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HANFORD LIQUID CLEANUP OK IN BUDGET, BUT BIG CUTS FOR OTHER AREAS PROPOSED

- **WIPP Timeline Starts to Gel in 2017 Budget Request**
- **Budget Proposal Seeks \$111M More for Savannah River Site EM missions**
- **SRR President Stuart MacVean Announces Resignation**
- **Waste to be Piled Higher at Hanford Landfill**
- **Hanford Advisory Board Calls for Cutting Off Risk Study Funding**
- **Q&A: Hedges Celebrates Her Victories at Retirement from Hanford Oversight**
- **K-27 Demolition Project Starts at ETPP**
- **At Hanford**
- **At Portsmouth and Paducah**
- **Wrap Up**
- **Correction**

The **27th Annual Decisionmakers' Forum**, produced by ExchangeMonitor, provides key leaders from government and industry the chance to network in an intimate setting while discussing the full range of issues facing the cleanup of the U.S. nuclear weapons complex and similar efforts worldwide.



Hanford Liquid Cleanup OK in Budget, but Big Cuts for Other Areas Proposed

Dan Leone

Liquid waste cleanup at the Energy Department's Hanford Site in Washington state would see relatively stable funding under the fiscal 2017 budget released Tuesday, while funding for other cleanup in the central region of the nearly 600-square-mile site would tumble by nearly 20 percent.

For the Office of River Protection (ORP), which focuses on projects including the site's waste tank farms and construction of the Waste Treatment Plant, the White House proposed nearly \$1.5 billion, or a boost of about 5 percent above the 2016 appropriation.

In good, if not unexpected, news for Bechtel National, most of that would go to the so-called vitrification plant the San Francisco-based company is building for DOE under a contract awarded in 2000 and now worth some \$9.4 billion. The plant will eventually turn 56 million gallons of radioactive and chemical waste stored in tanks into solid glass that allows for easier and safer storage.

For construction of the Low-Activity Waste Facility, the first part of the vitrification plant planned to come online, the White House proposed some \$763 million in fiscal 2017, just over 0.25 percent below the 2016 appropriation.

According to the Obama administration, funding levels just proposed for 2017 and subsequent years is sufficient to start low-activity waste treatment in 2022 – the year the whole vitrification facility was supposed to come online. DOE and Washington state are in court over when the rest of the plant would open and start treating the site's high-level liquid waste. DOE wants to start that work in 2039, the state in 2034.

Although some work can begin without one, Bechtel still needs a contract modification from DOE to finish construction of the redesigned Low-Activity Waste Facility. The plant was originally designed to treat high- and low-level waste in tandem. DOE and Bechtel agreed in 2014 to explore a redesign, but the agency has yet to finalize the contract modification that makes the redesign official.

A Bechtel spokesperson said in a Feb. 11 email the 2017 budget proposal "will allow us to execute the [Waste Treatment Plant] scope of work for FY17, which includes continuing construction on the Low-Activity Waste Facility, Balance of Facilities, and Analytical Laboratory to support the Direct Feed Low Activity Waste Approach. The request also allows for continued work on making technical decisions related to the Pretreatment Facility and, to a lesser degree, the High-Level Waste Facility."

Also within the ORP proposal is good news for DOE's other liquid waste contractor at Hanford, Washington River Protection Solutions. The company manages the leaky tanks where the liquid waste the vitrification plant will treat is now stored would under a tank operations contract DOE awarded in 2008 and that is worth up to \$7 billion through 2018,

including a pair of options valued north of \$2 billion.

Tank farm activities would get better than an 11% boost, to about \$720 million, under the 2017 budget proposal.

Washington River Protection Solutions comprises AECOM, of Bethesda, Md., and EnergySolutions of Salt Lake City. AREVA North America, the U.S. arm of the French power company, is the prime subcontractor on the job.

