

MONITOR

NUCLEAR WEAPONS & MATERIALS

U.S. National Nuclear Security Administration ♦ Russian Ministry of Atomic Energy
...plus International Nonproliferation Initiatives (*State, DoD, G-8, IAEA*) ♦ Uranium Enrichment

Special Interview Edition

April 28, 2008

—HIGHLIGHTS FROM THE FULL EDITION—

With House and Senate appropriators working to prepare Fiscal Year 2009 spending bills, time is running out for Congress to pass a budget resolution. 2

In order for the NNSA to remove Lawrence Livermore National Laboratory's Category I/II special nuclear materials by its self-imposed 2012 deadline, the lab is planning to install specialized glovebox equipment that could cost \$10 million over the next two years. 2

The NNSA confirmed April 21 that it had approved a buyout package for hourly workers at the Y-12 National Security Complex in Oak Ridge, and plant officials said they hope to reduce the payroll by 120 employees through early retirements. 3

URS is shutting down the Political Action Committee (PAC) it inherited after purchasing Washington Group International last year. 3

The United States has relaxed its push for a worldwide moratorium on the sale of uranium enrichment technology to non-nuclear weapons countries, offering a compromise at a meeting of the 45-member Nuclear Suppliers Group last week. 4

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The United States and Russia are growing ever closer to formally signing the so-called '123 Agreement' on civilian nuclear cooperation, and the deal could be signed by mid-May. 14

A Russian equipment shipment bound for Iran's Bushehr nuclear power plant was stalled at the Azerbaijan/Iran border last week over fears that the shipment might violate United Nations sanctions. 14

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****Q&As with the directors of Sandia and Livermore will follow in coming weeks****

Interview

The following interview with Michael Anastasio, the Director of the National Nuclear Security Administration's Los Alamos National Laboratory, was conducted by Nuclear Weapons and Materials Monitor Reporter Todd Jacobson.

ON THE NEXT STEPS FOR LOS ALAMOS LAB DIRECTOR MICHAEL ANASTASIO

Each of the directors of the NNSA's weapons laboratories have been outspoken about their concern for science funding and how it might affect the future of the labs and the ability to certify the nuclear weapons stockpile. What does the future hold for 'big science' at the labs if the concerns aren't addressed?

I think our concern is that the role of the laboratories for the country is to take science, the science we have, and bring it forward to help solve national problems. The trend is what our concern is. It's not about a particular year budget, but it's the trend over a period of time, and the look out into the future. We have concerns that there's real risks; that science is getting squeezed out between the needs to maintain an infrastructure versus the need to take care of the mission. Both of those things are kind of growing, but the budget is declining, or at least we have to absorb inflation even if the budget is less, so that squeezes out our ability to actually execute the science.

And, of course, we think that these laboratories are really special places that are providing the kinds of large-scale science that takes on these kinds of missions. The same science that this program funds puts in place science that we then use to do all the other programmatic work that we do for corporations, for counter-terrorism, for energy, supporting other parts of the national security community.

Is it possible to put a dollar figure on how much more is needed in terms of increased funding for science?

Well, I mean, in a laboratory with over \$2 billion, it's a 10 or 15 percent effect. That's real money. We heard from Sen. Byron Dorgan on the Senate Energy and Water Appropriations Subcommittee and he's got budget problems as well. So, the question is, how do we renew an infrastructure? How do we change our fixed cost? So we, at the laboratory, are trying to do that internally. We're reducing the number of facilities we have—out of nine million square feet we are trying to get rid of two million of it. We're aligning our workforce size with the kind of budget we have. We're trying to reduce our cost so that the money that we get through Congress we can actually spend more of it on science. We're trying to do what we can, and we have more we can do and we're working on that.

The budget issues the labs are facing have resulted in workforce restructuring that's happening to various degrees at each of the labs. What are the challenges of managing a workforce that is enduring these kinds of changes?

Yes, that's been a huge problem, and of course we're almost two years into the new contract at Los Alamos, and there's a lot of change going on. Of course, the laboratory was facing lots of challenges and was under lots of pressure for the perceived issues around security and so forth, and then we bring in a new contract and a new approach to doing things, and that causes a lot of anxiety amongst people. Managing change is always difficult, but I'm feeling better that the morale at the laboratory has gone up, that the people are starting to focus, and I'm trying to get

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us all focused on the real exciting science that we are doing and the opportunities we have to help solve some really important plans for the country.

Of all the labs, Sandia seems to have done the best with expanding its mission and increasing its Work for Others repertoire. How can that be applied at Los Alamos?

