International Security,
University of Arizona

Overview

The Savannah River Acquisition and Project Management Office manages capital line-item projects at the Savannah River Site, including the Plutonium Pit Production Facility, Surplus Plutonium Disposition, Project, and the Tritium Finishing Facility. I primarily supported the engineering team with design evaluation, critical decision reviews, and contractor schedule verification.

Outcomes

One of my most valuable assignments has been to oversee some of the technology maturation and task execution by the R&D engineering team at Savannah River National Laboratory.

This liaison role has involved relationship building with the contractors, keeping up with scheduled items, and reporting to the NNSA engineering team.



Site of future Plutonium Pit Production Facility at SRS
“Final Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site in South Carolina”, NNSA, 2020

With my interest in research and development, I found the frequent visits to Savannah River National Laboratory quite valuable. This understanding of the organization and execution of Technology Maturation Plans and Task Technical Plans is something that I will undoubtedly apply in the next stage of my career.

“Working with the engineering oversight team offered me a unique insight into how U.S. Department of Energy keeps large-scale projects on schedule and on budget through detailed planning and diligent record keeping executed by world-class engineers.”



Matt Shalloo
NA-APM 1.4 Savannah River Acquisition and Project Management Office

Master of Science, Nuclear Engineering
University of South Carolina

Overview

This year, I have been supporting the Aging and Lifetimes Portfolio in the Office of Engineering and Technology Maturation. I loved how future facing my office was and that we are always looking for the ways to improve the nuclear security enterprise.



The Forrester Building where NA-115 is located

Outcomes

A highlight of my year was working on a business case analysis for imaging technologies. For this analysis, I was able to interact with subject matter experts from both Physics Labs.

In this process I learned about the future of the nuclear security enterprise, how to conduct a business analysis, and the respective roles and interactions of different members of the enterprise.

“I thoroughly enjoyed this role since it enabled me to meet experts from the laboratories and learn more about the nuclear security enterprise.”



Matthew Streseman
NA-115 The Office of Engineering and Technology Maturation

Master of Business Administration, Rawls College of Business at Texas Tech University
Master of Science, Physics, Texas Tech University

Rainbow Suh

NA-122.3 Air Deployed

Overview

I was involved in a lessons learned study to compile the best practices and major points from the B61 program. As only the second program to undertake a major modernization after the W76 program, the B61 will be setting the standard for future modernization programs.



Few advantages of a home office—the view is wonderful

Outcomes

Lessons learned included interviews with dozens of managers and leaders across the NNSA and management and operating sites to capture the weapons modernization program efforts thus far and advise on future planning practices.

In response to an action item proposed by the director of NA-122 at the time, the lessons learned study is crucial to the B61-12 life-extension and B61 stockpile sustainment program teams as the transitioning between the two parts of the program approaches.

“I’ve never appreciated the benefits of virtual capabilities more than I have this year. I’m so lucky that NGFP could leverage the resources we have to give us the best fellowship experience. Looking forward to shaking a real hand!”

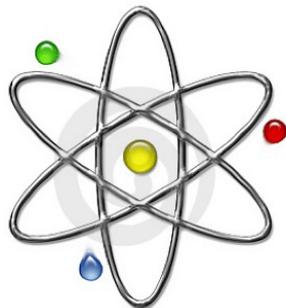


Rainbow Suh
NA-122.3 Air Deployed

Masters of Engineering, Nuclear Engineering
Texas A&M University

Overview

During my tenure with the Los Alamos Field Office, I worked with the Quality Assurance (QA) and Program Integration team. While there, I worked on a range of QA oversight activities including document reviews and training on conducting assessments.



NQA-1 Compliant

Compliance with NQA-1 is required for all production facilities at Los Alamos National Laboratory

Outcomes

Among the QA team activities at the Los Alamos Field Office is the review of quality control procedures, the acceptance of finished product, and the performance of independent assessments. I was assisted on numerous document reviews and received specialized training and certification in the performance of independent assessments. Independent assessment is a crucial part of the product verification process.

While most process control and product acceptance can be delegated to the primary contractor, it is still necessary to perform independent assessments to verify contract compliance. Lead auditor certification supports these efforts ensuring auditors have the necessary skills to perform these assessments

“This fellowship provided me with an incredible amount of insight into the NNSA, the national laboratory system, and the nuclear security enterprise as a whole. I will apply the skills I learned here for the rest of my career.”