Meanwhile, funding for other cleanup at Hanford, which is managed by DOE's Richland Operations Office, would drop off by roughly \$190 million from the current budget under the White House's 2017 budget request; the office would get \$800 million in 2017, down from more than \$990 million in 2016. Those figures include some non-defense cleanup spending. Including only the defense-related cleanup, the Richland Operations Office funding would drop by about 22-percent year over year, to roughly \$716 million.

Budget documents show just over \$88 million of the \$190 million drop detailed in the request is due to work being finished, or long-lead purchases coming in as expected at the site.

For example, the River Corridor Closure Project managed by the Richland office is nearly complete, resulting in some \$23 million in work that no longer needs to be done at the site, according to the 2017 request. That work focused on more than 750 solid and liquid waste sites close by Words missing here FIXED -dl the Columbia River shoreline.

Another \$65 million spent in 2016 but not needed in 2017 was for containers that will eventually hold highly radioactive sludge from Hanford's K-West Basin, according to the request.

A DOE spokesperson on Thursday declined to specifically identify the balance of the proposed cuts for Hanford, and deferred to the roughly 500-page Environmental Management 2017 budget request released on Tuesday.

Elsewhere at Hanford, it is not clear whether the long-awaited Hanford sludge cleanup will begin in 2018, as expected. About 35 cubic yards of sludge are stored in underwater containers in the K-West Basin about 400 yards from the Columbia River. DOE blew a 2014 deadline to start sludge cleanup there and now looks to be cutting it close to begin construction by 2018, the new start date the department settled on with the state last year.

DOE is working on new cost and schedule estimates for the project, which is managed by the Richland Operations Office. In 2014, the department thought would cost just shy of \$310 million to complete the facility, with construction beginning by fall of 2018, according to the 2017 request.

To calculate a new baseline, DOE will commission an external independent review for the sludge removal project, which will happen sometime in 2016, the request says. DOE will have to vet the report before it is sent to Congress. The department did not say in the request when that might happen.

In a Wednesday hearing of the Senate Finance Committee, Washington's junior senator took Treasury Secretary Jack Lew to task for the White House's proposed cuts to Hanford. "It's very important that we don't miss cleanup deadlines and that we make sure that technically difficult aspects of this project are met," Sen. Maria Cantwell (D-Wash.) said in the hearing.

"I know that everybody always looks at the budget and thinks there's ways to get money, big numbers, and they look at cleanup. But this is the largest cleanup project in the world and it has taken a long time and needs to happen, and we need to have the continued support," Cantwell said.

Lew, a former director of the White House Office of Management and Budget, said he would respond to the question after the hearing.

WIPP Timeline Starts to Gel in 2017 Budget Request

Dan Leone

The federal fiscal 2017 budget request unveiled Tuesday proposed a monumental, long-term change for the Waste Isolation Pilot Plant (WIPP) in New Mexico: making the facility the final destination for 34 metric tons of diluted weapon-usable plutonium that would arrive sometime in the early 2020s.

In the near term, the White House proposed lowering WIPP's annual appropriation by about 10 percent compared with

2016 levels, to \$271 million, which the administration says is enough to reopen the nation's only disposal facility for transuranic waste by December.

In January, the Department of Energy approved, but did not share, a new performance measurement baseline for WIPP, which detailed the agency's plan for restarting waste emplacement at the site. WIPP has been closed since an underground fire and unrelated underground radiation release in February 2014.

The latest budget request, however, sheds some light on the pace DOE intends to set as it marches toward resumption of waste shipments to the underground salt cavern some 25 miles outside of Carlsbad, N.M.

Steps leading to and following the reopening include:

- Completing a documented safety analysis revision in March.
- Startup of the interim ventilation system in April.
- Conducting a contractor operational readiness review for resumption of interim waste emplacement operations in July.
- Conducting a DOE operational readiness review for resumption of interim waste emplacement operations in September.
- Resuming waste emplacement operations of wastes stored on-site at other DOE facilities in December.
- Complete supplemental ventilation upgrades in the second quarter of fiscal 2017.

According to one informed source, DOE's internal date to reopen WIPP is Dec. 15, just over two months into the fiscal 2017.

