

# ECA Update: May 12, 2014



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## **Defense Authorization amendments available**

### **LEGISLATION AND AMENDMENTS**

Amendments to the Fiscal Year 2015 National Defense Authorization Act (H.R. 4435) adopted by the House Armed Services Committee last week are available at the link above. The panel's full bill is expected shortly.

The annual Defense Authorization bill authorizes funding and sets policy for DOE national security programs. The annual Energy and Water Appropriations bill, which has not yet been introduced, "appropriates" money for DOE programs. The two bills work in tandem to set the annual budget.

## **WIPP could be closed for 3 years**

Albuquerque Journal

May 9, 2014

[LINK](#)

The head of the recovery effort at the federal government's nuclear waste repository in southern New Mexico said Thursday it could be up to three years before full operations resume at the underground facility.

Recovery manager Jim Blankenhorn made the announcement when answering questions from the public during a weekly meeting in Carlsbad. He said the timeline continues to be a moving target, but full operations are expected to resume no earlier than 18 months from now.

Crews continue investigating the cause of a radiation release at the

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Waste Isolation Pilot Plant near Carlsbad that exposed some workers and halted operations in February.

Specially trained workers have been making trips into the repository in an effort to pinpoint the source of the release. Based on those trips, the focus has turned to a set of waste drums that came from Los Alamos National Laboratory.

Officials at the meeting reiterated the possibility that there may have been a chemical reaction inside the drums. They were then questioned about what would happen to that waste if it's deemed unsafe to store.

"If we find a problem with this waste stream, it's a chemistry problem," Blankenhorn said. The Los Alamos lab has "some of the best scientists in the world. It would be up to them to develop a path forward to give us treated, safe waste."

New Mexico Environment Secretary Ryan Flynn said the theory of a chemical reaction is based on limited knowledge, and he urged officials during the meeting not to withhold any information. Flynn said he's concerned the public will lose faith if federal officials change their story every couple of weeks about what might have happened.

"We need to know what happened. We absolutely need to know," he said. "But we need to make decisions based on facts."

WIPP and Department of Energy officials vowed to continue to update the public on the recovery process and to keep the safety of their workers and public in the forefront.

Officials have pointed to safety as the reason they decided earlier this month to halt shipments from Los Alamos to a temporary storage facility in West Texas. The shipments had been going on for about a month due to the closure of the plant.

Los Alamos is under a tight deadline to get the plutonium-contaminated waste off its northern New Mexico campus before wildfire season peaks. The state of New Mexico pressured the lab to hasten the cleanup after a massive wildfire in 2011 lapped at the edges of lab property.

Lab Director Charlie McMillan said Thursday during a news conference in Albuquerque that the recent developments "are very much a cause for concern." But he said it was too soon to tell if they will have any effect on the lab's ability to meet the state's deadline.

### **Mayor Tom Beehan: Oak Ridge wants more than money from new Y-12 contractor**

Frank Munger's Atomic City Underground  
May 12, 2014

[LINK](#)

Oak Ridge Mayor Tom Beehan said he'd had a number of talks with officials from Consolidated Nuclear Security, the incoming contractor that will manage the Y-12 nuclear weapons plant in Oak Ridge in conjunction

with the Pantex plant in Amarillo, Texas.

"I'm very impressed with them, as individuals," Beehan said. "We have talked a lot about community involvement."

As usual, the mayor and other city officials would like to see the top leaders of the new contractor set an example by living in Oak Ridge, and that point has been pressed.

"I know you can't tell people where to live," he said, "but . . ."

One encouraging sign, according to Beehan, is that officials with CNS reached out to the community leadership. "We didn't have to go knock on their door," he said.

Oak Ridge is hopeful that the incoming contractor will be generous with donations to charities and important fund-raising efforts. But Beehan said there's a need for more than money.

"We hope they will participate in the community," he said, "not only financially but also manpower in getting involved in things . . . We need them on boards, we need them at the Chamber (of Commerce). How are they going to impact the community? We're the host community for a very important enterprise in America, and we need to have the leadership."