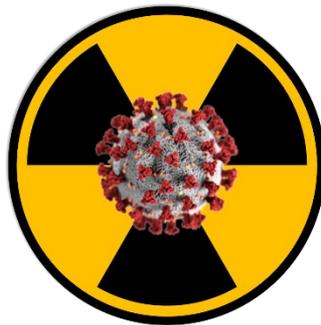


Jonathan Tacke
NA-LA Los Alamos Field
Office

Master of Science, Electrical Engineering
University of Idaho, Idaho Falls

Overview

NA-84 provides scientific and technical capacity to support the U.S. government response to any type of radiological/nuclear (R/N) incident or accident. I supported the mission through managing and contributing to interagency efforts between the U.S. Departments of Energy, Homeland Security, and Defense and the Environmental Protection Agency to improve technical and operational response capabilities following R/N incidents.



COVID-19 Considerations for R/N Incident Planning, Response, and R&D project logo

Outcomes

I supported multiple efforts through the Consequence Management Office within NA-84, including managing the Nuclear Incident Response Team project portfolio, contributing to planning guidance documents for city planners following a nuclear detonation, and codifying procedures for data sharing between the Consequence Management Office and the DOE Forensics Operations Team within NA-83.

The highlight of my fellowship was managing an interagency project that researched lessons learned from COVID-19 and the implications on future policy, preparations, research, and response for R/N incidents. Through this project, I worked with NA-81 to submit a paper to the International Atomic Energy Agency 2021 International Conference on the Development of Preparedness for National and International Emergency Response.

“NGFP gave me the opportunity to learn from experts who support NA-84, which enlightened me to how the nuclear science and policy knowledge I had acquired can be applied to maximize life-saving opportunities in the event of a radiological/nuclear incident.”

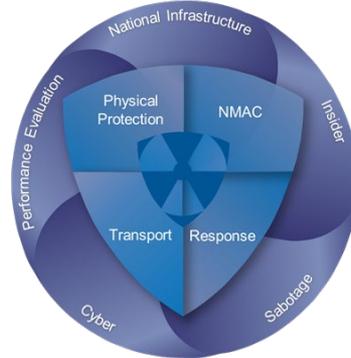


Ryan Tan
NA-84 Office of Nuclear Incident Response

Doctor of Philosophy, Nuclear Engineering, University of Tennessee-Knoxville (June 2022)
Master of Arts, Political Science, University of Tennessee-Knoxville (December 2021)

Overview

The NA-211 Office of International Nuclear Security (INS) leads U.S. international efforts to prevent the theft and sabotage of nuclear materials and facilities worldwide.



INS collaborates with partner countries across nine functional elements of nuclear security

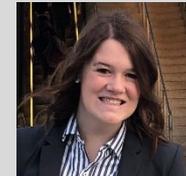
Outcomes

I served as an action officer for the program, coordinating tasks originating from across NNSA and throughout the interagency.

I also supported bilateral and functional teams in preparing and carrying out mission-critical trainings and exercises that uphold global nuclear security norms.

One of my favorite opportunities was supporting interagency coordination for the U.S. delegation for the 2020 U.S.-South Korea Nuclear Security Working Group. In true 2020 fashion, this was the first high-level bilateral exchange on nuclear security held virtually between the U.S. and Korea, so testing the technology and handling logistics with our Korean counterparts was one of my key roles.

“My experience as an NGFP fellow expanded my understanding of nuclear security practices and national security policy in ways that nothing else could.”



Emily Tatton
NA-211 Office of
International Nuclear
Security

Master of Science, Political Science and
Anticipatory Intelligence, Utah State University

Overview

Nuclear Smuggling Detection and Deterrence (NSDD) places fellows in a position to provide them hands-on experience in project management. This office also teaches fellows the basics of how the U.S. works with foreign partners to prevent nuclear material being smuggled across borders.



Preventing nuclear smuggling across borders

I developed threat assessments and project proposals for Green Border Security Initiative and NSDD's Internal Security and Law Enforcement offerings in multiple countries.

Outcomes

I served as acting project manager for the Philippines. I coordinated efforts with the sustainability manager and in-country team to refurbish nuclear detection equipment at the Port of Manila. I also conducted extensive research for NSDD's sustainability manager. My research helped prioritize NSDD sustainability efforts.

"This fellowship increased my knowledge of threats concerning nuclear smuggling and how the United States works with partners around the globe to combat it."



Alexander Thien
NA- 213 Nuclear Smuggling Detection and Deterrence

Master of Science, International Affairs
Florida State University

Overview

The Tritium Modernization side of NA-192 has the overall goal of creating a reliable, flexible, and resilient supply chain to produce tritium that will ultimately be used by the Department of Defense. I was given many projects that spanned a variety of subject matter areas while I was there.



Tennessee Valley Authority, where TPBARs are irradiated

Outcomes

The production of tritium is accomplished by taking a variety of materials and fabricating Tritium Producing Burnable Absorber Rods (TPBARs). Tritium is extracted from irradiated TPBARs.

