Sandia National Laboratories

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Dori Ellis, Director

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Sandia Senior Management Reviews Russian Interactions

(l to r) Sandia's Joan Woodard, Dori Ellis, and Roger Hagengruber tour a museum at VNIIEF. (Photo courtesy of Bob Huelskamp 05327)

For twelve days in early October 2000, Roger Hagengruber, Senior Vice President of National Security and Arms Control Division 05000, and Dori Ellis, Director of International Security Center 05300, conducted a senior management review of Sandia's relationships with five key Russian nuclear institutes. Roger invited Joan Woodard, Sandia's Executive Vice President and Deputy Director, to accompany him and Dori to obtain a firsthand view of Sandia's strategic collaborations with the institutes.

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Focus on Russia

(r to l) Joan, Roger, and Dori discuss opportunities for future collaboration with VNIIA senior management. (Photo courtesy of Bob Huelskamp 05327)

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Dori Ellis noted, "I am especially pleased that both Roger and Joan took the time to make this trip. It was Joan's first visit to Russia, and it gave her a much better understanding of the programs that we are working there. I know that our hosts appreciated the interest and involvement of our laboratories' leadership."

Sandia National Laboratories plays a key role in the planning and execution of several DOE-sponsored collaborations with Russian Federation institutes. In addition to regular reviews by project teams, periodic senior management reviews greatly facilitate the effectiveness of the collaborations. The 1996 senior management review paved the way for many of the current projects between Sandia and Russian institutes.

(l to r) Roger, Joan, Dori, and Bob Huelskamp (Manager 05327) tour the VNIIEF Atomic Weapons Museum in Sarov (Photo courtesy of Bob Huelskamp 05327)

The five sites visited in October 2000 include the three Russian nuclear design labs, the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF) in Sarov, the All-Russian Scientific Research Institute of Technical Physics (VNIITF) in Snezhinsk, and the All-Russian Scientific Research Institute of Automatics (VNIIA) in Moscow, as well as the Kurchatov and Eleron institutes in Moscow.

Sandia's portfolio of activities with these institutes has been expanding steadily since the

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Submitting Items to *International Security News*

Calendar entries, articles, and photographs are welcome! For articles, please prepare up to one whole page of text typed in Word for Windows without special formatting. Submit electronically to the International Security News editor. Choose color photographs that were taken close enough to the subjects to make them recognizable when the pictures are reproduced for the newsletter.

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end of the Cold War. Current activities include collaborations in basic science, pulsed power, warhead safety and security, and materials protection. Additional efforts focus on creating nonweapons work for nuclear scientists, engineers, and technicians, thus reducing the size of the Russian nuclear weapons complex.

Rady Il'Kaev (right), VNIIEF Director, and Joan Woodard (above right) sign an agreement under the watchful eye of Roger Hagengruber. (Photos by Dori Ellis 05300)

At each location, Joan, Roger, and Dori met with the site director and the senior leadership team. Together, the participants reviewed eight years of collaboration and discussed strategic directions for the next several years. A variety of new initiatives from lower limb prosthetics development to pulsed-power collaborations were discussed at length. Joan and Roger gave presentations on Sandia's future strategic directions and on trends for the next fifty years of the nuclear age. Both presentations stimulated extensive discussions.

Not all activities on the trip were work related. Several of the sites hosted cultural events, including visits to local museums, elementary and high schools, and children's camps. The Sandia team viewed Lockheed-Martin funded improvements to the summer camps, including improvements to a children's camp dining area in Sarov.

At the October 23, 2000, Sandia Laboratory Leadership Team (LLT) meeting, Joan Woodard briefed the LLT on her trip to Russia, saying that the economy seems to be improving. She also mentioned that the US/Russia nonproliferation programs may be in for further Congressional scrutiny before more money is allocated. Joan indicated that integration of Russian programs and a continued strategic effort are needed, calling for the three US weapons labs to jointly bring order to the work being done with the Russian labs. Joan also warned that Sandia must make sure its procurement practices are beyond reproach.

Source: Robert Huelskamp 05327, MS 1203, 844-0496, fax 844-8119, rmhuels@sandia.gov

Senior management review participants at VNIITF. (Photo courtesy of Bob Huelskamp 05327)

Russia Trip Enables DTRA Projects

Sandians Larry Walker 05320, Tom Lockner 05327, Greg Mann 05327, and interpreter Elena Bloomstein 05327 and personnel from the US Defense Threat Reduction Agency Technology Development Office (DTRA/TDC) traveled to Russia from October 25 through November 3, 2000. The purpose of the trip was to meet with personnel from the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF), the All-Russian Scientific Research Institute of Automatics (VNIIA), and the Russian Federation Ministry of Defense (MOD) regarding DTRA/TDC-funded projects.