Beehan said he looks forward to seeing the CNS Community Commitment Plan, which is due to be released on June 30.

## **House committee votes against more MOX funding**

Aiken Standard

May 9, 2014

[LINK](#)

Members of a federal House committee referred to the Savannah River Site's MOX program as a "dead project" before voting to cut \$120 million from the program's proposed budget.

On Wednesday night, the House Armed Forces Committee voted on an amendment to redirect the \$120 million intended for MOX in fiscal year 2015 to operations with the United States Air Force. The amount was authorized on May 5 and would have added to the \$196 million already proposed to place the program in a cold stand-by.

During a lengthy discussion, U.S. Reps. Scott Peters, D-Calif., and Jim Cooper, D-Tenn., challenged the positions of U.S. Reps. Joe Wilson, R-S.C., and Jim Clyburn, D-S.C., on the issue.

"This is a dead project, and it's not enough for us to give it \$200 million; we're not going to give it another \$120 million because we love Joe Wilson and Jim Clyburn," Cooper said. "That cannot be done in this budget environment, as much as we love them."

Wilson agreed that there are cost overruns to address, but said he believes the project can still be a success. He added that the MOX study

released last week by the National Nuclear Security Administration shows that several MOX alternatives will be more expensive.

"It's worked in France, and we can make it work in the United States," he said. "There have been cost overruns, but at the same time, the different alternatives that have been proposed are going to cost more."

U.S. Rep. Buck McKeon, R-Calif., the committee chair, was one of 29 members who voted against redirecting the money. He said it's important to have a stable plan for the future.

"Unless we have some type of viable alternative that's already approved and already been through the process, we better be very careful about shutting down something that apparently is needed," he added.

The committee is currently marking up the National Defense Authorization Act for fiscal year 2015 and will continue discussing MOX and other defense issues before passing their proposals on to appropriations committees later this year.

The MOX project is part of a nonproliferation agreement with Russia to dispose of 34 metric tons of weapons-grade plutonium.

The federal government is looking to place the program in a cold stand-by to explore cheaper options for plutonium disposal. The push is based on cost overruns reported in a DOE study that prices the program at \$30 billion, while the partner of the MOX contractor said the cost is closer to \$17 billion.

### **MOX study: a closer look at the alternatives**

Aiken Standard

May 11, 2014

[LINK](#)

"Exploring other options" is a phrase that has been circling around the Savannah River Site's MOX program since the release of President's Barack Obama's fiscal year budget proposal, which looks to place the program in a cold stand-by.

Nearly three months after announcing that the MOX life cycle cost could surpass \$30 billion, the Department of Energy finally released its study on April 29 - six days after the Aiken Standard filed a Freedom of Information Act request to see the study.

After reviewing the study, the Aiken Standard takes a closer look at the plutonium disposition alternatives and how they size up to the MOX project that is more than 60 percent complete.

#### Using Fast Reactors

The fast reactor method is being used by Russia in the country's part of the nonproliferation agreement to dispose of 34-metric-tons of weapons-grade plutonium.

In the process, plutonium-based nuclear weapons would be broken down into plutonium metal and used to charge a casting furnace. The plutonium would then be blended with uranium and zirconium in the fast reactor, creating a metal fuel out of the weapons-grade material.

The study includes that much of the work could be done at SRS.

"The fuel would be fabricated in a potential K-Area Fuel Fabrication Facility (KAFF), a new metal fuel fabrication facility that would be constructed in the K-Reactor Building within the K-Area Complex at SRS," officials wrote.

While the method would potentially preserve jobs at SRS, the project would cost more than the current MOX project, as officials gave it a projected life cycle cost of \$50.45 billion.

#### Immobilization

The immobilization method would include the construction of a "can-in canister" facility. Plutonium would be immobilized into either a ceramic or glass form, placed in a can and surrounded with high level waste glass, or HLW glass, in a glass waste canister, which is why it is phrased, "can-in canister."

Like the fast reactor method, the immobilization method would include blending the plutonium with other items. Also, like the fast reactor method, the Savannah River Site was mentioned as a potential location for work if DOE were to move forward with the method.

