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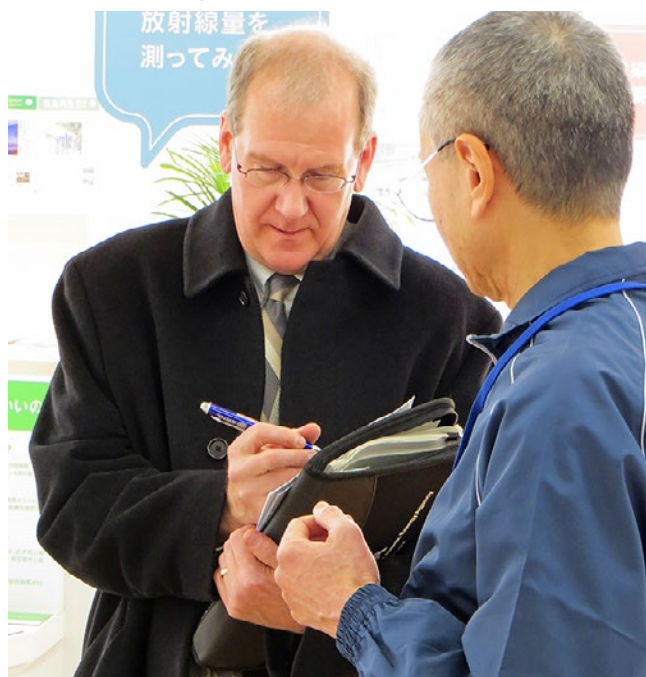
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SRNL's Dr. Robert L. Sindelar Returns from Appointment in Japan

AIKEN, S.C. (June 11, 2013) – Savannah River National Laboratory Senior Advisory Engineer, Dr. Robert Sindelar, has returned from his three-month assignment as an Embassy Science Fellow to support the Government of Japan. Sindelar was one of three scientists selected for the appointment through the US State Department Office of Science and Technology Cooperation.

Sindelar, of Aiken, SC, said he had two major impressions upon entering the exclusion zone where decontamination activities were underway. “The in-place abandonment of stores, cars, homes in the townships gave me a fear that Rod Serling was just around the corner,” said Sindelar. “We did see severe tsunami damage to a local rail station far from the present shore, but a town otherwise in-place, but without people, was unsettling. The second impression was observing the industriousness of the Japanese agencies and people in achieving a measure of decontamination. The model project work to demonstrate decontamination of many surfaces over large tracts of land, each about 50 acres in extent, and the progress being made in full-scale decontamination showed that remediation can be done quickly.”

On March 11, 2011, a major earthquake and subsequent tsunami disabled the power supply and cooling system of three reactors at Fukushima Daiichi. All three reactor cores later melted to some degree. The main releases from the disaster were the radionuclides cesium-134 and cesium-137. Cs-134 (half-life of approximately 2 years) and Cs-137 (half-life of approximately 30 years) can easily be transmitted in a plume, leading to increased risk for contamination of fields and crops. Iodine-131 was also produced and released.



Robert Sindelar conducts an interview as part of his work in Japan



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The Embassy Science Fellow Program places US government scientists at posts to provide expertise, advice, and assistance with science and technology-related issues, such as in the case with the Fukushima Daiichi disaster. The program facilitates collaboration with the host government and local entities to meet broad US objectives in science policy, diplomacy, bilateral cooperative science and technology activities, and capabilities of US departments and agencies. The Director of the Department of Energy Japan office solicited the US State Department to provide Embassy Science Fellows to support the Government of Japan's Ministry of the Environment with its lead for the decontamination of the lands surrounding the Fukushima Daiichi NPP site. Sindelar, Mark Triplett from the Pacific Northwest National Laboratory (PNNL), and Sang Don Lee from the Environmental Protection Agency were also selected for the assignment.

Sindelar's background includes 28 years of work in nuclear materials systems and international projects with spent nuclear fuel management. He also served a lead role in a major IAEA initiative for cleanup of a highly-contaminated spent fuel storage basin. These credentials were strengthened through the vast SRS/SRNL knowledge and experience base over a breadth of remediation topics. "The legacy of over 50 years of environmental studies and remediation activities at SRS, and the ready reach-back to SRNL staff were key discriminators," said Sindelar.

In spite of his many years of experience, Sindelar said the obstacles facing Japan in its cleanup efforts are remarkable. "There is a learning curve to understand the breadth of the challenges faced in the decontamination of the lands surrounding the Fukushima site. The contaminated regions include population centers with businesses, homes, schools, and community centers; farmlands; and forests with a total area about the size of the state of Connecticut. The radioactive contamination is surface contamination with Cs-134/137 at levels to cause high air dose rates that exceed a rate of 2 rem/year whole body in a large area of land."

"The remediation is daunting in terms of the level of effort to achieve decontamination, and the management of the large volumes of soil waste," said Sindelar. "We were brought into the inner workings of the GOJ-Ministry of the Environment management team and staff to discuss the progress they made, relevant experience of the U.S., and further work needed for off-site remediation of the environment."

According to Sindelar, work at the Savannah River National Laboratory goes hand in hand with cleanup efforts. "One key core area for SRNL support to remediation of the lands of Japan is in advanced technologies to accelerate attenuation of radioactive cesium in soils and forest regions. SRNL environmental restoration staff, in conjunction with the Savannah River Ecology Laboratory and Japanese partner research organizations, has the outside large-scale facilities, remediation experience base, and sound research plans to investigate remediation systems that could be attractive solutions to facilitate the re-use of large land tracts that would otherwise be left unused for long periods of time. Other technology areas that could leverage the case studies and work at SRS would include transport and fate modeling of cesium in the environment, and advanced waste treatment and stabilization technologies."

Sindelar said there are two parts to the remediation effort in Japan: the work for the Fukushima site through the management firm TEPCO and sponsoring agencies within Japanese government, and the off-site work coordinated and sponsored through Japan's Ministry of the Environment.

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“SRNL is the Environmental Management lead laboratory providing technology integration for the DOE complex. We are in partnership with PNNL for the TEPCO work. We reached out to the Government of Japan through the DOE Environmental Management program offices to offer our broad set of technologies and expertise in soil and groundwater clean-up, site remediation/restoration, and supporting technologies. The SRNL/PNNL team has successfully established a strong relationship with TEPCO and is executing contract work for on-site clean-up and recovery tasks.”

“The support to the Ministry of the Environment through the Embassy Science Fellow appointment established a foundation for an enduring relationship in which SRNL/SRS will have direct impact on future work and future collaboration,” he said. “The synergy of activities in the on-site and prospective new off-site work is expected to strengthen our recognition and business prospects as a laboratory that can quickly identify needs, conceptualize and develop solution paths for those needs.”

“SRNL has an established history of quick response and project execution in emergency/urgent situations for both US and international clients for radiological clean-up and non-radiological accident resolution,” added Sindelar. “The present and expected future work in recovery and remediation of the on-site and off-site Fukushima facilities and lands will put SRNL at the forefront in radiological event recovery.”

Sponsored by DOE’s Office of Environmental Management, SRNL is DOE’s applied research and development national laboratory at the Savannah River Site. SRNL puts science to work to support DOE and the nation in the areas of environmental stewardship, national security, and clean energy. The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC.

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