Elsewhere in the WIPP request, the White House proposed a significant pullback for a pair of construction projects the agency said were not crucial to making its self-imposed December reopening date. The 2017 request includes just \$2.5 million each for WIPP's new exhaust shaft and design and construction of the new safety significant confinement ventilation system — declines of about 66 percent and 89 percent, respectively, from 2016 levels.

"While these projects are not needed to support the resumption of waste emplacement operations, they are needed to provide the Waste Isolation Pilot Plant ventilation necessary for disposal of transuranic waste operations in both 'clean' and contaminated underground areas, and for simultaneous mine stability, mining, maintenance, and waste emplacement activities," the budget request reads.

Meanwhile, DOE is also proposing more money to tighten standards and practices for shipping waste to WIPP in 2017. The department already has issued a request for information regarding the new shipping program. Interested vendors have until Feb. 18 to reply. The agency has not said when a solicitation will hit the street, but the White House has requested some \$27 million for WIPP shipping in 2017, about \$4 million more than the 2016 appropriation.

In a Tuesday press briefing, Secretary of Energy Ernest Moniz said DOE is again proposing to change the U.S. strategy for disposing of 34 metric tons of weapon-usable plutonium by diluting the material, mixing it with a solid, and sending it to WIPP for burial.

The plan of record, under an arms-reduction pact finalized with Russia in 2010, is to turn that 34 tons of material into fuel suitable for commercial nuclear plants using the MOX Fuel Fabrication Facility under construction at DOE's Savannah River Site in Aiken, S.C. However, the White House's 2017 budget proposal calls for shutting the MOX plant down over three years or so, and diverting the diluted plutonium to WIPP. Shipments would arrive beginning in New Mexico by 2022 or 2023, Moniz said in the briefing with reporters; there is a significant backlog of other WIPP-bound waste to deal with first.

One lawmaker from New Mexico said he welcomes as much waste as WIPP can safely handle, once the facility actually reopens.

"The first and only priority for everyone involved must remain reopening WIPP as safely, and effectively as possible,"

Rep. Steve Pearce (R-N.M.) whose congressional district includes WIPP, said by email on Friday. "Once reopen, I fully expect WIPP to resume its mission disposing of transuranic waste from around the nation. Any and all transuranic material that meets WIPP's standards should continue to be disposed of at the site. It is vital to the health and safety of the nation and New Mexico."

Budget Proposal Seeks \$111M More for Savannah River Site EM missions

Staff Reports

Funding for Environmental Management (EM) missions at the Savannah River Site would increase by about \$111 million over current funding levels under President Barack Obama's fiscal 2017 budget plan. The nearly \$1.5 billion request includes \$822.6 million for the site's liquid waste program – an uptick from the \$783.5 million appropriated in December's omnibus. The request for radioactive tank waste stabilization and disposition, \$645.3 million, would allow SRS to produce 100 to 110 canisters of high-level waste at the Defense Waste Processing Facility (DWPF). Over its lifetime, the facility is expected to create 7,800 canisters of waste that it has converted to a less radioactive glass form suitable for long-term storage at a repository. The site celebrated the pouring of its 4,000th canister last month.

Embedded in the liquid waste funding is another \$160 million for the Salt Waste Processing Facility (SWPF). Assuming Parsons, the SRS salt waste contractor, meets the schedule and completes construction of the plant this spring, the funding would be used to ramp up startup testing and commissioning of the facility, which is expected to increase the site's liquid waste processing from 1.6 million gallons a year to 6 million gallons. Currently, the facility is tied up in ongoing conversations between the Energy Department and the state Department of Health and Environmental Control (SCDHEC) because the federal agency failed to begin operating the SWPF by Oct. 31, 2015. Current fines and back payments for the missed milestone total about \$170 million, according to a permit signed in 2006. Though SCDHEC still reserves the right to impose the fines, spokesman Jim Beasley said the agency is pleased that the Energy Department is seeking more money for the facility. "This funding is essential for waste treatment to enable old-style tank closure," Beasley said.

