



Class of 2021-2022 Fellow Posters



Overview

The Office of Nuclear Smuggling Detection and Deterrence (NSDD) counters nuclear smuggling through a layered defense strategy to detect, disrupt, and investigate material movement across the globe to prevent use in acts of terrorism. My work focused on law enforcement, nuclear forensics, prosecution, managing a country portfolio, and supporting multilateral planning for International Atomic Energy Agency (IAEA) side events.

Outcomes

Working in over 70 countries, NSDD develops and sustains dynamic solutions to prevent the movement of radiological/nuclear materials outside of regulatory control. The program toolbox includes two growing projects: Internal Security and Law Enforcement (ISLE) and Investigation Support (IS) including nuclear forensics. I contributed to outreach and advancement for IS development in multiple countries and directly supported IS prosecution planning.



Sandia National Laboratories in Albuquerque, NM. Altum visited for an international partner meeting and field testing.

I drove the development of a new operational workshop under ISLE and led the coordination and planning for an interagency agreement to secure a specialized project in data analysis. I had the opportunity to support and lead multiple projects with our law enforcement and multilateral partners including FBI, Interpol, and IAEA. As a country manager, I managed deployments, laboratory teams, and outreach to new partners that will last long after the fellowship.

“The NGFP fellowship provided me the opportunity to connect with leaders across the nuclear enterprise to learn about its diverse and engaging missions. I now see the holistic security ecosystem, from innovation and design management to deterrence and security planning apparatuses, needed for our growing nuclear-driven future.”



Jesse Altum
NA-213 Nuclear Smuggling
Detection and Deterrence

Master of Arts, Security Policy Studies, Elliott School of International Affairs, George Washington University

Overview

The NA-10.1 office develops and maintains partnerships with federal and non-federal entities. The office assures that NNSA sites support the growing program consisting of strategic partnership projects (SPP), technology transfer (TT), and other strategic interactions. During my fellowship, I supported TT, SPP, and other activities through multiple collaborations and assignments.

Outcomes

One significant assignment was developing the Technology Transfer at NNSA 2022 Calendar. This collaborative effort required interaction with NA-10.1's TT team, other NNSA personnel (including laboratory points of contact), and an external graphics contractor. I was involved in key phases of the project such as choosing content, intra-agency coordination, and making edits.



Aparicio's finished hard copy of the Technology Transfer Calendar.

The calendar highlights TT activities throughout the NNSA. It is an essential communication tool that promotes both NA-10.1's mission and the NNSA's commitment to TT activities. The calendar is available digitally on the NNSA's TT website, creating impact within the NNSA and raising awareness in the general public.

“The fellowship has been a remarkable introduction to the national security space. It has facilitated interactions with top management, scientists, and engineers. This experience has extended my vision and future opportunities.”



Julio Aparicio
NA-10.1 Office of Strategic
Partnerships Programs

Doctor of Philosophy Candidate/Graduate Student, Mechanical Engineering, University of Massachusetts, Amherst

Overview

The mission of the NA-84 office is to maintain a credible nuclear incident response capability in support of DOE's nuclear security goal. Within the consequence management mission space, NA-84 conducts technical assessments to support key leaders and decision makers.



*NEST's motto: "Scientifically Informed,
Operationally Focused."*

Outcomes

I supported the Federal Emergency Management Agency (FEMA) Nuclear Incident Response Team program, an interagency effort between DOE/NNSA laboratories, the Environmental Protection Agency, and FEMA to collaborate on projects to enhance response capabilities to nuclear and radiological incidents.

I prepared a pre-scripted mission assignment for the DOE Nuclear Emergency Support Team (NEST). This document will be used by FEMA to activate NEST to support disaster operations. NEST encompasses all DOE/NNSA radiological and nuclear incident response functions.

"This fellowship broadened my knowledge of nuclear and radiological topics and gave me the opportunity to see how this knowledge is applied to real-world incident response scenarios."



Anna Armstrong
NA-84 Office of Nuclear
Incident Response

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

Overview

The Lawrence Livermore National Laboratory (LLNL) Global Material Security team supports work for the NA-21 Office of Global Material Security (GMS). I worked on projects in GMS with a focus on international nuclear security and insider threat mitigation.



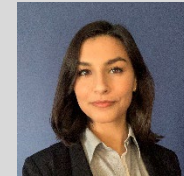
Bal presented draft v0.3 of the International Insider Threat Mitigation Lexicon at the Virtual Steering Committee Meeting for the Advanced INFCIRC/908 International Working Group.

Outcomes

The international nuclear security team within GMS is separated into functional groups, one of which is the insider threat mitigation functional team. As part of this team, I developed insider threat mitigation products that the laboratory uses to engage with partner countries. I drafted the international insider threat mitigation lexicon that was part of LLNL's commitment to Information Circular (INFCIRC) 908, and I

developed a fundamentals training course on insider threat mitigation. These products will help LLNL facilitate improved communications about the importance of insider threat mitigation policies at nuclear and radiological sites.

“This fellowship provided me unique insight into the dynamics between laboratories, international communities, and headquarters.”



Amrit Bal
NA-LL Defense Nuclear Nonproliferation Livermore Field Office

Master of Science, Geophysics, University of California – San Diego
Bachelor of Science, Physics, University of Missouri – Columbia

Katelyn Bennett

NA-19 Production Modernization

NA-192 Tritium and Domestic Uranium Enrichment



Overview

NNSA Defense Program's Office of Production Modernization (NA-19) is responsible for restoring and increasing manufacturing capabilities, required within the national security enterprise, to maintain the safety and surety of the U.S. deterrent. NA-192 is responsible for producing tritium and supplying unobligated low enriched uranium to support national security needs.

Outcomes

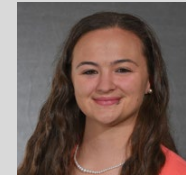
During the fellowship, I provided dual support to the NA-19 Front Office and NA-192. In the front office, I directly supported the Assistant Deputy Administrator, Deputy Assistant Deputy Administrator, and leadership across five program offices. Duties ranged from tracking congressional and legislative requirements to coordinating programmatic materials for leadership engagements with key stakeholders.



TVA Watts Bar reactors, where domestic unobligated uranium is used to irradiate tritium-producing burnable absorber rods for tritium production.

Within NA-192, I supported development of programmatic requirements, milestones, and deliverables to develop domestic uranium enrichment centrifuge technology, led efforts to maintain key program documents, such as the FY 2023 Stockpile Stewardship and Management Plan, and contributed to the execution of the National Environmental Policy Act review process to support the congressional mandate to establish a uranium reserve.

“The fellowship provided me the opportunity to expand my knowledge of the national security enterprise while working with a fantastic group of people in Defense Programs. This experience will be invaluable throughout my career.”



Katelyn Bennett
NA-19 Production Modernization
NA-192 Tritium and Domestic Uranium Enrichment

Master of Science, Nuclear Engineering, University of Tennessee

Graduate Certificate, Nuclear Security Science and Analysis, University of Tennessee

Overview

The Office of Nonproliferation Policy develops and implements policies that address high-level requirements within DOE/NNSA. I supported the Policy Analysis and Outreach (PA&O) program, which fosters innovative ideas and leads NA-24's preparation for cross-cutting and emerging changes to the threat environment.

Outcomes

I supported all elements of program management and execution for the PA&O program. I led outreach to and coordination with PA&O partners across NNSA, DOE, the interagency, and the national laboratories. I interfaced closely with these partners to develop the strategic direction for the program and to scope, track, and implement policy analyses on emerging nonproliferation challenges.



The PA&O program supports strategic development and oversight at national laboratories like Argonne National Laboratory (pictured).

I also completed an independent analysis of high-level guidance documents and their mentions of NA-24 equities. This contributed to the overall knowledge management efforts of NA-24 and provided strategic input and messaging to its programs.

“I am grateful for the fellowship’s attention to growing nuclear security professionals. It gave me the opportunity to explore a future within the nuclear security enterprise while working substantively on meaningful nonproliferation projects.”



Samantha Bowers
NA-244 Office of
Nonproliferation Policy

Master of Arts, Security Studies, Georgetown University

Overview

The Office of Radiological Security runs the RadSecure 100 initiative, which promotes increased radiological security in 100 major metropolitan areas across the country. I supported RadSecure 100 through quantitative decision analysis, data analysis, and general outreach and summary support.

Outcomes

Key outcomes or impacts of my work include providing information and assessments to my supervisors that made their way to congressional inquiries, press media, and internal tracking. My work has informed strategic decision-making in different corners of the Domestic program, which itself impacted how the office works with partners nationwide.



Byrd visited the Philadelphia Police Department and saw the results of partnership with the Office of Radiological Security.

What benefitted me most in my fellowship was working on a wide range of projects and learning to understand the programmatic data on a deep level. This allowed me to contribute meaningfully and see how my work impacted different mission pillars in different ways over the months that I was involved.

“Working with the Office of Radiological Security gave me an opportunity to see how my work could make an immediate and direct impact on national security and the safety of facilities and people nationwide.”



Chris Byrd
NA-212 Office of
Radiological Security

Master of Public Administration, Federal Program Management, Brigham Young University

Overview

Los Alamos National Laboratory's Federal Project Directors support work for the NA-APM-1.5 Project Management Office (PMO). I worked on projects throughout the PMO and had a large focus on electrical power and cybersecurity.



Los Alamos National Laboratory.

Outcomes

The Federal Project Directors within the PMO focus on design and construction for large-scale projects that have technical, social, and environmental concerns. I helped with reports on wireless security, controlled information, and earned value management systems for control of federal projects.