(r to l) COL Ray Deegan (DTRA), Greg Mann (SNL), Col Tom Dunham (DTRA), Chuck Galloway (DTRA), Larry Walker (SNL), and Norm Hoerer (Dyn Meridian) observe a technical demonstration at the Warhead Storage Technology Demonstration Facility in Moscow. The facility is a testbed for developing and evaluating Russian technologies that have potential application in the security and inventory monitoring of RF warheads. (Photo courtesy of VNIIA)

The delegation met with the International Science and Technology Center (ISTC) in Moscow to close out a completed contract sponsored by ISTC and funded by DTRA/TDC. The contract had been placed for the purpose of studying the Russian nuclear weapons life cycle and identifying areas where new technologies might improve the safety and security of nuclear weapons. The contract led to poster presentations at two international conferences and thorough reports describing both the details of Russian methods of ensuring the safety and security of nuclear weapons and technologies from the two institutes that could positively impact their safety and security. All of the participants were satisfied with the progress during the contract, and potential follow-on projects were identified.

The delegation also met with representatives of MOD and VNIIA in Moscow to discuss future collaborations. After a tour of VNIIA's Warhead Storage Monitoring Facility and technologies associated with warhead and materials identification, discussions were held at the main VNIIA complex in Moscow.

MOD introduced the TOBOS (Safety and Security Technologies for Russian Warheads) Program to the participants. VNIIA and VNIIEF have developed the Automated Monitoring and Inventory System (AMIS) and other security related technologies that show potential for improving the safety, security, and monitoring operations at MOD weapon storage facilities. TOBOS is the field testing program that will validate these technologies and concepts under realistic field conditions, as required by MOD. The tests will be conducted at an MOD location to be identified in May 2001 and will include the evaluation of the proposed systems under various scenarios, including shipping and receiving, transportation, and long-term storage. Tests will be conducted using routine MOD procedures in normal operational environments. A large number of containers will be monitored in realistic storage and transportation environments. An AMIS control unit will be attached to each container, and the system will alarm when any unauthorized actions are

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Russia Trip *continued from page 4*

detected. The on-site central alarm station and the MOD 12th Main Directorate remote alarm monitoring post will continuously monitor all control units.

A visit to the VNIIEF facilities in Sarov was significant in that it is one of the few times a military delegation has been admitted to Sarov. VNIIEF personnel demonstrated monitoring technologies developed at VNIIEF and provided a tour of the Sarov open computing center and the new Fissile Material Storage Facility testbed being built under the Warhead Safety and Security Exchange (WSSX) program.

Discussions were held to determine where the VNIIEF team might collaborate with VNIIA, and a joint VNIIA/VNIIEF team was formed.

These meetings were a significant step forward in the interaction between DTRA/TDC and the Russian MOD and represent a solid basis on which to build further work. The MOD, VNIIA, DTRA, and SNL collaboration on TOBOS is a direct result of these interactions and should improve the quality and quantity of future MOD interactions.

Sources: Tom Lockner 05327, MS 1203, 284-6625, fax 844-8119, trlockn@sandia.gov; Greg Mann 05327, MS 1203, 844-6795, fax 844-8119, gremann@sandia.gov

TOBOS Meeting in Albuquerque

Sandia National Laboratories hosted the TOBOS (Safety and Security Technologies for Russian Warheads) team in Albuquerque February 12-15, 2001. Representatives of the Russian Ministry of Defense (MOD), The Russian Ministry of Atomic Energy (MINATOM), the All-Russian Scientific Research Institute of Automatics (VNIIA), the US Defense Threat Reduction Agency (DTRA), the US Department of Energy (DOE), and Sandia participated in the kickoff planning meeting for TOBOS. The participants also toured Sandia's bunker for testing warhead security technologies, and Roger Hagengruber, Senior Vice President 05000, conducted a tour of the National Atomic Museum.

Members of the TOBOS team pause for a photo inside Sandia's bunker for testing warhead security technologies. (Photo by Bill Doty 12630)

Igor Zababakhin (left), the head of the Russian delegation and representing MINATOM, listens to Larissa Sheglova-McMahan's interpreting as Roger Hagengruber conducts a tour of the National Atomic Museum. (Photo by Bill Doty 12630)

Source: Greg Mann 05327, MS 1203, 844-6795, fax 844-8119, gremann@sandia.gov

A Word from Sandia Medical

Safe Food Tips and Reminders

Intestinal upset, a polite term for traveler's diarrhea (TD), is a hazard that roughly 30 percent of travelers from Western countries experience while in developing countries. Common symptoms related to TD include abdominal cramps, nausea, bloating, urgency, fever, and malaise. It won't kill you (less than 1 percent of victims are hospitalized), but TD definitely interferes with business and pleasure. TD is acquired through the ingestion of contaminated food and water. Listed below are some helpful food reminders for travelers:

- Places to eat should be chosen based upon recommendation and appearance. Ask knowledgeable people such as expatriates and hotel managers rather than the local residents. Locals are far less susceptible to diarrheal illnesses because they are more or less immune. Locals may have difficulty seeing the problem through visitors' eyes.
- Opt for cleanliness over 'local atmosphere' when choosing restaurants ...up-to-date, neat, and attractive establishments tend to be clean ones.
- Avoid foods from street vendors. They have been the source of numerous disease outbreaks in all parts of the world.
- Foods cooked at high temperatures and served piping hot are generally always safe. Don't eat cold or undercooked meats or seafood.
- Avoid buffet food unless you know it is fresh and has been kept piping hot.
- Avoid salads and uncooked vegetables. They are difficult to clean and may be contaminated (from the soil, irrigation water, etc.). Thick-skinned fruits that you can peel yourself are safe.
- Be aware that relishes and spices found on some restaurant tables are gathered and stored under conditions that favor contamination by rodents and insects.
- Foods requiring refrigeration can be risky. Even if served chilled there is no way of knowing whether temperature was maintained at all times. In the case of dairy products, were they pasteurized?
- Breads and baked goods are safe. In areas where flies abound, you can discard the crust and eat the inside of the bread or roll.

Agricultural practices, public health standards or lack of them, and the personal hygiene of food handlers all have an impact on the food you eat. Concentrate on eating the types of food that tend to be safest. The bottom line is:
If you can't boil it, cook it, or peel it, don't eat it!

Sources: Traveling Health, Volume 13, No. 2; Lisa Ramirez 03333, MS 1019, 844-21666, fax 845-8190, laramir@sandia,gov

News from a Russian Perspective

VNIIEF, VNIITF to Work on 2001 Defense Order

Officials at the leading Russian nuclear research centers in Sarov and Snezhinsk (VNIIEF and VNIITF) announced they will receive funding to work on a state defense order this year. The center officials acknowledged that the staff will shrink by approximately 10 percent at the centers, which employ 12,000 specialists, but dramatic job cuts are not planned.

Rady Il'kaev, director of the Sarov center, said the administration has to raise wages to the European level to attract young talented scientists. At present, an average monthly wage at Sarov is 4,000 Rubles (about 160 dollars), but it is planned to raise it to 500 dollars. About 10 percent of the personnel, the so-called face of the center, will enjoy a much higher wage, according to Il'kaev.

The financial position of the Sarov nuclear center improved in 2000. State funding for the center was restored, and the center's current objective is to ensure steady development, when earlier it had to struggle to keep afloat. In addition, The center has begun receiving the money earned with various conversion projects that the center implements on its own, for example, a project to reprocess irradiated foreign nuclear fuel.

Source: Russian leading nuclear centers to work on defense order in 2001, CEP20010102000014 Moscow ITAR-TASS in English 0022 GMT 2 Jan 01

MINATOM Head Supports Import of Spent Nuclear Fuel

Russian Minister of Atomic Energy Yevgeniy Adamov has vigorously promoted a proposal to the Russian Duma to process imported irradiated nuclear fuel. On December 21, 2000, lawmakers approved a bill that would allow MINATOM to earn billions of dollars by reprocessing and storing spent nuclear rods from other countries. The minister said the adopted bills will make it possible to increase the energy supply for Russia's nuclear industry and also enhance radiation safety within Russia for Russia's citizens.

Norwegian authorities have reacted negatively to the Russian Duma's decision to start importing nuclear waste from other countries. Environmental groups such as Greenpeace also strongly denounced the bill as a step toward making Russia the world's nuclear waste dump. The environmental organization Bellona declared that Russia has enough nuclear waste already and should sort out its own problems first. Over 150 public organizations worldwide have asked the US administration not to permit Russia to import radioactive waste.

In an interview with Kirill Kurganov of Radio Mayak on January 2, Adamov colorfully described the difference between nuclear waste and irradiated nuclear fuel, describing the irradiated fuel as an energy raw material. Adamov declared that nuclear fuel that has been passed through a nuclear reactor once is still an extremely valuable raw material. Adamov noted that passing the material through a reactor a second time would produce an end product that would not need to be buried for hundreds of thousands or millions of years to return it to a balance with nature, but simply decades. The environmentally most dangerous isotopes would be utilized in a reactor, transmuting them into less dangerous isotopes while producing energy from their combustion.

Adamov insisted the project will promote export of high-tech services to supplement the current export of raw materials. Kurganov pointed out that importing spent fuel adds revenues to the country's budget. Adamov noted that currently the combine in Krasnoyarsk has only enough for wages and a little for current expenses because it's getting only a third of the world price for irradiated fuel. He pointed out that Russia's entry into the world market would command a normal world price, which would allow investment of resources into the production operations to provide a sufficient margin of strength to deal with changes in the market.

Adamov reported that MINATOM is entering the new millennium with a 50-year strategy to develop nuclear power engineering three times more actively than other kinds of power engineering, building a new era of safe nuclear power engineering and resolving environmental and economic problems simultaneously.