The request also calls for \$311 million for nuclear materials stabilization and disposition, which would primarily occur at the H Canyon facility. The funding would allow for the downblending of EM-owned plutonium at H Canyon for future disposal at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, N.M. The funding would also allow for continued processing of spent nuclear fuel and highly enriched uranium at H Canyon. In the outyears, the Energy Department is looking to continue gathering plutonium from other countries through security agreements such as the Global Threat Reduction Initiative. By the end of fiscal 2023, the federal agency aims to complete operations for 3.7 metric tons of plutonium converted to oxide that would ultimately be disposed of using H Canyon. The large uptick in funding is supported by the site, said SRS spokesman Jim Giusti. "If this makes it through Congress with no changes, we'll be in a position to make some significant progress," Giusti said.

Other funding requests for SRS missions include \$50.8 million for solid waste work, \$74 million for soil and water remediation, \$27.5 million for surveillance and maintenance, and \$134 million for safeguards and security.

SRR President Stuart MacVean Announces Resignation

Staff Reports

Savannah River Remediation (SRR) President Stuart MacVean has resigned after more than four years with the company and over a year as president and project manager. MacVean sent a letter to his employees on Thursday with details on his resignation. He will be replaced by Mark Schmitz, the chief operating officer for the Savannah River Site (SRS) liquid waste contractor, until a permanent successor is named. While he didn't fully disclose his reasons for leaving, MacVean wrote: "I am excited for the new career I have accepted—an opportunity that promises to bring new challenges and exciting change to my future."

During his time with SRR, the contractor removed liquid waste from five SRS waste storage tanks and grouted the tanks by filling them with a cement mixture, removing the threat they pose to workers and to the environment. The contractor also filled its 4,000th canister of vitrified waste using the Defense Waste Processing Facility (DWPF), marking the halfway mark in the facility's work scope. Other accomplishments include taking a proxy salt waste processor past its

expected lifetime. The contractor is still using the 8-year-old technology as it waits for the Salt Waste Processing Facility (SWPF) to come online in December 2018. MacVean also lauded the contractor's management of infrastructure and its construction of Saltstone Disposal Unit 6, the first mega-volume unit constructed at the site, which will allow for more efficient storage of salt waste. "Words cannot do justice in expressing my pride in the SRR Team and all you have accomplished and dealt with in my time here," MacVean wrote in Thursday's letter.

It was not immediately known if MacVean intends to stay in the nuclear industry after clocking more than 30 years of experience with positions of increasing responsibility in operations, maintenance, engineering, waste management, emergency management, and other functions, according to the SRR website. Prior to his role as president, MacVean served as the SRR chief operating officer. During that time, the contractor closed four SRS waste tanks.

Waste to be Piled Higher at Hanford Landfill

Staff Reports

Hanford Site officials plan to pile waste above grade at the massive central Hanford landfill to expand its capacity rather than digging a new waste cell immediately. Plans call for adding another 20 feet of layered waste and soil to the top of the Environmental Restoration Disposal Facility. Initially, ERDF was planned to stand about 50 feet above ground level at its highest once it is closed, capped, and revegetated. Under the new plan, which is expected to proceed immediately, ERDF will stand 70 feet high at its center when closed. "It was an innovative idea, a good idea by Washington Closure Hanford," said Mark French, the DOE project director for ERDF and the river corridor.

The amount of waste that would be added to the landfill in a vertical expansion would be about equal to the waste that could be disposed of in one of the landfill's supercells, saving about \$30 million in construction costs, according to Washington Closure. It also would mean a smaller footprint for the landfill. ERDF is made up of supercells measuring 500 feet wide and 1,000 feet long, along with regular cells half that size. The landfill now has the equivalent of six supercells, all of them 70 feet deep. ERDF is at the heart of cleanup at the DOE site, with low-level radioactive and hazardous chemical waste brought to the lined landfill for disposal and sometimes treatment. Washington Closure, which operates ERDF, has hauled in much of the waste the landfill holds as it has torn down buildings and dug up burial grounds and contaminated soil in the river corridor.