These efforts help to improve the readiness for industrial control and security through a better understanding of how guidelines and standards are implemented at the national level.

“This fellowship gave me amazing insight into leadership and nuclear security. Working at a national laboratory gave me an understanding of how safeguards and security are handled on major projects.”



Aaron Cavanaugh
NA-APM-1.5 Los Alamos
Project Management
Office

Master of Science, Engineering and
Technology Management, Portland State
University

Overview

The Nevada Field Office (NFO) Mission and Infrastructure team oversees the execution of projects. Mission Support and Test Services (MSTS) is the contractor that operates at the Nevada National Security Site (NNSS). I was fortunate to work in oversight with the NFO and work in research and development with MSTS.



Satellite photo of craters at the NNSS.

Outcomes

While working with NFO, I participated in two main efforts: Feds Feed Families and an oversight assessment. Our NFO Feds Feed Families campaign donated over 1,500 lbs of food to the Las Vegas Rescue Mission (a local 501(c)(3) charity). Participating in the training and qualification (T&Q) oversight assessment, I helped verify that MSTS T&Q programs conformed to NNSA standards and directives.

While working with MSTS, I supported site-directed research and development (SDRD) missions and developed a seismic data processing toolbox. Supporting SDRD projects gave me insight into how much work and planning goes into large-scale projects at the NNSS. Developing a seismic processing toolbox was an exciting experience that allowed me to explore how I could use my technical skills to support the NNSA mission.

“NNSA is a machine with millions of moving parts, the most important of which are the people. It is incredible to be a part of so many dedicated people working toward a common goal.”



Jordan Caylor
NA-NV Nevada Field Office

Master of Science, Geophysics, The University of Texas at El Paso
Bachelor of Science, Geology, Southern Illinois University

Overview

My team project for my fellowship involved conducting a management self-assessment of the Los Alamos Field Office (NA-LA) Quality Assurance Program (QAP) in preparation for the Office of the Chief Defense Nuclear Safety Biennial Assessment. My work resulted in restructuring and updating the QAP in accordance with the DOE Order 414.1D, *Quality Assurance*, and current NA-LA organization processes supporting oversight and operations.

Outcomes

I had the privilege to work closely with the QAP Integration Team at NA-LA. This team conducts routine oversight, assessments, and document reviews relating to nuclear design and production. I assisted in examining and observing various product realization reviews and engineering evaluations with multiple production activities as well as in ensuring product quality met NNSA Policy 401.1, *Weapons Quality Assurance*.



Chourasia exploring the history of Los Alamos National Laboratory at the Bradbury Science Museum.

From my efforts and accomplishments, I contributed to the NNSA and DOE missions at NA-LA and supported our contractor's many nuclear security activities around the world. I worked with highly professional and inspirational experts within the field. Overall, the fellowship was highly rewarding and fulfilling.

"This fellowship gave me a front-row seat to the world of nuclear security and mission sustainment. Working with Los Alamos National Laboratory and the Field Office gave me a deeper understanding of how the NNSA mission is enabled and executed."



Anamika Chourasia
NA-LA Los Alamos Field Office

Master of Engineering, Biomedical Engineering, The University of Texas at Dallas
Bachelor of Engineering, Biomedical Engineering, The University of Texas at Austin

Overview

The NA-195 Office of Depleted Uranium (DU) Modernization includes feedstock procurement, restarting and maintaining alloying and manufacturing capabilities, and investing in key new technologies. I primarily worked with technology maturation and the strategies toward inserting new technologies.



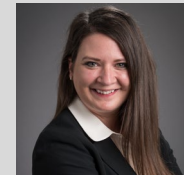
“Working with the NA-195 office gave me a crash course in the challenges facing the modernization of our nuclear weapons capabilities.”

Outcomes

I started a business case study into the potential insertion of a developing technology that will help form the overall NA-195 DU manufacturing strategy.

I improved our external communication by drafting and editing the DU portion of the FY 2023 Stockpile Stewardship and Management Program.

I assumed responsibility for communication with the labs regarding key milestones and schedules for new technologies and the restart of alloying capabilities.



Becky Christofferson
NA-195 DU Secondary Stage Production – Office of Depleted Uranium Modernization

Master of Arts, International Affairs, University of California, San Diego

Bachelor of Science, Astronautical Engineering, University of Southern California

Rachel Combs

NA-195 Lithium Modernization

Overview

The NA-19 office oversees the production modernization operations for materials for the nuclear weapons stockpile. NA-195 focuses on secondary stage production modernization for three critical materials, one of which is lithium materials.



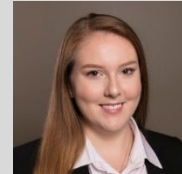
Building 9204-2 (“Beta 2”) at the Y-12 National Security Complex, currently used for lithium processing.

Outcomes

As a member of the NA-195 team, I supported the broader front office in tracking tasks and activities. Within the program office, I supported projects such as the FY 2023 Stockpile Stewardship and Management Plan and an in-depth policy review, briefing, and market analysis on commercial deuterium capabilities. I also worked as a point of contact for the manufacturing and materials strategic collaboration with our UK partners.

These efforts on deuterium helped leadership to better understand our constraints and opportunities in this vital area and will inform how NNSA leadership moves forward in this process.

“This fellowship provided me with firsthand knowledge, project management skills, and experience in the nuclear security enterprise that I will carry with me throughout my career in national security.”



Rachel Combs
NA-195 Lithium
Modernization

Master of Arts, International Security, University of Denver

Bachelor of Arts, Political Science, German Language and Literature, University of Alabama

Overview

The Office of Nuclear Verification (ONV) provides a critical nexus of nuclear verification policy expertise and technical capability within the NNSA to support the development and implementation of arms control treaties and agreements. The office includes the Warhead Verification Program (WVP) and the Nuclear Compliance Verification Program.

Outcomes

WVP supports implementation of existing treaties, develops new capabilities, and collaborates with international partners to demonstrate, exercise, and advance capabilities. I focused on multilateral cooperation, including the International Partnership for Nuclear Disarmament Verification which facilitates collaboration between nuclear and non-nuclear weapons states to develop technical



Connolly (center) and colleagues tour Canadian Nuclear Laboratories (CNL) as part of a joint exercise with ONV's Plutonium Verification Team. (Credit: CNL)

solutions to nuclear disarmament verification challenges. Activities include virtual and in-person dialogue and exercises.

These efforts help ensure that the United States can develop, maintain, and deploy monitoring and verification technologies for nuclear arms control treaties and agreements.

“The fellowship allowed me to explore the relationship between technical and policy aspects of nuclear weapons monitoring and verification and how this relates to both domestic and international cooperation on the subject.”



Erin Connolly
Office of Nuclear
Verification NA-243

Master of International Peace Studies and
Global Affairs, The University of Notre Dame

Overview

The Y-12 Acquisition and Project Management Office focuses on construction project delivery and contract oversight for major projects at Y-12. I provided oversight of construction activities to help ensure safe, effective, and secure execution of the Uranium Processing Facility (UPF).



Electrical system testing in the Mechanical Electrical Building supporting the UPF.

Outcomes

The Y-12 Acquisition and Project Management Office focuses on various areas of the major projects under construction at Y-12. I was given the opportunity to work in two divisions over the year: the Construction and Environmental, Safety, and Health Division and the Operations and Security Division.

While in these groups, I shadowed a quarterly environmental, safety, and health assessment, maintained an assessment and issues tracking spreadsheet, revised an internal procedure to match DOE Order requirements, and conducted multiple oversight activities of systems under construction for the UPF.

“This fellowship provided me with the opportunity to steer my professional development in the direction I saw fit. In addition to the leadership training provided to my cohort, I had full support to take training custom to my career path.”



Rusty Dauzat
NA-APM-1.3 Y-12
Acquisition and Project
Management Office

Master of Business Administration, Louisiana State University
Bachelor of Science, Chemical Engineering, Louisiana State University

Overview

Lawrence Livermore National Laboratory's Material Science Division (MSD) supports work for the NA-115, NA-191, and NA-22 offices. The MSD research portfolio is driven by the nation's needs in national security, energy security, high-energy-density science, and basic science using state-of-the-art technology.

Outcomes

As part of the fellowship, I was placed in MSD's Chemistry of Nuclear Materials technical group. This group is a multi-disciplinary program with the goal to enable additive manufacturing as a viable and disruptive technology for nuclear application. Working alongside radiochemists, physicists, and material scientists, we explore novel ways of producing actinide components.

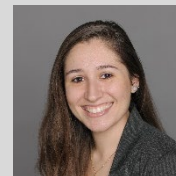


Di Pietro holding three nanoparticle samples treated with an organic polymer at the MSD synthesis laboratory.

As a postdoctoral researcher, I have been able to:

- Learn new instrumentation: Thermogravimetric analysis is a technique that measures the change in weight of a sample as it is heated, cooled, or held at a constant temperature.
- Learn new synthesis techniques: Use hydrocarbons to encapsulate nanoparticles for novel nuclear applications.

“The fellowship gave me the opportunity to continue evolving my technical capabilities and provided valuable experience in the government sector. The experience pushed me out of my professional comfort zone and reassured my goal to pursue a career within the nuclear enterprise.”



Silvina A. Di Pietro
NA-LL Livermore Field
Office

Doctor of Philosophy, Environmental
Chemistry, Florida International University

Overview

The Office of International Programs supports the implementation of Mutual Defense Agreements (MDAs) with international partners. I worked on projects that supported the smooth operation of the U.S.-UK MDA and, in turn, the larger goals of Defense Programs.