Of course we're pursuing it vigorously. One way to deal with some of these issues is to grow other parts of your budget. And, so, in fact we are actually being very effective at that. Some of our Work for Others areas are growing by over 20 percent this year already. We've done a good job of that and will continue to do that. But, at the same time, if you look at what NNSA's approach is, they're starting to concentrate some of the capability they want nationally at Los Alamos. So, we're trying to manage through taking that set of missions on and at the same time grow. That's part of the way they keep the science at the lab vital—you have a variety of things to do so that the scientists can all get enthused about a variety of different missions and the way they can apply their science.

Is the Work for Others issue more difficult at Los Alamos and Livermore than it is at Sandia? Is it harder to attract that kind of work and keep rates down?

I think there's two pieces of that. Sandia is a little more focused on the engineering. Los Alamos and Livermore are a little more heavy on the physical sciences, but we do a lot of engineering, and of course they do physical science as well. The kinds of programs they attract are somewhat different than we do at Los Alamos, that's one point. The second point is that because we have so many nuclear facilities at Los Alamos that means our infrastructure costs are necessarily higher. And, so, in some ways that makes us look more expensive to our Work for Others customers.

But there are lots of opportunities for that. For instance, we make the batteries that power the NASA space missions that go out. Those are made in our nuclear facilities. When it comes to nonproliferation work addressing how to detect nuclear materials that move around—well, let's go bring it in to our facility and let's go test out the detectors with real nuclear material. So, there's real opportunities for that kind of work, and for nuclear forensics, for other things.

Congress is currently debating the future of the Administration's Reliable Replacement Warhead program. One of the positives talked about by the Administration for developing an RRW-type warhead is the human capital issue—the issue of the weapons labs staying current on designing nuclear weapons. If there's not an

RRW, how would that affect the nation's nuclear design capability?

I think the RRW does two things. It gives us a way to build more margin into the weapons systems that we would deploy. Hence, that leads to more confidence. It also gives us the opportunity to get rid of a lot of the difficult materials they handle in nuclear weapons, and, hence, we have to have a production capability that does that. That drives cost in the production complex. So, if we can use that as a method to shrink the cost in the production complex, then we can, of course, have more money to underpin the confidence that we have, the kinds of issues we were talking about.

The other aspect is that one of the risks we run is we have a stockpile from the Cold War and the last people that were putting weapons in the stockpile were people like me, who are nearing the end of their careers. And if you think of 10 or 20 years from now when I expect we'll probably still have some nuclear weapons left as part of our deterrent, there won't be anybody around that was there when we put it in. If we work on an alternate approach to our stockpile, whatever it be—RRW or something else—that gives this current generation a chance to be the ones who develop that, and they're the ones that are going to sustain it for their whole generation, and you won't have to rely on a bunch of old fogies like us.

Do you fear for the nuclear design capability if there's not the need for advancing it?

Yes. One of the things we've done is we've taken our scientists and turned them into analysts. So, here's a weapon that we know works. When it will fail, that's the question we're trying to answer today, and that's not the same kind of function that we had during the Cold War. Now, of course, I agree that we never want to be in a position where the President ever has to make a decision on, do we use nuclear weapons? These are our weapons of policy, and the goal is for the country to never have to use a nuclear weapon. But, we need to maintain our confidence, so it can play its deterrent role.

The safety and security problems at Los Alamos have been well chronicled, and part of the rationale for re-competing the contract was to correct those issues. In terms of making progress, how far along are you and how far do you need to go?

I think we've made a lot of progress. I also believe that we knew this would be a multi-year task. This is not something you can get done in one or two years. It would take some real time to do. But, I do think we are making very significant progress in improving our safety. We've

reduced a lot of our injury rates and those sorts of things. We've dramatically improved our security, and reduced our security risks. We've been very innovative in dealing with those security issues, and really changing the whole approach that will give us a lot stronger laboratory.

But we've also increased our program delivery, our ability to deliver to our customers, whether it be in NNSA in the Stockpile Stewardship Program or in Work for Others. I still see the really outstanding innovative science that's going on in the laboratories. So, all of those things, of course, are there, but there's more to do. We have to learn how to be more efficient and more effective at delivering what we do, to bring our overall costs down. We're leaning how to do that, but there's a lot more to do.

When the contracts for the laboratories were re-competed, there was the promise of increased coordination between Los Alamos, Livermore and Sandia. Has that come to fruition?