Sources: CEP20010102000111 Moscow www.minatom.ru in Russian 22 Dec 00;CEP20001221000202 Moscow Agentstvo Voyennykh Novostey (AVN) WWW-Text in English 1342 GMT 21 Dec 00; The Moscow Times, Friday, Dec. 22, 2000. Page 1; CEP20001221000336 Moscow ITAR-TASS in English 1311 GMT 21 Dec 00 [By Aleksey Kravchenko]; Bellona Foundation Web Site, 2000-12-21 19:54; EUP20001221000319 Oslo Aftenposten (Internet Version-WWW) in Norwegian 21 Dec 00; CEP20001218000134 Moscow Interfax in English 1125 GMT 18 Dec 00

Unprecedented US-FSU Biological Security Workshop Held at Sandia in October

Sandia National Laboratories hosted the Enhancing the Security of Dangerous Pathogens workshop at the Cooperative Monitoring Center on October 15 through 18, 2000. The event was sponsored by the Cooperative Threat Reduction (CTR) program of the US Defense Threat Reduction Agency and the Agricultural Research Service of the US Department of Agriculture.

The workshop brought together more than 40 international experts from 10 different countries for three days of meetings to evaluate technical systems solutions for securing pathogen collections at maximum containment facilities, agricultural centers, and research institutes in Russia, Kazakhstan, Uzbekistan, Ukraine, and Georgia. This first ever international biosecurity workshop attracted many distinguished guests. More than 12 biological research institutes from Russia and other states of the former Soviet Union (FSU) were represented. In addition, high-ranking officials from the US Departments of Defense, Energy, State, and Agriculture, the US Army, and many of Western Europe's most important high-containment laboratories attended this event.

The purpose of the workshop was to encourage operators of institutes that possess dangerous pathogens to develop technical capabilities to improve the physical security of their facilities and the protection, control, and accounting of their collections. The workshop stressed that such technical monitoring steps can reduce the international bioterrorism threat and the risks to public health.

SNL presentations focused on international precedents in physical protection and remote monitoring. Existing technologies and methodologies were described and displayed in a manner that demonstrated how they could be applied to biological research facilities. SNL did not present a DOE biosecurity philosophy.

The workshop provided an opportunity for the participants to explore how technical security monitoring systems – such as software, equipment, and procedures – can be integrated into a working laboratory setting. In addition to considering what kinds of physical protection, monitoring, and accounting technologies can be deployed, this workshop addressed how to plan, coordinate, procure, install, and operate these integrated technical systems in a unique facility.

Source: Reynolds M. Salerno 05324, MS 1373, 844-8971, fax 284-5055, rmsaler@sandia.gov

The use of aqueous foam for access delay is explained by Tommy Goolsby (left) 05832 to participants in the Enhancing the Security of Dangerous Pathogens workshop. (Photo by John Heald 06501)

Prosthetics: An IPP Success Story

"Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has."

Margaret Mead, Anthropologist

Over the past two years, Sandia National Laboratories has joined forces with the All-Russian Scientific Research Institute of Technical Physics (VNIITF) and American private industry as part of a project funded by the US Department of Energy Initiatives for Proliferation Prevention (IPP). The project was instituted to create a superior prosthetic foot and also a better prosthetic knee. Approximately 120 Russian scientists formerly employed designing nuclear weapons are participating in the project.

On Sept 26, 2000, Sandia signed a two-year Cooperative Research and Development Agreement (CRADA) with the Seattle Orthopedic Group, Inc. (SOGI) to create an entire, "smart" artificial leg. Sensors and chips will be developed at Sandia; materials work and testing will be performed by VNIITF; technical requirements for the limb will be set by SOGI.

According to Diane Hurtado 15222 of the Smart Integrated Lower Limb (SILL) project team, the project will develop a leg that is more like a missing limb than a collection of components ever can be. Ivan Sabel, president of Hangar, of which SOGI is a division, indicated that the project is taking the prosthetics industry, which has gone from plastic to carbon fibers in 30 years, to the next generation.

Bob Huelskamp, Manager of FSU Cooperative Initiatives 05327, remarked that Sandia generally thinks it is impressive if five of its scientists leave to start an entrepreneurial enterprise. He said this prosthetics project means that, at a minimum, dozens and, if the project takes off, triple figures of Russians formerly in the weapons-of-mass-destruction (WMD) business are moving out into a humanitarianly useful, and hopefully commercially successful, business venture.

The "smart" leg is intended to simulate a human gait whether on uphill, downhill, or even irregular terrain. To do so, a microprocessor-controlled module implanted in the leg will respond to sensor input from multiple sources. The microprocessor will control hydraulic joints and piezoelectric motors that power the ankle, knee, and socket. The leg socket will also adjust to the changing diameter of an amputated stump over the course of a day, thus reducing sores, improving comfort, and increasing time of use. The advance should enable amputees to maintain active lives rather than be confined to wheelchairs or rest homes.

Diane Hurtado inspects older prosthetic devices lent to Sandia by SOGI.

Diane Hurtado 15222 has taken over project management of Sandia's prosthetics program from retired Sandian Mort Lieberman, who originated it. Mort, who spoke at the CRADA signing, quoted anthropologist Margaret Mead: "Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has."