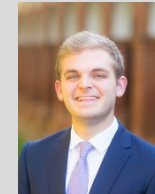


Outcomes

I worked to improve processes related to report filing and meeting tracking. I also led meetings with nuclear enterprise laboratories and sites to collect feedback on administrative arrangements and communication obstacles. Lastly, I carried out research projects that shed light on the history and context of the agreement.

These tasks encouraged the smooth implementation of the U.S.-UK MDA by minimizing the demands of administrative requirements, improving existing communication and cooperation arrangements, and providing insight into the realities of U.S.-UK cooperation.

“This fellowship gave me the opportunity I have been searching for to get my start in the national security space. I am absolutely thrilled to start building my career and see where it takes me.”



Zach Diamond
NA-10.2 Office of
International Programs

Master of Public Policy, The Frank Batten School of Leadership and Public Policy at the University of Virginia

Overview

The NA-121.2 office provides financial and programmatic support for the nuclear security enterprise's weapons production mission. I worked on projects in support of the national laboratories and operational support within NA-121.2.

Outcomes

The NA-121.2 office manages a vast amount of funding for the fulfillment of stockpile management activities and major activity levels, including engineering operations; manufacturing operations; quality supervision and control; tool, gauge, and equipment services; purchasing, shipping, and materials management; and electronic product flow information systems.

```
Example: acro_def('CC') returns 'Optive Carry'
Example: acro_def('PO') returns 'Production Operations'

Precondition: x is a string
---

#This takes a key and links it to a value
#entry: new.entry(master_frame,entry)
Dict = {'Alt': 'Alteration', 'AA': 'Analysis of Alternatives', 'ASC': 'Advanced Simulation and Computing',
'ASD': 'Advanced Sources and Detectors', 'ATOM': 'Advanced Technology Development and Mitigation', 'BCR': 'Baseline Cost Report',
'CD': 'Critical Decision', 'CM': 'Chemistry and Metallurgy Research', 'CALOSSIS': 'Confined Large Optical Scintillator Screen',
'A = self.acronym.get()
P = dict(A)
lab_result['text'] = P

window = Tk() #opens a new window
window.title('NNSA Acronym Definer') #creates a header for the window.
window.resizable(width=False, height=False) #sets the program that the window is non-resizable by the user, later free to make it

frm_entry = Tk.Frame(master=window) #this will create a variable for an entry frame with the window
ent_acronym = Tk.Entry(master=frm_entry, width=10) # this will create a variable for the text to be entered
lab_acro = Tk.Label(master=frm_entry) #this creates a text display next to the entry frame

ent_acronym.grid(row=0, column=0, sticky='e') #grid organizes widgets within the parent widget. 'e' sticks to the right most edge
lab_acro.grid(row=0, column=1, sticky='w') #sticks lab_acro stick to the left most edge of its grid cell.

#this is where I left off
#the command is: python3 acronyms.py
```

Acronyms can be an issue for any new employee. Docter was tasked by his office to create a software program to address this issue.

I supported these efforts through working with sites and authoring our FY 2022 Program Execution Plan, creating a novel status tracking system within our office, working with Stockpile Management to model electronic product acquisition processes, and coding a software program to define acronyms to help with onboarding employees.

“The fellowship provided an understanding of how complex parts of the national security enterprise come together. Working at NA-121.2 gave me an understanding of how funding is disseminated, used, and what roadblocks exist in production processes.”



John Docter
NA-121.2 Production Operations

Master of Science, Biotechnology and Sustainability, Northwestern University

Overview

NA-22 Defense Nuclear Nonproliferation Research and Development funds various projects at the Nevada National Security Site (NNSS). I was involved with field experiments in the Nuclear Test Detection (NTD) and Weaponization Development portfolios. It requires organization and planning to execute a field experiment and helping with these projects has been extremely rewarding.

Outcomes

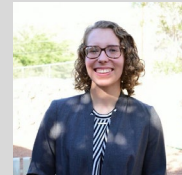
The two ventures I supported in the NTD portfolio are the Physics Experiment 1 (PE1) and Rock Valley Direct Comparison (RV/DC) ventures. For RV/DC, I was a member of the relocation working group, where we determined the best locations for the earthquake events we are analyzing. This work will determine future drilling locations.



Faith joins the RV/DC research group on a site visit to the NNSS to survey drilling locations.

For PE1, I created posters that highlighted the sub-projects of the entire venture and were displayed and used for distinguished visitor days. I was also able to attend the execution of two experiments in this portfolio. Lastly, I was involved with the Vulcan venture in the Weaponization Development portfolio. A long field excursion was executed, and I was able to engage in that entire process.

“This fellowship allowed me to learn more about the nuclear enterprise, grow my network, and be involved with research being conducted at the national laboratories. I was offered the unique opportunity to engage in multiple field experiments and tours that would not have happened if not for this fellowship.”



Jenna Faith
NA-22 Defense Nuclear Nonproliferation Research and Development

Doctor of Philosophy Candidate, Geological Sciences, University of Texas at El Paso
Bachelor of Science, Geology, Juniata College

Overview

The Sandia Field Office (SFO) provides contract oversight of Sandia National Laboratories (SNL) for NNSA, aiming to accomplish nuclear defense. By supporting their Environmental Engineering Team (EET), I engaged in a variety of environmental practices, processes, and techniques to enhance the safety and security of facility operations.

Outcomes

Joining an environmental platform in a nuclear security setting stands as a testament to the protection of human life and the environment. I supported the office on quality improvement and the promotion of site environmental awareness on waste management, radiological terrestrial surveillance, and air quality programs.



Left: Forestier-Babilonia demonstrates the use of a Geiger counter in Albuquerque Academy. Right: Forestier-Babilonia poses with SFO Environmental Engineering co-workers during a networking activity.

It has been an exciting mission to assist in developing new technical specifications for environmental management to lead in the advancement of national security, safety, and health. The EET is committed to the execution of a monumental effort to continue influencing the way NNSA assesses environmental risk, to ultimately improve the security of critical assets across SNL.

“The fellowship rewarded me with a new ending, a prosperous future in the works for the American people I serve, and the nuclear energy culture I support. Attention, opportunities for passionate work are always happy work—an honor is set in motion.”



Janet M. Forestier-Babilonia
NA-SN Sandia Field Office

Master of Public Health, Environmental Health,
University of Puerto Rico, Medical Sciences
Campus

Overview

The Office of Enterprise Project Management oversees execution of NNSA construction projects at all NNSA sites and sets policy for all NNSA construction projects. I worked at the Pantex Plant in Amarillo, TX, mainly on the following projects: High Explosive Science and Engineering and High Explosives Synthesis, Formulation, and Production.



Millan (red hard hat) at the firewater pump and tank design build request for proposal pre-bid site walk.

Outcomes

The Pantex Acquisition and Program Management Office focuses on delivering assigned line-item projects on budget and schedule with the required level of quality. I gained experience reviewing contractor deliverables for acceptable content, observing and documenting construction progress, and participating in issue resolution and problem solving.

I participated in design, construction planning, review of design documents, and value engineering meetings. I visited the construction sites and laydown areas mainly for material and installation quality reviews and inspections. I also worked alongside the Federal Project Directors to create transition plans and project presentations.

“This fellowship provided insight into how the federal government handles big construction projects and how important top quality is in everything that is done. It also helped me connect with awesome colleagues, mentors, workers, and leaders in the nuclear weapons complex.”



Hezael Gonzalez Millan
NA-APM-20 Office of
Enterprise Project
Management

Master of Science, Engineering Management, Ana G. Mendez University, Gurabo, Puerto Rico
Bachelor of Science, Mechanical Engineering, University of Puerto Rico, Mayaguez, Puerto Rico

Overview

The Defense Threat Reduction Agency (DTRA) has many roles and responsibilities within the U.S. Nuclear Weapons Program and several treaties such as NATO. I had the opportunity to learn more about them throughout my fellowship.



Outcomes

The Nuclear Enterprise groups several focus areas, with Nuclear Surety being one of them. While working in the front office, I had the opportunity to become part of the Nuclear Security and Surety team. DTRA has many responsibilities in the U.S. Nuclear Weapon Program, specifically in the Nuclear Weapons Council (NWC).

In the NWC, as a member of the Standing and Safety Committee, DTRA has responsibilities in developing, coordinating, and approving reports, alongside the other members like the NNSA, that will be provided to the President and Congress.

“The fellowship was the door to learn from experts in the area. Working at the Defense Threat Reduction Agency provided me with skills and an experience that I will have for the rest of my career.”



Alejandra Gonzalez-Torres
DTRA FO-NE Nuclear
Enterprise Front Office

Master of Arts, Nuclear Policy and Security
Studies, George Washington University

Overview

The Office of Defense Programs (DP) directs the safe, secure, and effective operation and function of DP within NNSA and DOE. I supported this front office as an action officer and primarily managed both the NA-12 Stockpile Management and NA-10.2 International Programs portfolios.



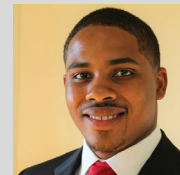
B61-12 Joint Test Assembly.

Outcomes

As an action officer, I worked with the programs and 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, the interagency, Congress, and other stakeholders. One noteworthy project was when I was the DP lead in producing a communications plan

for a B61-12 milestone announcement. I played an integral part in drafting the plan, integrating input from throughout the nuclear security enterprise, and facilitating approval. My efforts helped enable Congress, industry, and media to receive prompt and consistent messaging about this important achievement.

“The fellowship allowed me to gain invaluable experience, expand my knowledge of nuclear security issues, and interact with a diverse array of talented professionals. It has undoubtedly been instrumental in my career development.”



