USTUR Newsletter

Direct from the Director

It is my pleasure to have this opportunity to keep in touch with you and provide you with our recent updates.

Previously, our readers used to receive this newsletter around the Christmas/New Year holidays; now, it is almost summer. This is because the beginning of our fiscal year was changed from October to April. Thus the holiday season has become very busy with preparing new grant proposals. As such, you can expect to receive future Registrant newsletters during late spring or early summer. As a side note, our grant proposal was successfully submitted to the DOE. For the current 5-year grant period, we were awarded 4.5 million, which is lower than the 6 million we requested. We wish our request had been granted; however, given our hard financial times, receiving this substantial amount is advantageous and we will do everything in our power to spend the allocated funds with the utmost benefit for the Registries.

Now I would like to proceed to scientific as well as practical affairs, providing you with several highlights.

First, I would like to welcome our new Scientific Advisory Committee Chairman – Dr. Richard Toohey and our new radiochemist – Ms. Elizabeth Thomas. With Ms. Thomas' arrival, I look at radiochemistry with redoubled optimism – now we have two radiochemists on board.

In March, the 2012 USTUR Annual Report was published; it includes our progress reports from October 2010 to March 2012. This report was widely distributed nationally and internationally. You can download it from our website or call to request a copy.

In addition, I would like to emphasize the publication of papers on such topics as mesothelioma and radiation, and validation of the plutonium lung model in leading international journals.

You will read about these highlights and more in this newsletter. This year, following recommendations from our Scientific Advisory Committee – who stated that our language was too scientific, we made all efforts to write in plain, clearly understandable language. We hope our attempts were successful.

To conclude, I want to underscore that all of our accomplishments could happen only because of our donors – without our Registrants, nothing would be possible.

Best wishes,

Sergei Y. Tolmachev

Inside this Issue

A Note from Our New Scientific Advisory Committee Chair

I am very pleased and honored to be the new chair of the Scientific Advisory Committee for the USTUR. Dr. Tolmachev appointed me as the health physics representative to the SAC last year, and at our meeting in September, Bill Hayes decided to step down as Chair after several very productive years of leading the SAC, and the committee elected me to replace him. Although relatively new to the SAC, I have been very involved with the programs of the USTUR over the years, and I spent a sabbatical year in 1993-94 at the USTUR as Associate Director, compiling data on USTUR Case 246, the Hanford americium accident victim, and produced five scientific articles that were published in Health Physics journal. I began my career as an internal radiation dosimetrist at Argonne National Laboratory, working on the follow-up study of the radium watch dial painters from the 1920's; although that program was terminated, all the records and tissue samples were transferred to the USTUR, where they are still maintained.

I am very excited to be able to assist the USTUR as it evolves from its original mission, which was to gather actual human data to improve the mathematical models we use to calculate the radiation doses workers receive from intakes of radioactive materials, to a new mission to support fundamental scientific investigations of the connections between radiation exposure and cancer formation. The Department of Energy has sponsored a research program for about the last 10 years or so investigating the biological effects of radiation at the cellular, and even sub-cellular level, that is, what really happens in a cell that is exposed to radiation, and how do those changes in a cell lead to the formation of a cancer. Much of the data used has been from animal experiments, but a new collaborative program between the USTUR and Battelle Pacific Northwest National Laboratory will use human tissue samples from the USTUR to compare with the animal data. This project, which was undreamed of when the USTUR was established, is just one example of the invaluable national scientific resource that the USTUR has become. Another project is the work of SAC member, Dr. Herman Gibb, on mesothelioma in USTUR Registrants. Mesothelioma is a type of lung cancer previously thought to be caused only by exposure to asbestos, but Dr. Gibb's work is indicating that radiation also may have a role in causing this disease, another new finding from the USTUR data.

Despite the current fiscal belt-tightening in Washington, D.C., the funding for the USTUR seems to be secure for at least the near future, and all of us on the SAC look forward to continuing the USTUR's record of scientific excellence. Of course, none of this would be possible without the caring and compassionate donations of Registrants and their families, and we feel that the development of new scientific data resulting in improvements in radiation protection of workers is the best thank-you that the USTUR can offer.

~Richard E. Toohey

Scientific Advisory Committee Meeting

The USTUR has an independent Scientific Advisory Committee (SAC) that meets annually to review the program activities and progress. Last year, this meeting was held September 7-8 in Richland, WA. It was attended by Advisory Committee members; USTUR faculty and staff; Department of Energy representative, Joey Zhou; WSU Associate Dean of Graduate Education & Scholarship, Gary Meadows; and a donor's son as a next-of-kin representative. Major feedback from the 2012 meeting includes:

Comments

- High productivity was achieved on limited funding
- Excellent collaborations with non-USTUR scientists.