Source: Diane Hurtado 15222, MS 1010, 844-8607, fax 844-8323, ldhurta@sandia.gov

Sandia Hosts Trilateral Initiative Workshop

From November 13 to 17, 2000, the Cooperative Monitoring Center (CMC) at Sandia National Laboratories hosted technical experts from the Russian Federation (RF), the International Atomic Energy Agency (IAEA), and the United States at the Trilateral Technical Workshop on Inventory Monitoring Systems for Excess Fissile Materials. During the workshop, experts discussed inventory monitoring systems for use in IAEA verification under the Trilateral Initiative, a joint US, RF, IAEA agreement. RF participants represented the Ministry of Atomic Energy (MINATOM), the Ministry of Foreign Affairs (MFA), the All-Russian Scientific Research Institute of Technical Physics (VNIITF), the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF), the Mayak Production Association, and the Institute of Physics and Power Engineering (IPPE). US Government participants represented the US Department of Energy (DOE), the Cooperative Threat Reduction program of the US Department of Defense, and the Defense Threat Reduction Agency. Other US participants represented Sandia National Laboratories, Los Alamos National Laboratory, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, and Savannah River Site.

The US and the RF have pledged to declare nuclear material that is excess to national security requirements to be available for IAEA inspection, thereby providing international transparency. In 1996, the Trilateral Initiative was established and began to discuss the practical implications of placing excess defense materials under IAEA verification. A working group was formed to consider technical, legal, and financial issues. The International Safeguards Office in the DOE Office of Arms Control and Nonproliferation leads the technical area for the US. Much of the subject nuclear material is in classified form and therefore is not accessible for traditional IAEA inspections. The parties are negotiating a model verification agreement that will be the basis of a bilateral agreement between a country and the IAEA. An agreement based on the model will be the legal authority for verification under the Trilateral Initiative.

Technical teams had been formed to find solutions to two major challenges. The first challenge has been to develop the technical means that will enable the IAEA to independently verify the presence and quality of declared materials while these materials still have classified characteristics. This attribute verification must be completed without disclosing classified information to the inspector. The second challenge, which is no less difficult, has been to develop very high reliability inventory monitoring systems that can provide high levels of assurance to the IAEA that these materials remain removed from military uses, while minimizing the use of increasingly scarce IAEA human resources.

Discussion at the November workshop focused on inventory monitoring systems, including video surveillance systems, tags and seals, radiation monitoring systems, and data management systems, and the analysis tools to design monitoring systems that use these technologies. The first locations for IAEA verification under the Trilateral Initiative are proposed to be the K-Area Material Storage (KAMS) facility at the

Trilateral Initiative *continued on page 11*

(l to r) Mike Vannoni (SNL 05324) demonstrates monitoring technologies to IAEA and Russian visitors: Tom Shea (IAEA), Max Aparo (IAEA), and Konstantin Popov (MINATOM) (Photo by John Heald 06501)

Trilateral Initiative *continued from page 10*

Savannah River Site in the US and the Mayak Fissile Material Storage Facility (FMSF) at Ozersk, Russia. At the workshop, IAEA presented approaches to verification for each site. The IAEA experts noted that inspectors may use only equipment approved for routine use by the IAEA, and the RF stated that only equipment certified by the RF may be used at the FMSF. Since certification and approval can take a year or more, the IAEA requested that each country focus upon technologies that could be implemented in time to meet specific facility schedules. The US agreed to fund the procurement of Russian-built optical loop seals for IAEA evaluation.

The workshop included a tour of the CMC and a visit to Los Alamos National Laboratory (LANL) to observe LANL's accomplishments in the area of attribute measurements systems. The attribute verification technical team has demonstrated prototype equipment with the capability of verifying the presence of attributes without disclosing classified information. The inventory monitoring technical team has focused on the application of proved technology using a systems approach to maximize reliability and to reduce human resource requirements for maintenance and inspection. In both technical areas the current emphasis is on the development of field-usable systems for both attribute verification and inventory monitoring.

Doug Smathers (right) (SNL) demonstrates a remote monitoring system to workshop participants. (Photo by John Heald 06501)

Source: Douglas Smathers 06517, MS 0455, 845-9334, fax 844-9641, dcsmath@sandia.gov

Calendar

Visits and Workshops
SNL, Albuquerque, NM

March 6 CMC hosts the Institute for Systems, Information, and Safety of the European Commission's Joint Research Center for a tour of CMC's technologies. (NN44) Don Glidewell 05323, 844-9261

March 15 CMC hosts representatives from Samarkand State University in Samarkand, Uzbekistan, to discuss the CMC Central Asia Transboundary River Monitoring Project. Participants will share, discuss, and compare radiological laboratory results from SNL and Samarkand State University. (NN42) Dave Barber 05324, 845-3487

March 15 Water Surety Steering Team hosts second Water Surety and Sustainablility Seminar: Janet Jensen, Project Leader for DOD's JSAWM Program, will present an overview of the results of the evaluation of over 150 monitoring technologies at SNL's Steve Schiff Auditorium with video conference to CA. Mike Hightower 06201, 844-5499