Solomon Greene
NA-10 Office of Defense Programs

Master of Arts Candidate, Security Studies,
Georgetown University
Bachelor of Arts, International Affairs,
University of Georgia

Overview

The Office of Nonproliferation Construction and Program Analysis (NA-234) is responsible for the formulation, execution, cost analysis, and reporting of all budgets related to the mission of the Office of Material Management and Minimization (M3). I worked on various projects supporting M3's Material Disposition program.



DOE's Forrestal Building in Washington, D.C.

Outcomes

M3 is separated into three mission areas: Conversion, Nuclear Material Removal, and Material Disposition. Specifically, I helped with risk assessment and program management processes. Additionally, I helped with the M3 life-cycle cost estimate for the Plutonium Disposition project.

These assessments and estimates help to increase the fiscal efficiency of the conversion, nuclear removal, and nuclear material disposition nonproliferation activities critical to M3's mission.

“As a fellow in the NA-234 office, I developed critical skills that have built the foundation for me to further my career in the national security enterprise.”

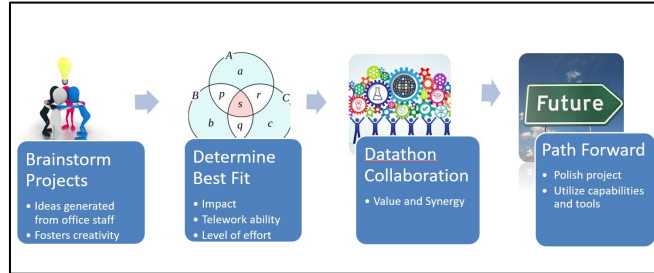


Christina Hedgepeth
NA-234 Nonproliferation
Construction and
Program Analysis

Master of Public Administration, Brigham Young University

Overview

The NA-MB-92 office pushes innovation in cost estimating and other technical analyses within NNSA. This year, I helped coordinate our first Datathon, an intensive multi-day event where analysts focused on a single project from start to finish, inspired by hackathons in the programming space.



The pilot Datathon featured our steps beginning with idea building within the office and moving through selection, collaboration, execution, and future planning.

Outcomes

We worked on four projects:

1. Analysis of alternatives (AoA) lead standard operating procedure (SOP)
2. Escalation sensitivity analysis on our construction cost model
3. Utility of quantile regression analysis
4. Planning of a design cost model for capital acquisition projects

Datathon was a great opportunity to generate creative thought while working closely with various analysts in the office. We nearly finished the AoA SOP and the escalation study while setting a solid foundation for the quantile regression and design cost model.

We plan to hold a second cycle of Datathon in 2022 and invite other Management and Budget offices to collaborate with us!

“As an NGFP fellow, you have many opportunities to grow and develop skills and relationships. I have learned so much and it feels great to be able to work in an area of my genuine interest and contribute to the mission of the NNSA.”



Alexandra Housh
NA-MB-92 Office of
Analysis and Evaluation

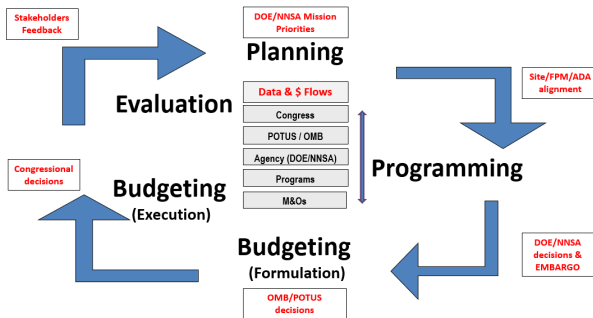
Doctor of Philosophy, Chemistry, University of Missouri, Columbia

Overview

I assisted the NA-MB-812 office by editing budget narratives for Defense Programs (DP) and was specifically assigned to the stockpile management narrative. Additionally, I handled updates from the statistical table, the master budget submission document, and updates to NNSA narratives for both Defense Nuclear Nonproliferation and Weapons Activities programs through version 20.

Outcomes

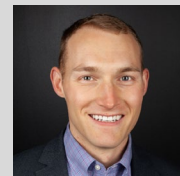
My efforts provided clear and concise language throughout the DP narratives for uniform authorship. As I updated narrative budget tables, I maintained version control between the programs, corporate office, and the matrix offices, which kept communication channels clear and prevented parties from making overlapping updates.



The PPBE process.

I learned how money is allocated and expended through the Planning, Programming, Budgeting, and Evaluation (PPBE) process employed by NNSA and Department of Defense as I attended meetings, read budget documents, and learned through individual tutelage from individuals with years of PPBE experience.

“I am grateful for the kind people who were willing to work with me to teach me about the NNSA and my office. It is that kindness and willingness that make a career in public service enriching and made this fellowship a positive experience.”



Gregory Jack
NA-MB-812 Weapons
Activities Resource
Managers Matrix

Master of Public Administration, Brigham Young University

Overview

NNSA's Office of Congressional Affairs (CA) supports the Administrator by providing written testimony, congressional hearing readouts, and congressional analysis. CA also supports all program offices by facilitating congressional interaction and reporting on relevant congressional action.

Outcomes

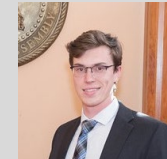
During my tenure with CA, I produced multiple weekly reports for the Administrator and her team detailing NNSA's interaction with Congress. I also created readahead material for the Administrator to help her prepare for interactions with Congress.



Under Secretary Jill Hruby testifying before Congress on pit production.

These products provided insight into current and potential congressional action that directly affects NNSA and its mission.

“The NGFP fellowship gave me valuable insight into the inner workings of the national security enterprise and provided a means of entry into an extremely competitive field.”



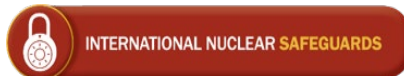
Victor Jones
NA-EA-10 Congressional Affairs

Master of Public Policy, Andrew Young School of Policy Studies, Georgia State University

Overview

The Office of International Nuclear Safeguards (NA-241) supports the international nuclear safeguards system and the International Atomic Energy Agency in its mission. I worked with multiple program managers in support of NA-241's mission.

OFFICE OF **NONPROLIFERATION AND ARMS CONTROL (NPAC)**

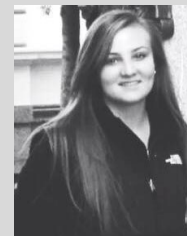


Outcomes

I support a team of subject matter experts in designing educational materials used to train nuclear safeguards professionals in over 50 countries each year, including by liaising with U.S. national laboratory experts, synthesizing archived material, and tracking the production of new training products.

This work is key to promoting broad international adherence to the international safeguards regime through engagement with foreign partners and ensures the International Atomic Energy Agency can meet its evolving mission.

“The fellowship was the perfect springboard for my career in safeguards. Not only do I have the experience of working at NNSA headquarters, but I also deepened my understanding of the role of international nuclear safeguards in nonproliferation.”



Virginia Kerr
NA-241 Office of
International Nuclear
Safeguards

Master of Arts, Nonproliferation and
Terrorism Studies, Middlebury Institute of
International Studies

Overview

The Ballistic Missile Weapons Division within the Office of Stockpile Sustainment (NA-122) is responsible for ensuring that two legs of the nuclear weapon triad are safe, secure, and reliable. During the fellowship, I supported both the Intercontinental Ballistic Missile (ICBM) and Submarine Launched Ballistic Missile (SLBM) teams.



The ICBM team observes a U.S. Air Force training exercise at Kirtland Air Force Base.

Outcomes

To support the ICBM team, I developed an efficient way to track issues and activities using Microsoft Teams. The highlight of my fellowship was briefing NNSA Stockpile Management leadership and over 200 participants on the programmatic status of the W78 system during the FY 2021 Program Execution Summit.

To support the SLBM team, I worked on managing the risks and opportunities of a retrofit program and integrating them into an online active risk manager that has the capability to track risks across the W76 Portfolio.

“My experience as a fellow was a great start to my future career in the nuclear security enterprise. It was rewarding to see the impact I had within my office and on the important mission of maintaining the nuclear deterrent.”



Corinne Kuebler
NA-122.2 Ballistic Missile
Weapons Division

Doctor of Philosophy, Isotope Geochemistry,
University of Notre Dame

Elia Lichtenstein

NA-122.4 Weapon Security and Control

Overview

The NA-122.4 office oversees technology projects that ensure nuclear weapons are used under the proper authority.



Lichtenstein at the National Museum of Nuclear Science and History. (Photographer: Rich Essig, 122.4)

Outcomes

In parallel with the capstone course for my master's degree, I took on the task of updating the policies and procedures. I worked with offices across the nuclear security enterprise to identify common problems and gather their specific requirements to develop a singular, centralized solution.

Additionally, I coordinated with the NA-115 Office of Technology Maturation to develop a catalog of surety technologies. The final product will increase the situational awareness of the national laboratories and NNSA offices regarding current use control projects across the nuclear security enterprise.

“I went into engineering management to handle the unique relationships between technology and policy. The fellowship granted me entry to an environment where I got to hone these skills and apply them to vital national security efforts.”



Elia Lichtenstein
NA-122.4 Weapon Security and Control

Master of Science, Engineering Management,
The Ohio State University

Overview

The Office of Nuclear Materials Integration (ONMI) serves as the focal point for departmental policy, planning, and integration for life-cycle management of accountable nuclear materials. My work focused on evaluating current projects supported by the office and providing management with recommendations for further involvement.

