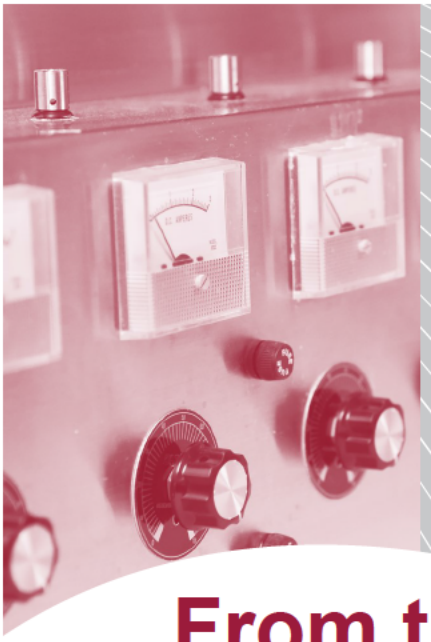
ISSUE 24 • 2018 • USTUR-0510-18



USTUR Newsletter

From the Director's Desk

Dear Registrants and Families:

It is my pleasure to have this opportunity to tell you about the USTUR's activities and achievements in 2018 – the 50th year since its establishment.

On April 23rd, the Registries received a letter of commendation from the Department of Energy Headquarters signed by Matthew B. Moury (Associate Under Secretary for Environment, Health, Safety and Security), which recognized that "the Nation owes a great deal of debt to the former nuclear workers who, as volunteer Registrants, continued to serve their country in the cause of advancing science. Their ultimate sacrifice, along with that of their loved ones honoring their wishes, has enabled USTUR to obtain, preserve, and make available for future research samples of tissues at autopsy. Because of their selfless acts, the scientists are able to develop more reliable epidemiological studies, more accurately project risks, and ultimately better protect the safety and health of current and future generations of nuclear workers through more effective standards for radiological protection. Their contribution and the difference they have made will not be forgotten". I can't say it better than Mr. Moury: your contributions to the Registries are important and valued!

I would also like to introduce the new members of the Scientific Advisory Committee (SAC) that came on board during the past year. Dr. Luiz Bertelli from Los Alamos National Laboratory (LANL) and Dr. Arthur (Bill) Stange from Oak Ridge Associated Universities (ORAU) joined the SAC as Health Physics and Occupational Health representatives, respectively. Some of you might know or even have interacted with Dr. Stange as he has provided epidemiological oversight and analysis of medical surveillance findings for the DOE Rocky Flats Plant Beryllium Medical Surveillance Program and the ORAU's Nationwide Beryllium Medical Surveillance Program.

Inside this issue are details about just a few of the Registries' 50-year achievements and discoveries. Our gratitude goes out to you and we wish you a happy holiday season!

50 Years

Learning from Plutonium and Uranium Workers


USAEC (DBM) Meeting on "Plutonium Contamination in Man"
July 25-26, 1966, Denver (Rocky Flats Plant)

1966: Details of the proposed plutonium registry began to take form during informal discussions and two larger meetings held at the Rocky Flats Plant in 1966 and Lovelace in 1967. According to H.D. Bruner of the Atomic Energy Commission, **"the idea of a Registry occurred to many men about the same time."** The National Plutonium Registry, a predecessor to the USTUR, was **founded in 1968**.

356 Registrant donations

Male: 344 Female: 12

33 U.S. states

333 Papers published

Early on, there were two separate registries: the U.S. *Transuranium* Registry (aka National Plutonium Registry, founded 1968) and the U.S. *Uranium* Registry (1972). These combined in **1992 to form the U.S. Transuranium and Uranium Registries**.

At about the same time, Argonne National Laboratory transferred tissues from the **historical radium dial painter studies** to the USTUR, forming the National Human Radiobiological Tissue Repository. In 2016, radiation-induced changes to a type of white blood cell, called a lymphocyte, were identified in blood from radium dial painters that was preserved on slides in the 1970s. The findings are important scientifically, and because they highlight the importance of saving tissue materials for future research.

Commendation from DOE Associate Under Secretary

2018: Department of Energy's (DOE) Associate Under Secretary for Environment, Health, Safety and Security – Matthew Moury – applauded the USTUR with a letter recognizing the **USTUR's role in providing a scientific basis for radiation protection standards**. The USTUR is the longest-running domestic radiation health study in the United States. The letter highlights recent research, thanks the USTUR team for its dedication to the program, and expresses **a deep sense of gratitude for Registrants and their families**.

Educating the Next Generation

A unique way that USTUR research protects future radiation workers is through its role in educating the next generation of radiation protection professionals, who will be responsible for protecting workers.

Since the USTUR moved to WSU in 1992, sixteen graduate students have used USTUR data to complete the research requirement of their studies. Several of our more recent graduates have focused on what we call biokinetic modeling. Biokinetic models are mathematical models that describe the movement of plutonium (and other radionuclides) through the human body. Students gain not only a thorough understanding of the models that are used to calculate doses for workers, but they have the opportunity to work with real data, such as lung counts and the amount of plutonium excreted in urine. Real data present the students with real-world challenges that shape them into professionals who are better prepared to address the unique exposure scenarios that future workers may encounter.

Our most recent graduate is Sara Dumit. Dr. Dumit developed a new mathematical model to describe the removal of plutonium from the human body during treatment with special drugs, called chelating agents. Chelating agents are sometimes given to workers who have inhaled plutonium, or taken it into their bodies through another route, such as a contaminated wound. Chelating agents remove plutonium from the body by binding to the plutonium and turning it into a chemical form that is readily excreted in urine. Dr. Dumit's doctoral dissertation titled, "Development of a New Compartmental Model for Plutonium Decorporation Therapy" was successfully defended May 14, 2018, and in August, she joined the Los Alamos National Laboratory's internal dosimetry team as a post-doctoral researcher. A paper describing the structure of her model was published ahead of print by the Health Physics journal in 2018.

Sara Dumit and her graduate committee: Sayed Daoud, Kathryn E. Meier, Sergei Tolmachev, Jeannie Padowski, Daniel Strom.

PAST STUDENTS

8 Doctoral

8 Master's

Two former students are now research professors right here at the USTUR. Others are employed by institutions such as The National Institute for Occupational Safety and Health (NIOSH), Los Alamos National Laboratory, HPMC Occupational Medical Services, and Bloomsburg University.

Medical Screening

You may be eligible for medical screening through the Department of Energy's Former Worker Medical Screening Program. We mentioned this program to you a couple years ago, and recently we received detailed brochures, which we would like to share with you. Please see the enclosed National Supplemental Screen Program brochure to learn more.

Kathrens donate radiological book collection

Ronald and Susan Kathren

Former USTUR director and WSU professor emeritus, Ronald Kathren, and his wife, Susan, donated an extensive collection of radiological books to WSU Tri-Cities. The collection covers topics relevant to radiological sciences, and is available to WSU students and faculty, as well as professionals and members of the public. The Ronald and Susan Kathren Radiological and Affiliated Sciences Collection was dedicated during a ceremony on May 18th. Kathren directed the Registries from 1989 until 1999, and transferred the program from the Hanford Environmental Health Foundation (HEHF) to WSU in 1992.

United States Transuranium and Uranium Registries

College of Pharmacy and
Pharmaceutical Sciences
Washington State University
1845 Terminal Dr., Suite 201
Richland, WA 99354
509-946-6870
509-946-7972 Fax

For more information call 800-375-9317 or visit us online at www.ustur.wsu.edu

Maia Avtandilashvili, Margo Bedell, Sara Dumit, Sergei Tolmachev, Stacey McComish, George Tabatadze, Elizabeth Thomas