Recommendations

- Improve communication with Registrants and their families

2012 SAC Members

Richard Toohey (chair) - *Health Physics*
Robert Bistline - *Occupational Health*
Herman Gibb - *Epidemiology*
William Hayes - *Radiochemistry*
Kathryn Meier - *Ethics & Academic Community*
Roger McClellan (unable to attend the meeting) - *Toxicology*

What are the benefits of involving students in USTUR research?
Today's students will become tomorrow's radiation protection professionals. Investing our scientific resources in their education is an investment in the safety of future nuclear workers! As an added benefit, students are able to conduct cutting edge research at little or no added cost to the USTUR, thus stretching our limited grant funding further.

Graduate Research

The USTUR contains a wealth of materials that provide graduate students with meaningful data for dissertation topics relevant to radiation protection. We desire to share our unique dataset with students and to provide feedback that will help shape them into leading scientists.

ISU Health Physics

In 2006, The USTUR initiated a collaboration with Idaho State University (ISU), Pocatello, ID to share USTUR data with students who have an interest in the field of internal dosimetry.

As a product of this collaboration, four Ph.D. and three M.S. degrees were awarded, five students published seven papers, and one student (Maia Avtandilashvili) was hired by the USTUR.

WSU Environmental Sciences

In last year's newsletter we mentioned the work of PNNL employee/WSU student, Chris Nielsen, who studied the distribution of plutonium in a Registrant's lungs 38 years after it was accidentally inhaled. He found that the plutonium had congregated into localized areas of the pleura. Often the plutonium was found in parts of the pleura that had black residue from cigarettes. These findings were recently published in a leading journal, Cancer Research.

A Donor Family's Perspective

My father was a tissue donor to the USTUR. Involved in a significant incident in 1957, he was exposed to plutonium through simultaneous ingestion, inhalation, and injection. It was an unprecedented event at the time, and the long-term effects of this exposure were unknown. Although he certainly did not seek the notoriety, nevertheless he became the subject of scientific study and monitoring from that day on.

In the 1970's, my father was approached by the site physician to consider becoming a tissue donor for the Registry. I remember there was a fair amount of discussion within the family about signing up for the program; however, it was a decision in which he was adamant. He felt strongly that the experience, his exposure and subsequent treatments, needed to be documented and studied to further the understanding of both short and long term health effects. Additionally, those results needed to be shared with those who found themselves in situations similar to his due to their own exposures.

It was a difficult time for the family when he passed away in 2008; however, we knew the importance of his decision to him, and we notified the USTUR. Thankfully, the process of the donation was virtually transparent, with the USTUR staff taking care of all the details. That was a tremendous relief to us at a time of profound grief.

The USTUR has been instrumental in validating exposure models used for routine and accident dosimetry protocols. Research is continuing into new analytical laboratory processes that will refine and validate the accuracy of current dose assessment techniques. Other studies are looking at beryllium exposure analysis and a possible connection between plutonium exposure and the incidence of mesothelioma. Many other research projects are ongoing as well.

I encourage Registrants and their families to become aware of, and involved in, the USTUR activities. The USTUR's website contains links to many published reports of research involving Registrants. I would also recommend reading the Annual Report for an overall summary of ongoing USTUR activities. Although I might not understand much of the technical information presented, as a family member, I am reassured that meaningful scientific contributions continue to be made through the tissue donation of the Registrants, including my father.

The decision to donate to the USTUR is a highly personal one, and I'm sure each individual has his or her own reasons for doing so. As a son, I am proud of the decision my father made. As a second generation nuclear worker, I am thankful and appreciative of the contribution, not only of my father, but of all USTUR donors in making the industry safer through increased understanding of radiation exposure and the resultant health effects.

The USTUR provides a unique resource for scientists worldwide, and it is instrumental in continuing research around the globe. Financial support from the Department of Energy assures continued operation. However, the USTUR would not exist if not for the donations of past and future Registrants.