I supported NA-192's overall mission by assessing how suspect tritium production rods are handled throughout the supply chain

and by helping coordinate follow-on corrections to that assessment's problem areas.

Additionally, I had the opportunity to assess how different 'non-strategic' but necessary materials are tracked from cradle to grave and subsequently how to mitigate any risks to said materials.

"This fellowship changed the course of my life. It helped me get a foot in the door of truly impactful service, gain perspective on the many facets available throughout the nuclear security enterprise and meet some incredible people who get to make meaningful decisions every day."



Jacob Tuia
NA-192 Office of
Domestic Uranium
Enrichment and Tritium

Master of Science, Chemical Engineering,
Brigham Young University Provo

Overview

Lawrence Livermore National Laboratory's Office of Global Security participates in seismic experiments to help support their nonproliferation and global security goals. These experiments are often performed using conventional explosives as seismic sources and feature vast instrumentation arrays for data collection and consequent modelling.

Outcomes

In support of LLNL's work at the Nevada National Security Site (NNSS), I participated in several seismic experiments. I planted geophones, maintained large nodal arrays of sensors, processed the data for distribution to lab partners, and conducted archival procedures. I also led the establishment of a new base of operations for the Large Array for Seismic Sensing and Observation.



Reagan locating and recovering infrasound sensors carried by high-altitude balloons from NNSS to various landing sites across Southern Utah

One of the many missions I participated in was the recovery of high-altitude balloons that carried infrasound recorders during chemical explosion experiments at the NNSS that eventually landed in Southern Utah.

The fellowship not only developed my abilities as a scientist but also expanded the professional network I will need to succeed as part of the nuclear security enterprise.

“By supporting the laboratory’s interests at the Nevada National Security Site, I worked at our nation’s premier nuclear security testbed. I took part in the planning and execution of experiments that will prepare me to continue supporting large-scale nuclear nonproliferation projects.”



Reagan Turley
NA-LL Livermore
Field Office

Doctor of Philosophy, Chemistry, University of Texas at El Paso

Overview

During my fellowship I participated in several projects that helped enhance efficiency across the nuclear security enterprise.

I wrote a project execution plan for managing the different types of containers for nuclear materials (currently in use) and wrote a white paper on the benefits of implementing an enterprise-wide materials database feature.

Outcomes

The project execution plan I wrote for container integration and management has helped the Stockpile Services Division (NA-122.1) and the Office of Infrastructure Operations and Modernization (NA-52) establish a consistent container demand signal and facilitated closer alignment on funding requirements. NNSA is now considering a database management platform for use across all sites and is a step closer to being a reality.



Kevin visiting the Trinity site, where the first nuclear test ever took place. In the photo, a replica of the “fat man” device.

The fellowship helped me develop both professionally and personally through a myriad of training opportunities, both in my field studies and as a project manager. My work supporting container integration was praised by the NA-122.1 division director and my container program execution plan is actively in use by the NNSA.

“Personal and professional development often go hand in hand, and both flourish in an environment where growth is encouraged, such as the NGFP.”



Kevin Daniel Vallejo
NA-122.1 Stockpile
Services Division

Doctor of Philosophy Candidate, Materials
Science and Engineering, Boise State
University

Overview

The Office of Acquisition Management, APM-10, supports the NNSA's missions through timely and professional acquisitions actions. I primarily worked on Interagency Agreement contracts, modification actions, and professional credentialing.



NNSA's John A. Gordon Building in Albuquerque, NM, which will replace the current Albuquerque Complex

Outcomes

The Office of Acquisition Management team is separated into functional groups (-12, -13, -14). The Contracting Operations Division (APM-12) works with new contracts and other functions. The Contracting Operations Division is further divided by acquisition type: Construction (-123), Specialty (-124), Field Services (-125), HQ Services (-126).

I worked in Specialty Acquisitions, which comprises Interagency Agreements, Utilities, Supplies, and Assistance and Agreements. The efforts of the Office of Acquisition Management help to improve the security and readiness of sensitive missions through, timely contracting, and acquisitions support across the NNSA.

"This fellowship provided me with a solid foundation to begin my career with the NNSA as a federal employee—all thanks to the devotion and caring of current leadership looking to develop future leaders."



David Vazquez Cheatham
NA-APM-10 Office of
Acquisition and Project
Management

Master of Public Administration, Public Management, University of New Mexico, Albuquerque

Overview

The Office of Congressional Affairs is responsible for effectively communicating, promoting, and defending the mission, goals and budget of the NNSA through building relationships with Congress. While with Congressional Affairs, I worked on projects that provided insight into the National Defense Authorization Act (NDAA) and its impact to multiple NNSA programs.