However, officials essentially denounced the method in the report, stating that it's not viable. Listed reasons are that the only two places that have the required HLW are Savannah River Site and the Hanford Site in Washington. Both sites are currently using their quantities of HLW and are expected to continue using them.

Other options for immobilization include using H Canyon at the Site, but it was also listed as not viable.

"There is not enough HLW at SRS to vitrify the full (34-metric-tons) of plutonium with the limitations of the H-Canyon dissolution process and the waste transfer capabilities," they wrote.

The projected life cycle cost of the immobilization method is slightly less than MOX at \$28.65 billion, but officials admitted that the uncertainties make it a less than likely option.

#### Downblending and disposal

The next alternative would include downblending the plutonium using inhibitor materials, or materials that slow down the chemical process.

The solution would then be packaged into approved canisters and shipped to a repository for permanent disposal.

In this option, SRS would also be used for downblending and then the material would be shipped off.

A suggested repository is the Waste Isolation Pilot Plant, or WIPP, located in Carlsbad, New Mexico. However, the location would require "significant engagement with federal, state, and local representatives," according to officials.

News of other potential setbacks with using WIPP surfaced after the MOX study was completed. A highly publicized incident on Feb. 14 included several workers being exposed to radiation at the WIPP.

Also, reports surfaced this week that the operations at the plant could be suspended for up to three years.

The downblending method is by far the cheapest projected alternative, with a life cycle cost of \$8.78 billion, but the listed setbacks could pose a problem.

#### Deep Borehole Disposal

The borehole option involves direct disposal of plutonium in a deep geologic borehole. It would consist of drilling boreholes into crystalline basement rock. Holes would run to 5,000 meters deep.

Canisters would be emplaced into the lower 2,000 meters of the borehole and the upper borehole would be sealed with compacted clay or cement.

The Energy Department provided very little detail on the method and did not include any cost projections or suggestions of where the process would take place.

#### Conclusion

If the federal government does decide to test other options, it will likely consider either the fast reactor method or the immobilization method, since there are no cost estimates with the borehole method and the use of the WIPP is cancelled for an extended period of time.

Based on the cost estimates of the other options, and on the fact that starting a new pathway would require renegotiations with Russia, MOX appears to still be a strong option for plutonium disposition.

Nevertheless, the National Nuclear Security Administration is still pursuing a cold stand-by at the beginning of fiscal year 2015 on Oct. 1, while members of the South Carolina congressional delegation are fighting to keep the MOX funding flowing.

"The NNSA intends to work with the (MOX) contractor on a plan for placing the project in cold stand-by during FY 2015, and we are continuing our ongoing discussions with Congress as they review and evaluate the FY 2015 budget request," NNSA spokesman Joshua McConaha wrote after the study was released.

### **Tri-Party Agreement: Hanford cleanup began 25 years ago**

Tri-City Herald  
May 10, 2014  
[LINK](#)

The massive project to clean up more than 40 years of contamination from weapons plutonium production at Hanford began 25 years ago this week.

With some optimism, representatives of the Department of Energy, the Environmental Protection Agency and the state of Washington signed a document agreeing to requirements and deadlines to largely restore Hanford land to condition before it was seized as a federal nuclear reservation.

In May 1989, those negotiating what became known as the Tri-Party Agreement were unsure of the extent of contamination in the ground and groundwater at Hanford.

They didn't know what technology could be used to clean it up. They didn't know how to do the work or how to protect the workers involved in the often hazardous work.

But they outlined a cleanup plan they hoped would restore the site over 30 years.

Instead, Hanford cleanup is taking far longer and costing far more.

By some estimates, 25 years into cleanup the work might be about a third done.

Now officials are looking at continuing cleanup work into the 2060s -- making it about a 75-year project.

Progress as measured by dollars shows work further from completion.

A little more than \$30 billion has been spent on cleanup. But the last estimate by DOE put remaining costs at about \$113 billion.

No guarantees made

When the Tri-Party Agreement was signed, officials knew it was unlikely to be 100 percent successful.