Outcomes

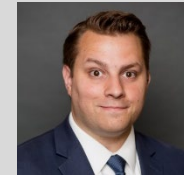
I served as the ONMI lead of an Integrated Project Team that was formed to assess issues associated with the procurement of SAVY nuclear material containers across the DOE/NNSA complex. My report focused on the demand assessment process, how it affects container production, and the relationship between contract timetables and potential supply vulnerabilities.



*An example of SAVY containers in various sizes.
(source: NFT)*

ONMI also ran a Robotics and Autonomous Solutions Working Group, and I managed an assessment of the working group's activities and outcomes. The analysis focused on the level of completion for objectives, the context for successes or setbacks, and potential changes in operating procedures to take advantage of existing NA-532 programs.

“My time with this office has been an invaluable exercise in the importance of agility and collaboration. I am inspired by the willingness of management and my colleagues to help fellows feel welcome and needed within the NNSA.”



Wells (Rob) Magleby
NA-532 Office of Nuclear Material Integration

Master of Public Administration, Program Management, Brigham Young University

Overview

The mission of the Export Control Review and Compliance/Interdiction (ECRC/I) program is to facilitate legitimate nuclear cooperation by strengthening domestic and global capacity to detect and prevent the illicit transfer of WMD-related materials, equipment, and technology. I engaged in this in several roles at ECRC/I.



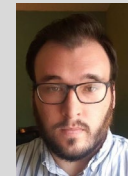
McDaniel participated in interagency OC meetings, exploring the merits of export control licenses.

Outcomes

During my fellowship, I participated in interagency Operating Committee (OC) meetings. During these meetings, different agencies discuss and debate the merits of export control licenses. I analyzed information provided by other agencies and presented it to my supervisors.

In this role, I provided details and context of other agencies' OC positions to my supervisors. This enabled my supervisors to understand new information that may be outside of DOE's areas of expertise and make appropriate decisions on next steps for export licenses.

“The fellowship has allowed me to see the interagency in action. I saw how different lines of effort all coalesce to serve the same mission.”



Tyler McDaniel
**NA-242 Office of Nuclear
Export Controls**

Master of Arts, Global Affairs, Security and Globalization Track, Florida International University

Overview

The NA-182 office provides program management support efforts throughout the complex. I worked on a variety of projects affecting several different areas of the enterprise.



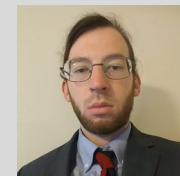
The Forrestal Building at DOE Headquarters.

Outcomes

NA-18 supports projects pertinent to all areas of the nuclear security enterprise, often through the production and maintenance of controlling documentation and other resources. I personally supported efforts to update aging published documents, verify and validate new publications, maintain non-document resources, and audit and review currently in-force resources.

These efforts exposed me to the full breadth of topics relevant to Defense Programs' mission space and helped to ensure that the information flowing from NA-18 is as accurate, helpful, and up-to-date as possible.

"This fellowship provided me with an excellent introduction to the nuclear security enterprise. It made clear the variety of possible career options and what my future place in the enterprise might look like."



Sean McGuinness
NA-182 Office of Program
Management Support

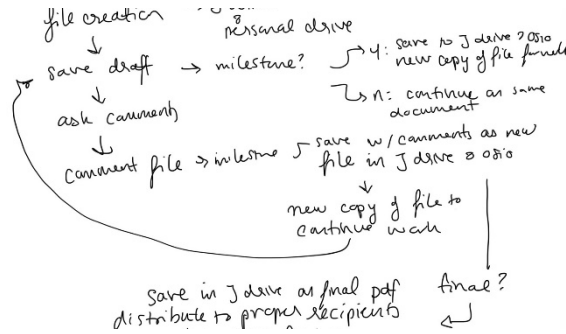
Doctor of Philosophy, Nuclear Physics, University of Notre Dame

Overview

The NA-531 Office of Packaging and Transportation is the NNSA’s one-stop shop for compliance with safety and transportation regulation when looking to transport objects related to the maintenance of the country’s nuclear defense program. I worked on a range of projects to help ensure excellence within the nuclear security enterprise and in the office.

Outcomes

- I worked on review teams for quality assurance plans for different NNSA sites. These enable proper working procedures for personnel dealing with package components to maximize safety and minimize risk.
- It is important to inform applicants of the data and documentation necessary to receive an interim hazard classification approval. I assisted with developing such a training.
- New packages are being developed to improve on existing packaging configurations. I assisted a team charged with bringing a new design to the Nuclear Regulatory Commission for approval.
- Records keeping is a federally required process. I led a project to examine and modify the Office of Packaging and Transportation’s records-keeping efforts using the A3 problem-solving format.



A screenshot of part of a flowchart for use in the A3 records report Nguyen supported.

“The NGFP experience has been a wonderful, informative look into the role the government has in growing and maintaining the U.S. nuclear program. I learned a lot about resource management and packaging regulation and look forward to implementing this in the future.”



Audrey Nguyen
NA-531 Office of Packaging and Transportation

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

Overview

NA-122.3 Air Deliver Stockpile Sustainment handles maintaining and retiring weapon systems in the stockpile. I worked mainly with the W84, working with design and production agencies to handle safety and surveillance requirements.



“Working with the NA-122.3 office has been a great experience learning what goes into keeping our country safe with the stockpile firsthand.”

Outcomes

Working with the Kansas City National Security Campus, I helped clear storage of excess materials by removing a hold that was no longer necessary. This helped the stockpile by freeing up space for other parts and systems.

I met with design agency system engineers for the W84 to understand and update safety and surveillance requirements to save time and move program calendars to the left.

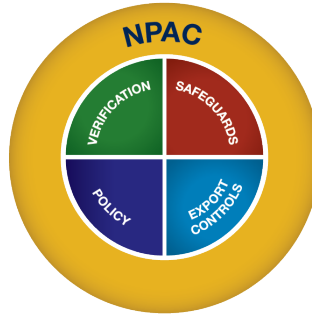


Zachary Norton
**NA-122.3 Office of Air
Delivered Stockpile
Sustainment**

Master of Science, Mechanical Engineering,
Arizona State University

Overview

The Office of Nonproliferation and Arms Control (NPAC) enhances U.S. national security and facilitates legitimate civil nuclear cooperation by reducing global nuclear proliferation threats. As a lead coordinator for NPAC official correspondence, I prepared briefing materials for senior-level NNSA leadership and developed messaging and products for Congress and the interagency to support NPAC's mission areas.



NPAC enhances U.S. national security and facilitates legitimate civil nuclear cooperation.

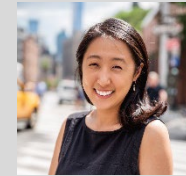
Outcomes

As the lead liaison between the Defense Nuclear Nonproliferation (DNN, NA-20) and NPAC's offices, I coordinated 500-plus action items, including briefing materials for DOE, NNSA, and leadership; correspondence between principals and international counterparts; and requests for information from agency leadership, the media, Congress, and interagency counterparts.

Highlights:

- Received an NNSA Special Recognition Award for content contribution for the 2021 International Atomic Energy Agency General Conference (GC).
- Represented DNN to draft a congressionally mandated report, Prevent, Counter, and Respond – A Strategic Plan to Reduce Global Nuclear Threat.
- Served as the Planning and Strategic Communications Lead for the 2022 GC.

“The fellowship provided me with an invaluable opportunity to connect with a wide range of experts in the field, whose passion and dedication to advance the U.S. government agenda in nonproliferation continues to inspire me.”



Yoojin Park
NA-24 Office of
Nonproliferation and
Arms Control

Master of Science, Foreign Service,
Georgetown University

Overview

The NA-113 Office of Experimental Sciences (OES) funds facilities, instruments, and experiments generating data for the stockpile stewardship program. I supported OES programs developing testbeds for upcoming subcritical experiment series.

Outcomes

I was tasked with verifying the funding of essential components necessary for the instruments going into the testbed that will host the Excalibur subcritical experiment series. I moderated workshops and meetings between headquarters and site managers to determine the funding for the testbed components.



Left to right: Perry (NA-113), Becky Lewis (NA-113), and Heather Lee Anne Owens (NA-11) at the U1a complex at the Nevada National Security Site.

All the internal funding for the OES programs was verified, and a plan was developed to request outside assistance for any remainder. This work ensures that there will be no delays in the mission-critical Excalibur series due to funding issues.

“Through the NGFP fellowship, I gained great insight into the inner workings of the NNSA and the greater national security efforts of America. I also gained excellent career opportunities within the DOE and at the national laboratories.”

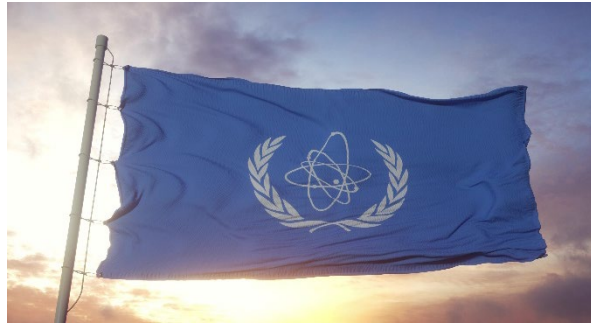


Samuel Perry
NA-113 Office of
Experimental Sciences

Doctor of Philosophy (in progress),
Geochemistry and Mineralogy, University of
Notre Dame

Overview

Each year, the International Atomic Energy Agency States Parties meet to discuss topics relating to the peaceful uses of nuclear energy, such as nuclear technology, and its applications and nuclear safety and security. This year's general conference took place in Vienna, Austria from September 20 through September 24, 2021.



International Atomic Energy Agency flag.