The Office of Congressional Affairs plays an integral role in the assessment of the NDAA budget and its impacts on the missions and goals of the NNSA

Outcomes

The NDAA budget process greatly influences the projects conducted at the NNSA. I contributed toward monitoring legislative activities, providing reading memos from NDAA hearings from both the House and Senate, and tracked any amendments that would shift current nuclear policy.

These efforts help to improve the understanding and impacts that the NDAA has on the support of diverse projects across the nuclear enterprise.

“The fellowship gave me the opportunity and privilege to be mentored by a diverse set of great leaders who have shaped the missions and policies of the nuclear security enterprise. It provided great insight into the importance of strong leaders who can navigate through consistent change.”



Kelsey C. Wallace
NA-EA-10 Office of Congressional Affairs

Master of Arts, International Security and Biodefense, George Mason University

Overview

The Office of Nuclear Export Controls' International Nonproliferation Export Control Program (INECP) strengthens global efforts to prevent the illicit or inadvertent transfer of nuclear and dual-use material, equipment, and technology required to manufacture weapons of mass destruction and their means of delivery.



Skyline of Baku, Azerbaijan

Outcomes

During my time as a fellow with INECP, I assisted other project managers on their respective portfolios as well as manage my own. With one of my portfolio countries, Azerbaijan, I helped coordinate a virtual event for Customs Brokers with the Department of State that focused on communicating the importance of strategic trade control systems in countering weapons of mass destruction proliferation threats.

Through this event, we communicated the benefits and practical steps Azerbaijani Customs Brokers can take to strengthen their cooperation with government agencies as well as sensitize them to proliferation concerns and the unique position of Brokers in the strategic trade supply chain. This event allowed me the opportunity to work with the interagency and international partners and was a unique learning experience that will help prepare me for my career.

“My fellowship offered me unique opportunities to grow as a professional, gain hands-on experience in the government, and collaborate with and learn from subject matter experts in the field.”



Samra Wolde-Tensae
NA-242 Office of Nuclear
Export Controls

Master of Arts, Security Studies, Georgetown University

Bachelor of Arts, International Affairs, The University of Georgia

Overview

The Data Science portfolio in Defense Nuclear Nonproliferation Research and Development is working to develop new techniques for proliferation detection, for which current commercial-off-the-shelf artificial intelligence (AI) solutions are inadequate. To establish a strong strategy in support of next-generation AI, the portfolio created a set of workshops to engage the research and mission community.



Next-Gen AI seeks to optimize model performance on training data and generate robust conclusions supported by meaningful explanations

Outcomes

These workshops focus on aspects of AI that require a special emphasis in proliferation detection, particularly on explainability (September 2020) and domain-awareness (February 2021). The workshops fostered new ideas and research collaborations, tied the research closer to the mission, and helped define next-generation AI.

I helped develop and lead a process to run engaging virtual workshops including recruiting and selecting speakers, developing workshop themes and structure, and creating informational content. For the explainability workshop, I researched and gave a presentation on explainable AI and helped create the workshop reports as one of many meaningful outcomes.

“Working in my office has both broadened my technical knowledge and improved my understanding of various nonproliferation missions. For example, I gained a better grasp of how artificial intelligence can contribute to nonproliferation and important considerations for its successful application.”



Marc Wonders
NA-22 Defense Nuclear Nonproliferation Research and Development

Doctor of Philosophy, Nuclear Engineering
Pennsylvania State University

Overview

The Depleted Uranium (DU) program is a key component. While with the DU program, I worked on projects that oversaw the development of new manufacturing technologies and supported U.S.-U.K. cooperation efforts under the Mutual Defense Agreement.

Outcomes

The program is separated into two portfolios: 1) feedstock activities and 2) manufacturing technologies. I helped with assessing the DU manufacturing capabilities of the entire nuclear enterprise, which played a key role in shaping the program's current production strategy.



Fiscal Year 2021 Stockpile Stewardship and Management Plan – Biennial Plan Summary

The DU program plays an integral role in the modernization process and helps shape the annual SSMP

These efforts help to improve the ability of the NNSA to successfully manage the current modernization efforts of the U.S. nuclear arsenal. The successful management of the modernization program is key to ensuring the U.S. maintains a safe and credible deterrent.

“The fellowship gave me the opportunity to develop the technical knowledge necessary for a successful career in nuclear policy. The ability to collaborate with technical experts, military leaders, and international partners was truly a unique and invaluable experience.”



Austin W. Wright
NA-195 Office of
Secondary Stage
Production Modernization

Master's in International Security, WMD-Counterproliferation and NATO-Russian affairs, Paris Institute of Political Studies

Master of Science, International Political Economy, Export Controls and Strategic Trade Issues, London School of Economics