March 17-24 FSU Cooperative Initiatives 05327 hosts Russian delegation from VNIIEF at the CMC to discuss facility monitoring software development in the RF, progress on the Sarov storage monitoring experiment, and advanced facility monitoring technologies. VNIIEF participants Sergei Blagin, Dimitri Moroskin, Michael Osipov, and Igor Bondar will also discuss IPP projects. (DP20) Tom Lockner 05327, 284-6625

April 2-6 FSU Cooperative Initiatives 05327 hosts VNIITF and DOE for a technical exchange planning meeting and contract negotiations at the CMC. (NN42) Joe Saloio 05327, 845-3067

April 20-22 **Eleventh Annual International Arms Control Conference Looking Ahead: New Horizons and Challenges in Arms Control will be held at the Sheraton Uptown Hotel. James Brown 05325, 284-5107**

April 23-26 Robotics Manufacturing Science and Engineering Laboratory hosts Spektr and industrial partners Seattle Orthopedics Group, Inc., Ohio Willow Wood Company, Numotech Inc., and Stolar Horizon, for prosthetics contract discussions. (NN40) Diane Hurtado 15222, 844-8607

May 15-16 Dori Ellis, 05300 Director, hosts meeting of SNL's Distinguished Advisory Panel for Arms Control and Nonproliferation. Dori Ellis 05300, 845-3077

Travel

March 12-18 Pitesti, Romania: SNL discusses additional upgrades and sustainability to the existing system with Magurele Nuclear Research Center. (NN44) Chris Robertson 05845, 844-4776

March 12-22 Ozersk, Russia: Mayak hosts SNL and DOE to implement action items contained in the DOE/MINATOM protocol regarding upgrades at Mayak's HEU processing plant and hosts a tour of the HEU plant to discuss physical protection upgrades. The team also will observe the status of existing upgrades at the RT-1 Plant. (NN50 - MPC&A) Tim Malone 05849, 845-3111

March 14-23 Dhaka, Bangladesh: Bangladesh Ministry of Science and Technology, Ministry of Foreign Affairs, and Bangladesh Atomic Energy Commission (BAEC) host SNL for presentations, a visit to TRIGA research reactor in Savar, and to discuss a cooperative nuclear monitoring project. (NN42) George Baldwin 05324, 284-5054

March 17-23 Tel Aviv, Israel: SNL meets with Soreq partners to take steps on implementing cooperation with Israel under the Letter of Intent between DOE and the Israeli Atomic Energy Commission. SNL and Soreq are jointly assessing explosive detection technologies for application at personnel portals. (NN42) Greg Kolb 05324, 844-1887

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March 17-25 Moscow and Zheleznogorsk, Russia: SNL meets with Ernst and Young in Moscow. In Zheleznogorsk, SNL, SRS, Hanford, PNNL, DOE, MCC, KRI, and NIKIMT discuss progress on TRCDC tasks at MCC and review the progress of various contracts and collaborations. (NN40) Ralston Barnard 06804, 284-4605

March 19-20 Swierk, Poland: SNL discusses additional upgrades and sustainability to the existing system with the Nuclear Research Institute. (NN44) Chris Robertson 05845, 844-4776

March 21-25 Kharkiv and Kiev, Ukraine: SNL discusses plans to sustain MPC&A systems and problems with the existing installation at KIPT in Kharkiv and participates in sustainability meetings at KINR and GKTC in Kiev. (NN44) Chris Robertson 05845, 844-4776

March 23-31 Novosibirsk, Russia: SNL and ORNL oversee quality control to ensure compliance with design and negotiate contract at Orgtechstroy. (NN50 - MPC&A) Jose Rodriguez 05355, 844-4704

March 26 - April 4 Moscow, Russia: SNL and VNIITF negotiate contracts for WSSX and develop the agenda for the upcoming technical interchange meeting in June 2001 at VNIITF. (NN42) Joe Saloio 05327, 845-3067

March 30 - April 13 Vladivostok and Nakhodka, Russia: Russian Customs hosts SNL, DOE, LANL, and DOS to perform acceptance testing of vehicle, rail, and pedestrian portal monitoring equipment installed for the detection of nuclear materials at several Russian customs sites in the Far East. (NN43) Michael Garcia, 5913, 844-0381

March 31 - April 7 Bucharest, Romania: SNL and the Federal Republic of Germany participate in development of a design basis threat for use during design and evaluation of the state's PPS. (NN44; IAEA) Jim Blankenship 05845, 844-9649

April 2-6 Vienna, Austria: Trilateral Initiative Technical discussions on the General Technical Requirements for an Inventory Monitoring System. (NN44) Dennis Mangan 05320, 845-8710

April 9-11 Visaginas, Lithuania: Czech Republic, Lithuania, US, NRC, and SNL participate in a tripartite meeting at INPP to discuss the physical protection of nuclear material and how the regulatory agency and facility interact to ensure both compliance and performance of protection systems. (NN44; IAEA) Jim Blankenship 05845, 844-9649