Outcomes

I coordinated the NA-23 office's deliverables for the 2021 International Atomic Energy Agency General Conference. This included reviewing cooperative activities between NA-23 programs and international counterparts and preparing background and talking points for the Secretary and Administrator's bilateral meetings.

This effort helped to ensure the Secretary and Administrator had successful meetings with their international counterparts and guaranteed that NA-23's equities were a core part of the discussion.

"This fellowship gave me the opportunity to learn more about the vast nuclear security enterprise. Working in the NA-23 Front Office taught me how bureaucracy operates and how my office interacts with other Defense Nuclear Nonproliferation programs, External Affairs, and DOE as a whole."



Abby Pokraka
NA-23 Office of Material Management and Minimization

Master of Arts, Political Science, University of New Hampshire

Overview

NA-84's Improvements and Lessons Learned Program (ILL) assesses and improves the Nuclear Emergency Support Team (NEST) field performance during both exercises and real-world nuclear incidents. ILL currently lacks a technology platform to support its analytical tasks, and I have been leading a project to address this gap and give ILL a more systemic approach to analysis.

Outcomes

I identified a technology platform that meets the needs of internal and external customers, including ILL, NA-84, and NEST assets. I also developed a strategy document to acquire the platform and a vision for its design and implementation. These documents lay the groundwork to conduct analysis more efficiently, reduce errors, and pursue new methods.



A post-WWII plane designed to transport nuclear bombs. Exhibit at the National Museum of Nuclear Science and History in Albuquerque, NM.

In streamlining ILL's approach to analysis, I have improved overall NEST readiness. In the future, NA-84 will be more prepared to respond to international or domestic requests for support during nuclear emergencies.

"This fellowship has given me a new perspective on what federal service means."



Taylor Poole
NA-84 Office of Nuclear
Incident Response

Master of Science, International Security,
Georgia Institute of Technology

Trey Reilly

NA-10 Defense Programs



Overview

I supported projects for several offices: Defense Programs (NA-10), Production Modernization (NA-19), Emergency Operations (NA-40), Counterterrorism and Counterproliferation (NA-80), and Nuclear Incident Response (NA-84). I also worked with analysts from across the nuclear security enterprise to analyze national and international security trends to inform future NNSA policy and strategy for the Administrator's Policy Office (NA-1.1).



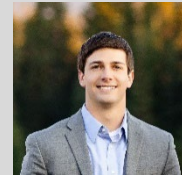
The Aerial Measuring System is a rapidly deployable capability that can respond to nuclear incidents and accidents in the United States and overseas.

Outcomes

As part of my work with NA-80, I completed the business impact analysis for NA-80 and the Nuclear Emergency Support Team. I analyzed all Mission Essential Assets (MEA) for the office's Mission Essential Functions (MEF) of Nuclear Incident Response, Nuclear Counterterrorism, and Nuclear Forensics.

For each MEA, I quantitatively and qualitatively assessed the degree to which loss of the asset would negatively affect each MEF for the respective offices. This included an assessment of the organization's resiliency after a loss of the MEA. My final product was provided to the Executive Director and the Deputy Associate Administrator of NA-80 to inform decision-making, increase situational awareness, and ensure MEF resiliency.

"The opportunity to progress the NNSA mission in several different areas was extremely fulfilling. I thoroughly enjoyed the depth and breadth of experiences and knowledge that I attained from my time as a fellow. I know it will continue to prove valuable through the rest of my career."

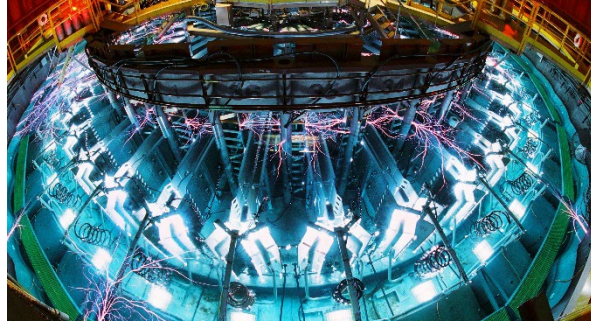


Trey Reilly
NA-10 Defense Programs

Master of Arts, International Security, Josef Korbel School of International Studies, University of Denver

Overview

I studied the Environmental Testing Facilities throughout the NNSA enterprise in preparation for creating a final list of prioritized and budget-constrained recapitalization facilities to support the modernization efforts of NA-194.



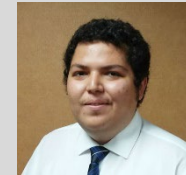
Saturn, Sandia's Environmental Testing Facility and "Workhorse" Pulse-Power Machine.

Outcomes

I learned more about the types of experimental facilities and their engineering and science objectives, mission, and goals. Over time, I understood why they are an integral capability for NNSA and how NNSA provides oversight to each sites' plan and funding to meet objectives and goals.

This relationship has shown me how the processes of NNSA and the national laboratories interact, along with funding, proposals, and project execution. I love being part of NA-194!

"I dream of the day I am working for the NNSA enterprise; this opportunity is a gateway toward a future understanding of the overall mission of the NNSA enterprise."

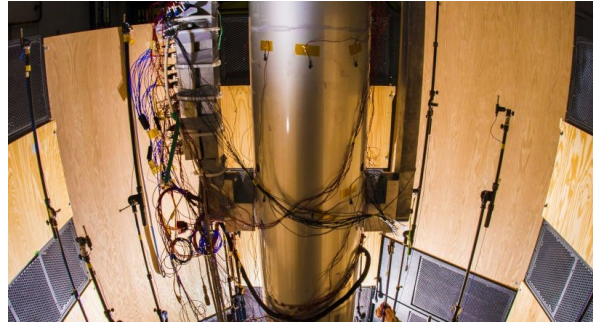


Arturo Rodriguez
NA-194 Office of Non-Nuclear Capabilities Modernization

Doctor of Philosophy (in progress), Mechanical Engineering, University of Texas, El Paso

Overview

The Deputy Administrative Action Group supports all NNSA Defense Programs (DP) work. In the front office of NA-10, I had the opportunity to access all different sides of DP. I was able to be the lead on various portfolios throughout the year.



A Sandia National Laboratories engineer adjusts a microphone for an acoustic test on a B61. Testing like this is important for DP.

Outcomes

Two opportunities left a big impact on me. First, I had the opportunity to learn Russian through NNSA. Being able to learn the Russian language in 2022 was very exciting.

Second, by the end of the fellowship, I became the lead of the NA-19 portfolio. I was the main point of contact between the program office and External Affairs.

“The fellowship gave me a great opportunity to be the lead on real, impactful work.”



Elisabeth Scully
NA-10 Deputy
Administrative Action
Group

Master of Public Policy, National Security,
University of Virginia

Overview

The U.S. Department of State (DOS) Bureau of International Security and Nonproliferation Office of Cooperative Threat Reduction administers the Partnership for Nuclear Threat Reduction Program (PNTR). The PNTR team functions as the DOS programmatic lead for the Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology (FIRST) program, a Presidential initiative announced by the White House in April 2021.



Flags of the world in the Harry S. Truman building.

Outcomes

Consistent with the Biden Administration's commitment to addressing the climate crisis, the DOS launched the FIRST program. Building on more than 60 years of U.S. innovation and expertise in nuclear energy, FIRST provides capacity-building support to partner countries as they develop their nuclear energy programs to support clean energy goals under the highest international standards for nuclear safety.

As a fellow, I served as a program advisor supporting FIRST partner countries. I worked with foreign partners to help develop capacity in the areas of energy security and nonproliferation.

“During my fellowship, I learned about how the U.S. Department of State seeks to prevent proliferator states and terror groups from developing weapons of mass destruction and delivery systems that could threaten the U.S. homeland and U.S. interests abroad.”

Kelley Shaw
DOS-CTR Department of State
Office of Cooperative Threat Reduction

Master of Arts, Security Studies, Technology and Security Concentration, Georgetown University School of Foreign Service

Overview

As the Americas Regional Coordinator for the Office of International Nuclear Security, I coordinated and executed a regional nuclear security series that included participants from North, South, and Central America.



Outcomes

Café Nuclear is a four-part series that examines various components of nuclear security. This year we hosted sessions on security considerations for advanced reactors, cyber self-assessment of nuclear facilities, response force strategies for nuclear theft and sabotage of facilities, and balancing transport security at international border crossings.

Participants were able to hear from U.S. subject matter experts from across the national laboratories and nuclear security enterprise. Additionally, each session provided an opportunity for participants to share their country's or organization's unique challenges and successes related to the various components of nuclear security during each session.

"The fellowship provided me ample opportunities to meet and work with international counterparts on various components of nuclear security. This was truly a rewarding experience that I will carry with me for the rest of my life."



Charles Smythe
NA-211 Office of
International Nuclear
Security

Master of Arts, Security Studies, Georgetown University

Bachelor of Science, Political Science and Asian Studies, Missouri State University

Overview

The NA-1.1 office, within the Office of the Administrator, is the entity charged with leading the NNSA's long-term policy and planning initiatives, including the development of key strategy documents and enterprise-wide analytical studies.

As a part of the strategic planning team, I was a core participant in many of these initiatives.

Outcomes

One of the most rewarding opportunities I had during my fellowship was to work alongside the NA-1.1 strategic planning team to produce the 2022 NNSA Strategic Vision.