Randy Smith, who led negotiations for the Environmental Protection Agency, has retold the story of a man pointing his finger at him during a public meeting and demanding, "Can you guarantee me this site will be completely clean in 30 years?"

Smith replied: "No. But I can tell you it will be a lot cleaner than it is today."

By that gauge, the first 25 years has been successful.

DOE points to removing just more than 2,500 tons of irradiated nuclear fuel from underwater storage in the leaky K Basins near the Columbia River and putting them in dry storage in central Hanford.

Eight billion gallons of contaminated groundwater have been cleaned.

Workers have removed 7.5 million gallons of liquid waste from leak-prone underground tanks and 1.25 million gallons of highly radioactive sludge and saltcake waste from the tanks.

Hundreds of buildings, some of them highly contaminated, have been torn down, and hundreds of waste sites with contaminated soil and debris have been dug up.

"The site is much safer because of all the activities that have happened since 1989," said Matt McCormick, manager of the DOE Hanford Richland Operations Office.

But Roy Gephart, recently retired chief environmental scientist at Pacific Northwest National Laboratory, questions how much cleanup has been done in 25 years.

"There has been significant waste management on the site," he said. But he sees little change in the approximately 400 million curies of radioactivity as measured in waste and materials at Hanford, and little change in the approximately 400,000 tons of chemicals in Hanford tanks, soil and water.

"Where are the successes in reducing risk?" he asked. "We're not doing much active, permanent cleanup."

Waste dumping came to end

Work at Hanford initially focused on the sorts of issues that kept people who understood Hanford awake at night.

"There were a lot of immediate risks where things that could go very wrong, very quickly have been resolved," said Ken Niles, Oregon Department of Energy administrator.

That included risks such as stabilizing tanks on the "Wyden Watch List," named for Oregon Sen. Ron Wyden, who was concerned that radioactive waste in some of Hanford's 177 underground tanks was at risk to explode or catch fire.

Moving irradiated fuel stored in the K Basins away from the river eliminated another immediate risk.

Dennis Faulk, the EPA Hanford program manager, says one of the biggest successes of the Tri-Party Agreement was to stop the practice of discharging liquid waste, some of it with radioactive contamination, into the ground at Hanford.

In 1989, as much as 22,000 gallons of contaminated water a minute were still being dumped into the ground at Hanford. It contaminated the soil, it contaminated the groundwater and it raised the water table, pushing contaminated water toward the Columbia River.

The agreement called for 33 of the worst discharges to be stopped in

1995 and the rest in 1997 -- a deadline that was met.

Another major success was reversing a DOE proposal to leave 49 waste burial grounds near the river undisturbed and to put caps over them to prevent rain water from seeping down and pushing contamination toward groundwater and then the river, Faulk said.

DOE's logic was that EPA had done that at landfills around the nation.

"But these were not your typical landfills," Faulk said.

Instead, most were dug up. And among the surprises found was a safe holding a container with World War II plutonium in a liquid solution and highly radioactive pieces of irradiated uranium fuel.

Groundwater treatment is another success DOE and its regulators agree on, though Faulk said, "We have a long way to go."

Some 10 billion gallons of groundwater have been treated and 98 tons of contamination removed.

However, an estimated 65 to 80 square miles of contaminated groundwater will take time to clean.

Some, if not most, of the needed systems are in place. They strip chromium contamination out of groundwater near the river, preventing most of the contamination from entering the water.

And in central Hanford, a range of radioactive and chemical contaminants are being removed from groundwater. Each month, enough water is treated to cover a football field 460 feet deep, McCormick said.

It was public pressure that made groundwater cleanup a priority at Hanford.

Public input part of pact

"There was a huge public clamor to protect the Columbia River," said John Price, Tri-Party Agreement section manager for the Washington State Department of Ecology.

The public involvement required by the Tri-Party Agreement is one of its strengths, McCormick said. The agreement requires more public involvement than the laws regulating cleanup, giving the public a chance to influence important decisions about cleanup priorities and standards.