I think we're seeing that happen. I have, of course, a lot of background at Livermore as the former lab director. That concerns some people at Los Alamos. And LLNL Director George Miller and I have a very close relationship, so we are seeing more and more cooperation, appropriate kinds of cooperation, while we maintain that technical competition, which is so important to peer review. We're working closely with Sandia, the super-computing issue that came up is one example. Sandia Director Tom Hunter and I have signed a Memorandum of Understanding about how we're going to cooperate on this high performance computing. That's one example. Even if they're not a center for platform computing, we're going to be working together to maintain world-class simulation capability.

Much was made during the Senate Energy and Water Appropriations hearing April 16 about the issues facing Lawrence Livermore and the economic shortfall that lab faces—particularly in light of increased fees paid at a time when the workforce is shrinking. Los Alamos National Security is further along in the process, so with that in mind, has the transition from public to private been worth it?

As we near the second year of LANS management, it's clear that the corporate partnership has benefitted the laboratory. We're seeing outstanding performance built on great science at the lab. We're performing exceptionally well in our key mission areas of science, nuclear weapons and threat reduction, and are making demonstrable improvement in safety, security, business practices and overall management.

Did the transition need to take place for that progress on safety and security issues to really take root and be effective?

Because of the hard work by lab employees and resources brought in from our corporate partners, our trends in safety and security are good. Reportable injuries and lost work days are down by more than 40 percent and we've cut the average number of security incidents in half, both indicating that the partnership has improved our way of dealing with those issues. But it's important not to lose focus and to remember that safety and security are day-to-day jobs and that safety and security goes hand-in-hand with the great science and engineering that we provide.

There have been concerns raised, both in private and public, about the plutonium mission at Los Alamos cutting into the more prestigious weapons design role. Do you think that's a fair critique?

We firmly believe that Los Alamos is the right place for the proposed limited plutonium manufacturing role in support of national security. But it's a misconception that this would somehow 'take away' from other work, particularly science. Limited plutonium manufacturing—and other actinide research and development—enables a wide variety of science and informs specific disciplines such as design physics and supports key missions such as power sources for spacecraft and proliferation-resistant fuel rods for power generation.

In your mind, how do the two missions—plutonium production and weapons design—complement each other?

They actually depend on each other. We use the tools of science to qualify and certify our manufacturing processes. And our ability to soundly design weapons depends on what we learn from limited manufacturing.

I'll share an interesting and telling statistic. Los Alamos was asked to undertake a limited pit manufacturing role in 1997, 10 pits per year, which we achieved in 2006. During those nine years, our number of actinide science publications doubled compared to the prior two decades. Other science at LANL also increased.

Do you feel plutonium production changes the identity of the lab?

Los Alamos has always had a limited manufacturing role. In fact, during the days of nuclear testing in Nevada, the laboratory had a much larger manufacturing role, producing systems for testing and providing plutonium metal to

Rocky Flats. The proposed limited manufacturing mission does not change our identity as a national security science laboratory.

As support to that plutonium mission, the Chemistry and Metallurgy Research Replacement-Nuclear Facility will be constructed. How essential is the CMRR-Nuclear Facility to the plutonium mission that is part of the NNSA's draft preferred alternative for Complex Transformation?

The CMRR is an essential research and development laboratory as it supports not only weapons-related work but also threat reduction, nonproliferation, energy security, and space applications. While we currently operate the Chemistry and Metallurgy Research building safely and securely, because of its age and size, doing so in the long-term becomes increasingly difficult.

Could you explain the role CMRR-Nuclear Facility will play with PF-4 in pit production?

No pits would be made in the CMRR. The CMRR nuclear facility would fulfill the same basic role as the current CMR with one additional function as a state-of-the-art storage facility. CMR does analytical chemistry and

materials characterization of very small amounts of plutonium. The "manufacturing line" will continue to be located in another existing nuclear facility, Plutonium Facility 4 or PF-4.

Are there any scenarios where the CMRR-Nuclear Facility would be used to produce pits?

Again, the plans call for CMRR to be the laboratory's center for analytical chemistry and materials characterization, pit manufacturing takes place in a different facility, PF-4.

There have been concerns raised about the cost of that facility and how it will be paid for in light of flat NNSA budgets in the next decade. Do you share those concerns?

Budgets are always a challenge. We see the CMRR project as an essential component of scientific research and development in support of a broad set of missions, both weapons and non-weapons. CMRR would also enable consolidation of nuclear materials from around the complex, its design would be more environmentally responsible and it would efficiently manage safety and security, resulting in a net reduction in operating costs.#

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