Having a front-row seat to the discussions among senior leadership of NNSA's mission priorities, its range of capabilities, growing demands on its expertise, and its vision for

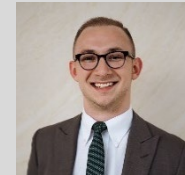


Administrator Jill Hruby speaks with Tarun Chhabra, Director of Technology and National Security at the National Security Council, as part of the Administrator's Strategy Forum.

the future underscored the vital work that the organization does to protect the American people and our allies and partners around the world.

In addition to the Strategic Vision, I led staff-level efforts for coordination of NNSA's rollout of the Nuclear Posture Review and helped develop the new Administrator's Strategy Forum.

“My fellowship provided a unique opportunity to be an active participant in charting a new path forward for NNSA at a time when its capabilities and expertise are needed more than ever to meet a range of enduring and emerging national security challenges.”



Noah A. Stevens
NA-1.1 Office of Policy
and Strategic Planning

Master of International Affairs (U.S. Defense Policy and Military Affairs, Nuclear Policy),
George H.W. Bush School of Government,
Texas A&M University

Overview

The Office of Strategic Planning and Analysis synthesizes and integrates enterprise-level requirements to enable informed enterprise decision-making. I worked on integrating project information into formal reports to better inform leadership and Congress of activities across the enterprise.

Outcomes

A main function of the Office of Strategic Planning and Analysis is to publish the Stockpile Stewardship and Management Plan (SSMP) annually. This 25-year plan describes DOE/NNSA's plans to ensure the safety, security, and effectiveness of the U.S. nuclear weapons stockpile and to maintain the scientific and engineering tools, capabilities, and infrastructure that underpin the nuclear security enterprise.



Fiscal Year 2022 Stockpile Stewardship and Management Plan

Report to Congress
March 2022

The Stockpile and Stewardship Management Plan published and delivered to Congress.

I assisted with integrating information for several chapters of the SSMP including those on physical infrastructure and budget. I implemented graphics depicting the milestones for DOE/NNSA's projects. I also contributed to the development of the Nuclear Security Enterprise Industrial Base framework used to monitor the current status of the industrial base and help inform leadership of industrial base issues.

"This fellowship has been an eye-opening experience for me. It has been very rewarding to see all the offices, sites, and programs that are part of the nuclear security enterprise and how they work interconnectedly to achieve NNSA's mission."



Jared Thurgood
NA-183 Office of Strategic
Planning and Analysis

Master of Science, Chemical Engineering,
Brigham Young University, Provo

Jameson Tockstein

NA-115 Office of Engineering and Technology Maturation



Overview

Within NA-115, the Demonstrator Initiative (DI) works to mature and demonstrate systems architectures and technologies to reduce risk and increase the opportunity of insertion into the nuclear stockpile. I updated the DI Execution Plan (DIEP) and the DI Governance Board (GB) charter to bring them in line with NA-115's priorities and mission statement.

Outcomes

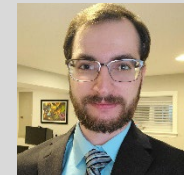
Updates to the DIEP and GB were required to realign the DI's scope, schedule, and organization with those of NA-115. An initial draft of these documents was supported by a previous fellow, and, after my work and discussion with federal office members, the documents have now been signed and adopted by the office.



Launch of the HOT Shot 6 rocket at NASA Wallops Flight Facility, VA on September 11, 2022. (Photo by Dr. Robert Shaw NA-115)

These documents will serve as a guide for current and future members of the DI and GB and enable the vision of the program to survive for years to come.

“This fellowship helped open the door for my career within the nuclear security enterprise and inspired my interest in federal service.”



Jameson Tockstein
NA-115 Office of Engineering and Technology Maturation

Master of Science, Nuclear Engineering Sciences, University of Florida

Overview

In my role within the Office of Radiological Security, I worked with foreign government ministries to enhance global security of radiological materials. My key projects were planning, coordinating, and contributing to regional security summits throughout Latin America, the Caribbean, and Asia, and working on radioactive source security and removals.



A source removal in Mexico, 2021.

Outcomes

My work helped to secure radiological materials throughout the world. The importance of this work cannot be understated, as radiological material can be used by terrorists or transnational criminal organizations to make dangerous “dirty” bombs or radiological dispersal devices. Such weapons of mass disruption and radiological terrorism cause significant socio-economic impacts and widespread contamination.

Through coordination with our laboratory teams, I contributed to radioactive source security through physical security upgrades and the removal of disused sources. These efforts contributed to global security while also building relationships throughout the region.

“This fellowship provided me with incredible exposure to the nuclear security enterprise and how the national laboratories, contractors, and federal staff work together toward a common goal of nuclear and radiological stewardship.”



Matt Tomarchio
NA-212 Office of
Radiological Security

Master of Arts, Global Finance, International Trade, and Economics, International Relations, University of Denver

Overview

The Defense Nuclear Nonproliferation Research and Development office funds and manages projects in the Proliferation Detection and Nuclear Test Detonation office. I was involved with both offices and engaged with program managers in the Innovation, Near-Field and Remote Sensing, Ground Nuclear Detonation Detection, Nuclear Forensics, Emergency Response, and Warhead Verification and Monitoring portfolios.



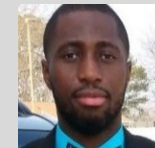
Research and Development Engineering
Mk-18A Program Mock-up Facility.

Outcomes

In the Warhead Verification Monitoring portfolio, I was involved in venture project planning and reviewed white paper submissions for the arms control monitoring and verification testbed scoping studies. In Innovation, I helped manage a Technology Readiness Level 1-3 project on laboratory analysis for improved remote sensing of proliferation activities. I coordinated the project kick-off meeting and quarterly report check-ins.

In the Nuclear Forensics portfolio, I was involved in reviewing various Small Business Innovative Research proposals and attended various project kick-offs. In Ground Nuclear Detonation Detection, I undertook a technical project with radionuclide measurements and analysis, where I reviewed and provided comparative analysis on atmospheric analytes data collected by monitoring stations for pertinent radionuclide signatures.

“Through the NGFP, I gained insight on project management and venture planning and broadened my understanding of the nuclear security enterprise and missions. I also learned a great deal about leadership through the Aspiring Leader Certificate Program.”



Samuel Uba
NA-22 Defense Nuclear Nonproliferation Research and Development

Doctor of Philosophy, Applied Physics,
Alabama A&M University

Overview

The Office of Conversion works to convert civilian research reactors and medical isotope production facilities from highly enriched uranium to low enriched uranium both in the United States and around the world.



Outcomes

I supported the international conversion portfolio, engaging experts from the national laboratories to coordinate with international partners. I also supported the PRO-X program, which seeks to help domestic and international partners design new research reactors and facilities that reduce the production of dangerous nuclear material while optimizing reactor performance.

I also assisted in the organization of my office's participation in two conferences critical to our work: the European Research Reactor Conference and the Reduced Enrichment for Research and Test Reactors Conference.

“This fellowship experience gave me the opportunity to learn from my colleagues’ marketable skills such as project management and organization while furthering international nuclear safety and nonproliferation.”



Victoria Vardanega
NA-231 Office of Conversion

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

Michelle E. Vega Rodriguez

NA-122.1 Stockpile Services Division

Overview

Stockpile Services Division (NA-122.1) provides cross-team support to the nuclear security enterprise. It involves internal and external stakeholders for the enterprise, structured to support daily operations. Partnerships are a critical aspect to maintain continuity of operations. My contributions were assessing multiple planning and change control processes for improvement opportunities.

Outcomes

These assessments to Weapons, Weapons Dismantlement and Disposal, Limited Life Components, and Equipment Requirement Schedule Change Control Processes revealed that NA-122.1 could benefit from standardization, clarity, and optimization. In addition, the analysis provided the venue to improve current site capabilities more dynamically and technologically.

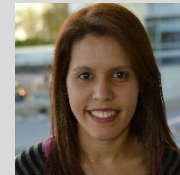


From top left: DOE Forrestal Building in Washington, D.C., NNSA Kansas City Field Office, and NNSA's Sandia Field Office.

Altogether, it opened doors for consideration of internal technologies for future design by thinking out of the box.

Overall, the fellowship provided tools to mature my decision-making capacity professionally by including multiple perspectives and creating a collaborative team approach. In addition, it helped me recognize opportunities for improvement and growth.

“Through the fellowship, I learned the value of mentorship in a career; someone fights with you to see your success. That makes me reflect on how achieving cohesion within your team drives collaboration success. It is what motivates us to move forward in challenging times.”



Michelle E. Vega Rodriguez
NA-122.1 Stockpile Services
Division

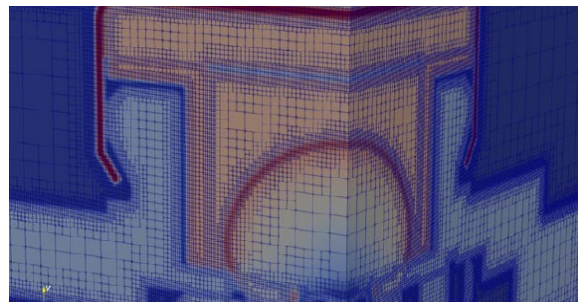
Master of Engineering Management, Chemical Engineer and Project Manager, University of Puerto Rico and Polytechnic University

Overview

The Advanced Simulation and Computing (ASC) Program provides simulation capabilities and computational resources to support the annual stockpile assessment and certification process, study advanced nuclear weapons design and manufacturing processes, analyze accident scenarios and weapons aging, and provide the tools to enable stockpile Life Extension Programs.

Outcomes

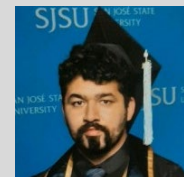
The ASC office is divided into six subprograms: Integrated Codes, Physics and Engineering Models, Verification and Validation, Advanced Technology Development and Mitigation, Computation Systems and Software Environment, and Facility Operations and User Support. I provided program management support and attended multiple conferences within each subprogram scope.



