

**Record of Meeting**  
**Joint U.S./Russian JCCEM Deactivation and Decommissioning Workshop and**  
**Demonstration of the NIKIMT-Developed Gamma Locator Device**  
**Idaho National Engineering and Environmental Laboratory (INEEL)**  
**Idaho Falls, Idaho, USA**  
**July 10 – August 2, 2001**

**Participants**

*From the Russian side:*

**Research and Development Institute of Construction Technology (NIKIMT)**

Nikolai Sidorkin  
Victor Gorbachev  
Alexandre Erchov  
Oleg Romanov

*From the U.S. side:*

**DOE-INEEL**

Larry Whitmill, INEEL LSDDP  
Dick Meservey, INEEL LSDDP  
Neal Yancey, INEEL LSDDP  
Vincent Daniel, INEEL LSDDP  
Craig Conner, INEEL LSDDP  
Susan Bruyere, INEEL  
Ron Barden, INEEL STCG  
Matt Anderson, Robotics Center  
Mark McKay, Robotics Center  
Al Carlson, Robotics Center  
Lisa Ruiz, RadCon, Loremax  
Lori Lopez, Field Team Leader, TAN  
RogerOlsen, Radcon, TAN  
Mike Hargis, Radcon, TAN  
Stacey Peterson, Internship, ISU Student  
Kurt Christeansen, Internship, Rock Spring High School Student

**DOE NETL**

Steven Bossart

**Florida State University**

John Moerlins  
Mikhail Khankhasayev

**Science Applications International Corporation**

Mark Whitney

Liliya Petrachenkova

**TEA Inc. and Associates**

Tom Albert

Tanya Albert, Interpreter

Sergei Silichtchev, Interpreter

**Background Information**

In 1999, as part of the DOE sponsored Large Scale Demonstration and Deployment Project, the INEEL selected the Russian technology, Gamma Locating Device that had been developed by the Research and Development Institute of Construction Technology (NIKIMT), Moscow, Russia, for possible demonstration. The technology was evaluated and upgraded within the JCCEM Contract entitled: Distance Method for the Determination of Activity Density Distribution on a Surface (Dec. 1, 1999 - March 31, 2000). During Phase I, the GLD device was upgraded to meet the INEEL needs. The testing of the upgraded GLD was successfully conducted at NIKIMT in Feb. 27 - March 3, 2000, in the presence of the INEEL LSDDP personnel. During the NIKIMT delegation visit to INEEL in March 17-24, 2000, the decision was made that the INEEL robot ATRV-Jr could be used as a moving platform for the GLD. An additional task was identified regarding isotopic identification capabilities which would have added benefits to DOE Complex and commercial nuclear power plants.

The current JCCEM Contract, Distance Method for the Determination of Activity Density Distribution on a Surface (Phase2, June 1, 2000 - Sep. 31, 2001) is aimed at increasing the GLD capabilities by integrating an isotopic analyzer into the system, preparing the GLD technology for demonstration, shipping the necessary equipment to the INEEL, and conducting the demonstration at Liquid Waste Treatment Facility at Test Area North (TAN-616).

The goal of the present workshop is to demonstrate a remotely operated Gamma Locating Device (GLD) at INEEL. The GLD quantifies the gamma radiation and provides isotopic identification in a remotely operated non-tethered system. The system also provides video footage, which would be critical in areas where radiation levels prohibit human entry. The system was mounted on INEEL robot ATRV-Jr that was also operated non-tethered. The technology was scheduled for demonstration at the Liquid Waste Treatment Facility at Test Area North (TAN)-616 facility, and assuming a successful demonstration at TAN 616, the technology was subsequently deployed at Cubicle #13 at the INEEL Power Burst Facility (PBF).