Mike Lawrence, who signed the Tri-Party Agreement for DOE as the DOE Hanford manager in 1989, said the agreement has exceeded his expectations.

"And that is in full recognition of the conditions that exist today," he said.

The agreement lasted 21 years before a portion of Hanford cleanup was moved under a court-enforced consent decree because of problems meeting deadlines in 2010 for some of the most difficult work -- emptying radioactive waste tanks and treating the waste.

That consent decree is again the subject of controversy after DOE announced that most remaining deadlines in the consent decree are at risk.

But Lawrence said the cleanup that proceeded under a good-faith agreement for more than two decades "was wonderful."

"We knew we were dealing with imperfect information and needed to be flexible so we could modify milestones and objectives based on information as we really got hard data," he said.

The agreement, which has had more than 1,200 deadlines, has had more than 640 changes to deadlines or other modifications.

Cleanup possibility questioned

In the 25 years since the agreement was signed, far more waste was found than was ever anticipated, Faulk said.

"It took years for us to get our feet on the ground," he said.

In the early years there was concern about whether cleanup could even be done and questions about how to safely do work such as dig up waste, he said.

The cleanup work has "contained every cleanup challenge in the remediation industry," from contaminated groundwater to treatment of high radioactive waste and everything in between, McCormick said.

It's been complicated by its proximity to the Columbia River and its importance to the people of the Northwest, he said.

New challenges continually arise. No plant has ever been built to treat the quantity and complex mixture of the 56 million gallons of waste held in underground tanks, Hanford officials say.

The cleanup systems put in place must meet nuclear quality standards, built and inspected to the highest standard of operating safety, McCormick said. Workers can require extensive training to make sure hazardous work is done in a predictable and safe manner, he said.

All work is highly regulated -- by the state, the EPA and the Defense Nuclear Facilities Safety Board -- and those checks and balances add time and expense, he said.

Some Hanford cleanup work costs two to five times more than similar work done elsewhere in the state, according to Jane Hedges, the state's nuclear waste program manager.

That's, in part, because of the hazardous nature of the work, she said.

Difficult projects remain

One of the state's concerns is that a DOE cost study required by the Tri-Party Agreement shows that Hanford will need a sustained \$3 billion to \$4 billion a year for the next five years to meet cleanup obligations.

A typical annual budget is closer to \$2 billion, with as much as a quarter of that going to noncleanup tasks such as utilities, security, roads, emergency preparedness and maintaining and checking obsolete, contaminated facilities until they can be torn down.

"To be successful in the long-term, there is a need to convert more money from infrastructure and services into cleanup," Faulk said.

Tom Carpenter, executive director of Seattle-based Hanford Challenge, a Hanford watchdog and worker advocacy group, said that a great amount of progress has been made in Hanford cleanup along the river and other projects are slowly being ticked off the list.

But some of the most difficult projects remain.

Aging underground waste tanks are in terrible shape, Carpenter said. The vitrification plant to treat tank waste is plagued with technical questions. And he calls the storage of radioactive cesium and strontium capsules underwater in a degrading concrete basin "terrifying."

If the pools were to lose water or the water could not be kept cool, a fire could start, he said.

He believes the Tri-Party Agreement has outlived its usefulness and should be renegotiated. In fact, he would prefer that DOE not be the owner of Hanford and in charge of environmental cleanup. It's a conflict of interest, he said.

Gephart is concerned that, despite the impressive numbers DOE throws out on cleanup accomplishments, it's talking about comparatively easy work like demolition of buildings, digging up shallow ground contamination and the treatment of only a fraction of the contaminated groundwater to date.

"We do not have a defensible risk reduction study and management approach to understand how best to allocate our limited resources to ensure they are addressing the greatest risk reduction benefits," he said.

As Lawrence looks back at the 25 years of cleanup, he thinks the cleanup plan has stood the test of time.

But as tougher cleanup challenges are tackled, it is important not to make major mistakes, he said.

Now, he said, it's time for the policy leaders to sit down with scientists and discuss what's next.

As with the first 25 years of cleanup, "Something may look simple, but it is much more complex," he said.