New simulation capabilities for explosives in detonators represent a significant advancement in predictive capability for the current and future stockpile.

I worked on a white paper for Data Warehousing that addresses what would be required for ASC or NA-11 to set up and support an interoperable and accessible data warehouse containing simulation, experimental, and test and evaluation data that would allow artificial-intelligence-enabled capabilities to be fully utilized within all the NNSA laboratories.

“The fellowship gave me insight into how the different offices within headquarters interact with the NNSA laboratories to direct research and development both within my office and its sister offices. I hope to apply the knowledge I gained in a research- and development-oriented career.”



Carlos Verdoza
NA-114 Office of
Advanced Simulation and
Computing

Master of Science, Applied Physics,
Computational Physics, San Jose State University

Overview

The Aging and Lifetimes (A&L) program (formerly known as Enhanced Surveillance) within NA-115 supports more than 100 projects across the nuclear security enterprise. I worked on a Microsoft Access database for collecting and organizing project details.



Microsoft Access is the software used for NA-115's programmatic databases.

Outcomes

Project details range from funding to accomplishments and timelines to alignment with NNSA Research, Development, Test, and Evaluation (NA-11) priorities. Adapted from another programmatic database, A&L InformAtion System (ALIAS) aims to streamline communication between headquarters and sites and to ensure accountability within the program.

I collaborated with the administrator for an existing programmatic database to develop a baseline for ALIAS and then requested data from site managers to fortify the baseline. This new database provides a new monthly update template intended to optimize data collection. The new database is intended to support the program's newly proactive strategic plan.

"I had no idea what I was getting into with this fellowship, but now I am hooked on NNSA's mission. I am inspired by the many admirable people supporting the mission in such different ways, from management to research to implementation. I hope to continue being a part of this mission."



Natalie Wieber
NA-115 Office of Engineering
and Technology Maturation

Master of Science, Material Science and
Engineering, Michigan Technological University

Overview

I joined the NA-195 Secondary Stage Production Modernization office, supporting the Federal Program Manager for the Process Technology Development (PTD) program. During my time with the program, I assisted with project tracking and management and the evaluation of projects at both the early development and project execution stages.



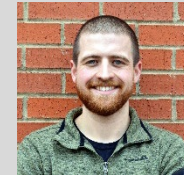
Process relocations and upgrades within the NA-195 mission scope.

Outcomes

I supported the office by helping track and manage projects within the PTD program. I helped with the critical evaluation of projects in early stages of development and provided input to projects undergoing significant technical challenges. Furthermore, I helped develop funding plans for a new project and took on a project interfacing with vendors to identify the challenges of working with the NNSA and strategies to resolve them.

These efforts contributed to the NA-195 mission of implementing new technologies to modernize enriched uranium processing capabilities. Work on early development projects and discussions with vendors will help to establish future program execution strategies.

“Working with the Secondary Stage Production Modernization program office provided me with a greater understanding of the nuclear security enterprise. The trainings and work experiences I have taken part in helped me continue to grow both my technical and leadership skills.”



Tyler J. Williams
NA-195 Secondary Stage
Production Modernization

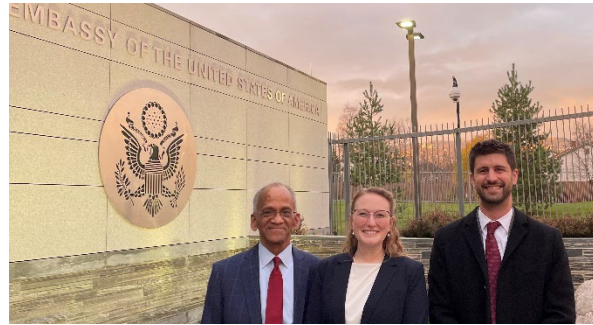
Doctor of Philosophy, Chemistry, Clemson University

Overview

The Office of Nuclear Material Removal (NA-232) works with international partners around the world to remove and repatriate excess inventories of weapons-usable nuclear material. To date, this office has eliminated all highly enriched uranium from more than 30 countries.

Outcomes

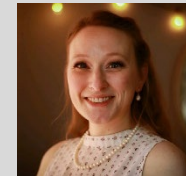
During my fellowship, I supported the NA-232 Program Manager for the Mobile Melt-Consolidate and Norway projects. In this role, I supported procurement of a novel, mobile melt-processing facility designed to downblend and prepare inventories of weapons-usable nuclear material for long-term or permanent storage. This capability was specifically designed to address otherwise difficult materials to dispose.



Wisner with Remove office members outside the U.S. Embassy in Oslo, Norway.

Additionally, I worked closely with our Norwegian counterparts who will be the first foreign partner to utilize this system in the coming years. I also had the incredible opportunity to meet the U.S. Chargé d'Affaires to Norway.

“This fellowship was a great transitional opportunity from my military service into foreign affairs. I appreciate the opportunity to continue serving my country. NA-232 has an awesome mission.”



Ashley Wisner
NA-232 Office of Nuclear
Material Removal

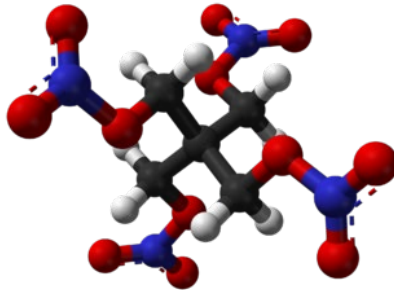
Master of Science, International Relations,
Troy University
Bachelor of Arts, History, University of Iowa

Overview

The NA-193 office works to supply high explosive and energetic materials to the nuclear stockpile's modernization programs. The program works with Management and Operating (M&O) contractors to ensure the long-term viability of their industrial bases. NA-193 also has the mission of ensuring that design and production agencies can meet the demand for strategic materials.

Outcomes

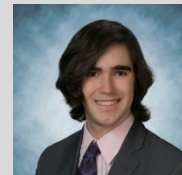
During my fellowship, I created a roadmap of the production process of detonators manufactured at Los Alamos National Laboratory. This involved collaborating with design agency personnel to understand the infrastructure, organizational structure, and supply chains involved in detonator production, as well as challenges facing the process.



The molecular structure of PETN (pentaerythritol tetranitrate), a precursor material to the powder used in detonators.

I also created and improved consistent channels for regular communication and data reporting with M&O sites, including Los Alamos, Livermore, Sandia, and Pantex. My efforts allowed for increased understanding of the scope that NA-193 is responsible for within Defense Programs and solidified communication and collaboration with design and production agencies.

“My time in the fellowship showed me the vast network of organizations and shareholders working to maintain and modernize the nuclear security enterprise. It has given me new determination to use my talents to add to this effort.”



Matthew York
NA-193 Office of High Explosives and Energetics

Master of Science, Mechanical Engineering, Case Western Reserve University (December 2022)

Overview

The Office of Stockpile Management directs and oversees all stockpile sustainment and modernization activities to ensure the U.S. nuclear weapon stockpile remains safe, secure, and reliable.



An F-15E conducts a vibration fly-around test for the B61-12 Life Extension Program.

Outcomes

As a fellow in the NA-12 Front Office, I supported senior leaders in Stockpile Management by hosting meetings and by processing and routing incoming requests for action. I also assisted a federal program manager with gaining more insight into program effectiveness by interviewing engineers and managers and analyzing trends in process data.

Working in the NA-12 Front Office gave me broad exposure to the many challenges of managing, scheduling, budgeting, and executing the mission of the Office of Stockpile Management.

"Assisting the executive leadership team in Stockpile Management gave me unique insights into the complexities and challenges of leading a multi-billion-dollar undertaking. I came away from this experience with a greater understanding and appreciation for the behind-the-scenes processes that support the laboratories and sites in the important work that they do."



Robert Zedric
NA-12 Stockpile
Management

Doctor of Philosophy candidate, Nuclear Engineering, Texas A&M University

Overview

NA-19, as a whole, oversees the production of all nuclear weapons materials for the U.S. stockpile. NA-192 specifically oversees the production of tritium for the U.S. nuclear weapons stockpile and the supply of domestic unobligated uranium used in the reactors that produce that tritium.



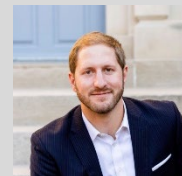
TVA Watts Bar reactors, where domestic unobligated uranium is used to irradiate tritium-producing burnable absorber rods for tritium production.

Outcomes

With the NA-192 team, I supported general management functions such as development of the Stockpile Stewardship and Management Plan, multiple management briefs, and NA-10 leadership's program management review. I also supported the oversight of the small centrifuge research and development program, a program executed to provide optionality for future sources of low enriched uranium for tritium reactors.

Additionally, I served as the co-Secretariat for the Manufacturing and Materials Strategic Collaboration. This body is key in ensuring the nuclear security collaborations under the 1958 U.S./UK Mutual Defense Agreement are transparent and effective. In my role, I communicated between NA-19 leadership, nuclear material production offices, and UK partners to coordinate their manufacturing and materials needs and exchanges.

“This fellowship provided key experience in and context to different areas of the nuclear security enterprise, allowing me to properly prepare, network, and identify where I want to direct my career in nuclear security.”



Zachary Zoller
NA-192 Tritium and Domestic Uranium Enrichment

Master of Arts, Global Security Studies,
Johns Hopkins University
Post-Baccalaureate Certificate, Intelligence,
Johns Hopkins University