## **Activities**

Victor Gorbachev arrived at INEEL on July 10, 2001, and the remainder of the Russian delegation joined him later, on July 15, 2001. On July 16, the Russian delegation went through the orientation. On July 10 -18, the work of the Russian delegation and their US INEEL colleagues was focused on unpacking the GLD, testing the operation performance after the shipment, mounting the GLD onto the INEEL robot ATRV-Jr, and preparations for the Public Demonstration which was scheduled for July 19, 2001.

On July 18, the GLD was moved to the INEEL Nuclear Laboratory (IF 638) where Dr. Douglas Akers provided the radioactive sources (Am-241, Cs-137, and Co-60) to calibrate the GLD. The calibration of the GLD was successful. After the calibration, the GLD was moved back to the Robotics Center for the final preparations for the public demonstration.

On July 19, the Opening Session of Public Demonstration of the GLD technology was held at the INEEL Research Center (IRC). Carol Mascarenos, Director of the Environmental Management Project Integration Organizations, opened the Session, and greeted the reporters, guests, and visitors who had arrived at the IRC. She introduced the speakers, Russian guests, and interpreters. Among the featured speakers were Ralph Carabetta (NETL Deputy Director), Warren Bergholtz (Deputy Manager of DOE-ID Operations Field Office), Paul Kearns (Vice President and Deputy Director of INEEL), and Nikolai Sidorkin (Director of the NIKIMT Robotics Center). The highlights of their presentations are attached.

After the closing of Opening Session by C. Mascarenos, D. Meservey, J. Walsh, and R. Smith guided the demonstration of the GLD at the INEEL Robotic Center. The demonstration went very well. On the same day, the information about this event was aired by the local TV News Channel (a video copy is available).

On July 23, 2001, the GLD and the robot were moved to the TAN-616 area. According to the demonstration plan, two rooms on the first floor and the basement of TAN-616 had been selected for the GLD demonstration.

Lori Lopez (Field Team Leader), conducted the job safety instruction meeting with the participants of the GLD demonstration at TAN -616. Roger Olsen and Mike Hargis (Radcon Technicians for TAN) instructed the participants on the radiological safety issues.

The first floor of the TAN-616 was examined on July 24, 2001. This is a lowly contaminated area, and it was carefully examined by the TAN personnel prior to the demonstration. The data obtained by the GLD, which included the level of radiation and the isotopic content of each scanned point, were compared with the TAN RadCon group data. There was good agreement between these sets of data. The demonstration was recorded by the INEEL group, and it was videotaped by the INEEL photographer Mike Crane (the video film will be available by the end of August, 2001).

On July 24, 2001, the GLD was moved to the basement of the TAN-616 facility to examine the radiation level and isotopic content of the contamination. This area has rather strong radioactive contamination level, and an additional protection material was placed onto the GLD and the robotic platform.

On July 25, 2001, the GLD and the robotic platform were moved to the basement of TAN-616 by the INEEL personnel. The selected areas of the basement were scanned by the GLD. Totally, eight scannings have been conducted. The demonstration went successfully. The obtained results on the radiation level and isotopic content of contamination clearly revealed some "hot" spots in the vicinity of pipe lines. After finishing the demonstration, the robotic platform and the GLD were decontaminated, packed, and moved to the Cubicle 13 of the PBF facility.

On July 30, the equipment was unpackaged and set up at the Power Boost Facility. The Robot and GLD were carried into the basement. The GLD was tested and operated correctly. The equipment (both robot and GLD) were wrapped with plastic to prevent contamination. The GLD and robot were connected to a charger and charged overnight.

On July 31, 2001, the GLD was been deployed successfully at Cubicle 13 of the PBF facility. The GLD successfully measured 14 scanning points in Cubicle 13. The GLD provided both gross gamma measurements and isotopic measurements. Following the measurements, the GLD and robot were easily decontaminated and released for shipment.

On August 1, 2001, a workshop was held to discuss lessons learned (attached) and future use and plans for GLD.

Signed  
For the U.S. side by

Mr. Larry Whitmill  
INEEL

For the Russian side by

Dr. Nikolai Sidorkin  
Principal Investigator  
NIKIMT