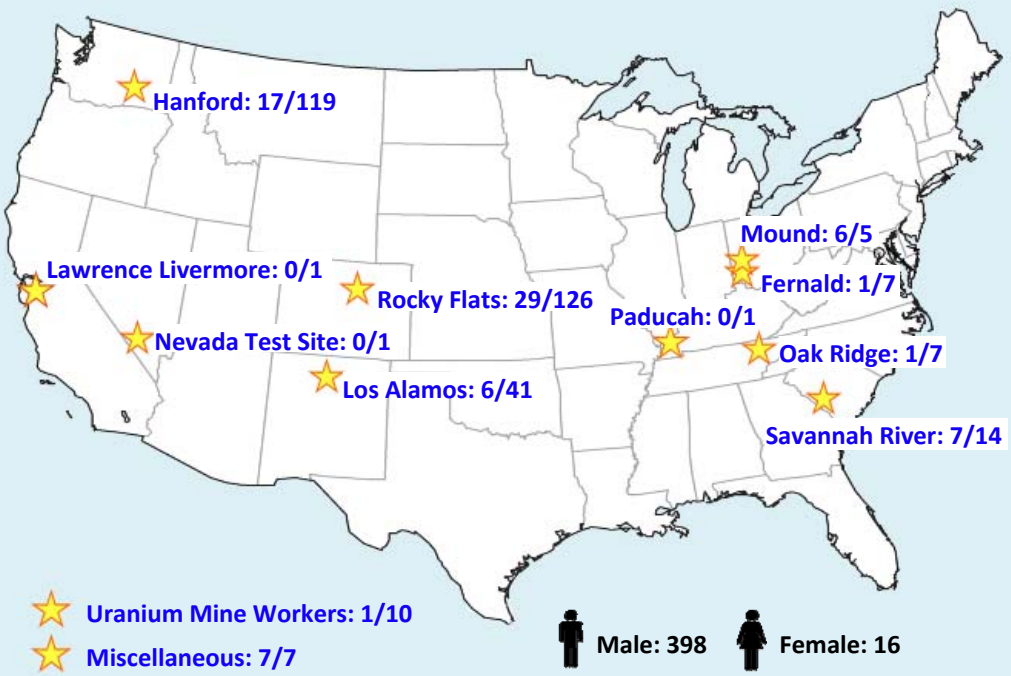
~Mike

How can I obtain a copy of the Annual Report?

On the web: The Annual Report can be downloaded from our homepage. Look for the red and white picture of the report cover and click "Download Report."
www.ustur.wsu.edu

Give us a call: You can also call us to request the report. We will gladly send a copy to you.

Registrant Statistics



The USTUR has 75 living Registrants. You range in age from 41 to 90+ years, with an average age of 78. Since 1968, the Registries has received tissue donations from 339 nuclear workers and/or uranium miners (average age, 68 y). The U.S. map illustrates the distribution of Registrants by the nuclear site where they worked. The first number represents living Registrants, and the second deceased.

Million Worker Study

The National Council on Radiation Protection and Measurements, with funding from the Department of Energy and the National Cancer Institute, is starting a new large-scale epidemiology study of cancer incidence in workers exposed to radiation. The worker groups to be studied include DOE workers, commercial nuclear power plant workers, medical radiology technicians, military personnel (including "Atomic Veterans" present at nuclear weapon tests), and industrial radiographers. The USTUR Registrants, although a small group compared to the others, will be included in this study because the measurements of radioactivity in their donated tissue samples provide a much better estimate of their internal radiation doses than can be made from their work records. This is one more example of the scientific importance of the data that the Registries gather and maintain.

Hanford Oral Histories

WSU Tri-Cities has partnered with several regional organizations to collect, safeguard, and showcase oral testimonies, so that a lasting legacy of Hanford's heritage may be carried forward for the educational benefit of future generations.

If you worked at Hanford prior to 1963, or knew someone who did, and would like to share your story, please contact the Hanford History Partnership at:

www.ourhanfordhistory.org
(509)372-7306

Please note the USTUR is not involved with the administration of the Hanford History Partnership, and has provided this information because we believe it may be of interest to our Registrants.

Have you **Moved**?

Please give us a call to make sure that we have your current address.

In the **Photo**!

Following the 2012 Advisory Committee meeting Joey Zhou, DOE Program Manager, spent two days visiting the USTUR and discussing operations with our director. Photographed: (back row) Fred Miller, Florencio Martinez, Joey Zhou, Margo Parker, Julie Blumenkranz, Elizabeth Thomas; (front row) Stacey McComish, Sergei Tolmachev, Maia Avtandilashvili.

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Note from the Editor

Writing this newsletters has become one of the highlights of my year. I enjoy the opportunity to update you on what is happening at the Registries. If you have any questions about your participation in the USTUR or if you have suggestions as to what you would like to see in next year's newsletter, feel free to give us a call. We always enjoy hearing from our Registrants and their families!

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