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Savannah River National Laboratory gives STEM students a look at careers in nuclear safeguards

Engineering students from the University of South Carolina learn about national security and nuclear nonproliferation through hands-on activities and tours

AIKEN, S.C. (April 4, 2018) – Savannah River National Laboratory (SRNL) hosted 10 undergraduate and graduate students from the University of South Carolina for a two-day workshop to introduce them to nuclear safeguards.

“Safeguards” has a specific and important meaning in the international nuclear community. They are measures to ensure that nuclear technology and materials are used only for peaceful purposes. As a key nuclear nonproliferation strategy for national security, safeguards are used to deter nuclear misuse through detection and monitoring.

The workshop gave the students a comprehensive view of nuclear safeguards and their role in national security. They learned about the complexity and challenges of the field – and the opportunities available at SRNL.

“The goal of the workshop was to get the students exposed to the field of nuclear safeguards and get them interested in safeguards careers,” said Catherine Mussi, Engineer, SRNL Global Security Section and lead for the workshop. “The hope is that many of these students will go on to become the next generation of safeguards professionals.”

The workshop included tours of the Savannah River Site’s H Canyon as well as SRNL’s F Area Labs and Mobile Plutonium Facility, with a focus on safeguards. The workshop also included hands-on activity and lectures presented by subject matter experts.

For the hands-on activity, students had to “dress out,” or wear proper personal protective equipment, to work in gloveboxes with simulated nuclear materials. They also conducted a material balance, a procedure that measures the amount of nuclear materials at the beginning and ending of work to make

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sure they are equivalent. A material balance ensures that no nuclear materials are diverted during handling.

“This tour has inspired my interest in nuclear energy,” said sophomore Megan Dawson, a Civil and Environmental Engineering major. “I learned a lot about nuclear energy. I never knew the process or the safety that went into the handling of nuclear materials. I learned the importance of safety in everything you do at the facility.”

Ron Seabrooks, a Senior Engineering and Technical Support Specialist with 30-years of experience at SRNL and a workshop presenter, said, “I didn’t choose this profession, it chose me. Passing along my knowledge as an experienced glovebox user is vital for our future and generations to come.”

Holly Watson, Interim Lead of Nuclear Material Control and Accountability for H-Area Operations for Savannah River Nuclear Solutions (SRNS), also presented at the workshop. “Safeguarding nuclear material is critical to our nation, requiring creative solutions to remain effective,” she said. “I enjoy educating the next generation workforce about prospective careers in safeguards.”

The workshop was sponsored by the U.S. Department of Energy’s National Nuclear Security Administration’s Office of International Nuclear Safeguards (NA-241), Human Capital Development Subprogram.

SRNL will host engineering students from Clemson University for another safeguards workshop later this year.

Savannah River National Laboratory is a multi-program national laboratory for the U.S. Department of Energy Office of Environmental Management. SRNL puts science to work providing practical, cost-effective solutions for the nation’s environmental, nuclear security, energy and manufacturing challenges. <http://srnl.doe.gov>

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Photo Caption 1:

Workshop participants: (Standing L to R) Dennis Miller, Zachary Steckmann, Holly Watson (SRNS), Jack Hannum, Matthew Shalloo, Richard Marini, Alexander Grant, Thomas Martin
(Kneeling L to R) Calen Raulerson, Travis Knight, Tashiema Wilson, Megan Dawson, Cathy Mussi (SRNL)

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Photo Caption 2:

Matthew Shalloo, Nuclear Engineering Graduate student, verifies the serial number on a Tamper Indicating Device he will apply to a can of simulated nuclear material.

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Photo Caption 3:

SRNL Senior Engineering & Technical Support Specialist Ron Seabrooks explains the heat-sealing method used to remove material from the glove bag and the importance of keeping the area outside the glove bag free of contamination.

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Photo Caption 4:

Holly Watson, Interim Lead of Nuclear Material Control and Accountability for H-Area Operations for SRNS, explains the safe handling of material and inventory differences, while allowing students to examine a screw-lid can used to package plutonium.

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Photo Caption 5:

During the SRNL Nuclear Safeguards Workshop, students learned how to create an effective seal for bag-out operations, a crucial step in preventing airborne particulates.

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