April 20-28 Tokai Mura, Japan: Trilateral Technical Workshop on unattended and remote monitoring at the Plutonium Fuel Production Facility. (NN44) Dennis Mangan 05320, 845-8710

May 12-19 Moscow, Russia: Technical discussions of IAEA verification approach for the new Mayak Fissile Material Storage Facility under the Trilateral Initiative (NN44) Dennis Mangan 05320, 845-8710

May 14-24 Moscow, Russia: SNL, ORNL, and PNNL discuss the current status of deliverables of existing truck/rail contracts, sustainability, and alterations to the 2001 Project Work Plan. (NN50 - MPC&A) Mark Bishop 05352, 844-4450

June 1-9 Kiev, Ukraine: SNL, NAS, DOS, and DOE attend a governing board meeting of the Science and Technology Center of Ukraine with representatives of EU, Japan, Ukraine, Georgia, and Uzbekistan. (WFO/DOS) Jim Arzigian 05327, 844-2747

June 4-10 Snezhinsk, Russia: SNL, DOE, LANL, LLNL, Pantex, Y-12, and PNNL participate in a technical interchange meeting at VNIITF. (NN42) Joe Saloio 05327, 845-3067

Guest Editorial
The Uncertain future of US-Russian Cooperative Security

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In 1991, Congress created a fledgling effort aimed at controlling the nuclear chaos that threatened to erupt from the newly disintegrated Soviet Union. Then known as the Nunn-Lugar program, this initiative has grown over the past 10 years into a cooperative, multipronged attack on proliferation problems in Russia and the new independent states. At a cost of about $1 billion per year, this preemptive threat reduction represents a small investment of US funds that has paid, and continues to pay, significant dividends for international security.

However, the cooperative security effort is now facing serious political, bureaucratic, and implementation challenges that are encroaching on progress and threatening to smother future cooperation. Major issues, like the Russian reaction to a US decision to abandon the Antiballistic Missile (ABM) Treaty or the US response to Russia's continued military cooperation with Iran, could destroy this delicate agenda.

These and other issues will require US President George W. Bush and Russian President Vladimir Putin to make a judgment about the importance of the cooperative security agenda and a choice about its future. Down one path is continuing, though undoubtedly incremental, progress that ultimately will change the face of the nuclear danger if pursued with perseverance and a spirit of cooperation and compromise by all parties. Down the other path is the threat that resurgent security forces, festering political insecurity, and deepening distrust will choke off meaningful cooperation and with it this unique opportunity to reduce the danger of nuclear proliferation. The choice that ultimately is made will signal to the world how the US and Russia view the role of nuclear weapons in the new millennium and will indicate whether the Cold War is a historical remnant or just in remission.

The cooperative security agenda, while addressing biological and chemical weapon dangers, is primarily focused on containing the threat of nuclear proliferation from Russia. The scope of these activities can generally be grouped into five categories: stabilizing, transforming, and downsizing the Russian nuclear weapons complex; securing Russian nuclear material, warheads, and technologies; limiting production of fissile material; disposing of excess fissile material; and establishing transparency in the nuclear weapons reduction process. Virtually all of these collaborations were unthinkable during the Cold War.

Though a number of the cooperative security programs are codified in some type of US-Russian agreement, most signed at the ministerial level, many of these activities are not governed by the formal arms control agreements that were the hallmark of US-Soviet interactions. This less formal approach may make the continuation of the programs in a crisis more problematic, but it also has created an important new thread in the fabric of US-Russian relations, one that has provided a key underpinning during times of tension.

Despite its positive aspects, the agenda itself is very sensitive. Many projects touch on highly classified military activities, for example, a significant effort to improve the security of Russia's bomb-grade nuclear material, the vast majority of which is stored in the closed cities of the nuclear weapons complex. During the Cold War, these cities were among the most secretive locations in the Soviet Union. Today, US specialists travel to them on a regular basis, though these visits remain of special concern to Russian security forces.

Up to now, no crisis in US-Russian relations has significantly derailed the cooperative security agenda. However, US-Russian relations are deteriorating, and as new and controversial issues emerge, the chances for this work to be curtailed have increased.

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In addition, it is not apparent that US-Russian nonproliferation cooperation can be divorced from Russian domestic realities. Russia's proliferation problems are directly fueled by its financial difficulties. Eliminating US support for domestic economic aid to Russia could plunge the nation back into financial crisis, especially if oil prices drop, which could in turn reverse the nonproliferation gains of the last decade.

Recommendations for Renewal

Despite problems and politics, it is important for the US and Russia to remain engaged on the cooperative security agenda. But Washington and Moscow must recognize that the agenda's energy is flagging and that steps must be taken to renew its vitality and ensure its future effectiveness, including

- *Review of all of the cooperative nuclear security programs to assess their strengths, weaknesses, successes, and failures.* The focus should be on eliminating overlap, identifying lessons learned, and determining how to use this knowledge to solve current and future problems. This review should include the views of specialists outside the US and Russian governments who may have a broader perspective on this cooperation than the government program managers.

- *Integration of all of the programs into a cohesive strategy.* There was a time when programs needed to be allowed to grow independently in order to facilitate progress, but synergies among the programs are being missed because of their separation. It is not necessary to consolidate all of the activities in one or two agencies. What is more important is that the work take place as part of an integrated security strategy.

- *Banning the linking of continued funding or participation in cooperative security programs to other political disputes.* For almost a decade these efforts have been divorced from political disagreements between the US and Russia, and violating this protected status could cause the elimination of the entire agenda.

- *Generating new political leadership.* The significant expansion of the cooperative security agenda and the progress that has been made on it have been substantially facilitated by political relationships and leadership in the US and Russia. But if success is to continue, the management of the effort must not be left only to the technocrats and bureaucrats. Political engagement must also occur at the White House, cabinet, and subcabinet levels in the US Government and in Russia as well. Leadership from European governments and Japan could buffer the cooperative security agenda during periods of severe US-Russian conflict and provide a safety net that would allow for continued progress.

- *Expanding the funding and scope of the agenda*. At current funding levels, the effort to improve the security of Russia's nuclear knowledge, warheads, and fissile material is significant but inadequate given the proliferation danger. Budgets should at least be doubled.

The cooperative security agenda has grown from a good idea into a significant set of activities. Political change in the US and Russia is raising questions about the future of this work, and its path forward is not clear at this time. What is clear is that there are severe consequences for eliminating or slowing major parts of this agenda. Russia controls the vastest nuclear complex, maintains the biggest nuclear arsenal, and possesses the largest stockpile of fissile material on earth. These assets are currently not adequately secure, and this poses an obvious threat to international security. A major security crisis would result if just a small fraction of the weapon and material inventories leaked out. Effectively reducing and protecting these inventories, redirecting major parts of the weapons complex, and preventing sensitive scientific and technology leakage is, and must remain, a top US and Russian security priority.

RUSSIAN AMERICAN
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Kenneth N. Luongo has previously served as the director of the Office of Arms Control and Nonproliferation at the Department of Energy and as a Senate and House aide. This article is an excerpt of his complete article published in Arms Control Today (Volume 31, Number 1, January/February 2001). The complete article is available on the RANSAC Website at <http://www.ransac.org/new-web-site/index.html>.

Opinions expressed by the Guest Editor are not necessarily the opinions of Sandia National Laboratories.

SEAB Website

Dori Ellis, Director of International Security Center 05300, has provided the following Internet address in response to requests for information about the Secretary of Energy's Advisory Board (SEAB) Task Force on Nonproliferation Programs in Russia:

http://www.hr.doe.gov/SEAB/index.html

Strategic Plan for Accelerated Closure of K-26 Finalized

Deep in the heart of Siberia lies the former Soviet secret city Krasnoyarsk-26. Renamed Zheleznogorsk at the end of the Cold War, the site had been responsible for generating weapons-grade plutonium for the Soviet weapons program. Closing the weapons program at the site has been a priority for the US Government for several years. In the fall of 1999, then DOE Assistant Secretary for Nonproliferation Rose Gottemoeller asked Roger Hagengruber, Sandia's Senior Vice President of National Security and Arms Control Division 05000, to form an executive working group that could develop a strategic plan for accelerated conversion of the site from weapons-related work to nondefense activities.

Roger teamed with Vasily Zhidkov, general director of the plutonium production plant now known as the Mining and Chemical Combine (MCC), and Andrey V. Katargin, the mayor of Zheleznogorsk, to develop the plan. A year in the making, the strategic plan was finalized recently and submitted to the DOE/MINATOM Joint Steering Committee. This submission is the first step toward converting the city to nondefense work and meeting an important US national security goal, the permanent downsizing of the Russian nuclear weapons complex.

Unlike those at some of the other former secret cities in the MINATOM complex, the management of MCC and the city administration are enthusiastic about embracing a nonweapons future. The task will be difficult, but the attitudes of the nearly 8,000 employees and the capabilities of the site are gearing up for a new future.

Rally Barnard 06804, working with FSU Cooperative Initiatives Department 05327, is the Sandia team lead chosen to develop the details of the plan with the MCC staff. Working with Rally were Karen Gillings 03545, Jim Lee (now at Los Alamos), Jim Rea 05327, Tom Albert (contractor to 05327), Bob Huelskamp 05327, and Judy Wade 05327. The success of the strategic planning effort has resulted in a significant increase in DOE funds available for site conversion. Several conversion projects have begun at MCC, including high-level waste tank remediation, rare-earth metals processing, aluminum industry component fabrication, and medical bandages. The Sandia team will be working closely with colleagues from Oak Ridge National Laboratory and Pacific Northwest National Laboratory to further develop plans for the site. For more information, contact Rally Barnard (284-4605, rwbarna@sandia.gov).

The Nuclear Cities Initiative will help to expand the facilities for production of sterile wound-dressing materials, like this drying oven for algae material for medical supplies.

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