Now ERDF's cells, which have about 18 million tons of total capacity, have just a half-ton of capacity left. "We are just about to the point of filling those cells to a point where we need to add capacity to continue cleanup work," said Stacy Charboneau, DOE manager of the Richland Operations Office. The last construction on the landfill was two supercells built with American Recovery and Reinvestment Act funding. By mounding waste higher, the Department of Energy can delay adding another supercell, but will still need to have a new one ready for use in about 2019. All current cells and ones to be built would be included in the vertical expansion.

Calculations have been done to confirm to the Environmental Protection Agency that more waste could be piled on ERDF without damaging the landfill's bottom liner or leachate collection system. As ERDF cells have been filled, the earliest ones have had a temporary cover of high-density polyethylene and soil added to prevent precipitation from intruding into the waste. The temporary cover will have to be either removed or the polyethylene breached by running bulldozers over it to cut holes in the material. Removing or cutting holes in the cover would allow any water, such as rainfall that falls on the landfill and could become contaminated, to be captured in the leachate collection system at the bottom of ERDF.

The landfill has been designed to have a slight crown at its center to ensure water flows off to its sides once ERDF is closed, said Dave Einan, an EPA engineer. The vertical expansion will keep the same design, with a 2 percent grade from the landfill's center toward its ends and a 12 percent grade for the side slopes. Because of the size of the landfill, raising it 20 feet higher is not expected to create a significant visual difference, according to DOE. Central Hanford is expected to have other waste disposed of above ground level. Plans call for collapsing in the walls of processing canyons after the structures have been cleaned out. The concrete from the downed walls would be covered with an earthen cap, rather than hauling the demolition debris to a below-ground landfill.

Hanford Advisory Board Calls for Cutting Off Risk Study Funding

Staff Reports

The Hanford Advisory Board is asking the Department of Energy not to spend any more of the Hanford Site cleanup budget on a Consortium for Risk Evaluation with Stakeholder Participation (CRESP) evaluation of the remaining risk at the DOE facility. Money should be spent on cleanup, not more study, the board said in a letter sent to Monica Regalbuto, assistant energy secretary for environmental management.

The study by the independent, multiuniversity group was announced as a \$4 million project and was commissioned by DOE officials in Washington, D.C., rather than those at Hanford. Neither DOE nor CRESP responded to a request for information on how much money has been spent to date.

Preliminary draft results, covering about half the Hanford areas and facilities still requiring cleanup, were released Aug. 31. The preliminary report focused on many of the most complex remaining projects, including groundwater, waste storage tanks, and the PUREX processing facility. The next phase of review would cover other Hanford projects, which include additional processing plants and waste sites where large amounts of liquid were disposed of in the ground.

CRESP officials have said the review's identification and characterization of potential risks at Hanford is intended to provide information that will help guide decisions about the order in which remaining cleanup work should be done. Work at Hanford is expected to take 50 more years and cost more than \$100 billion. "It's important to take a step back periodically to assess what is remaining and how to think about the challenges ahead," said David Kosson, the CRESP review's principal investigator, in a previous discussion about the project.

"We are concerned that its findings may be used to help justify doing less cleanup at Hanford," the board said. "We have seen numerous attempts through the years to do just that, all based on the premise that it is too expensive to do the cleanup that DOE has committed to complete." Board members said there is no justification to deviate from the Hanford cleanup work spelled out in the Tri-Party Agreement, the court-enforced consent decree, and records of decision. Their provisions are based on extensive scientific analysis, including risk analysis, and significant public review and input, the letter said.

The process should not be circumvented, said board member Pam Larsen. "Risks have been known for a long time," said advisory board member Susan Leckband. She called the study an academic exercise that should not be extended, given its cost. Board members said that since the most challenging remaining cleanup work was covered in the first phase of the report, it appears unlikely that continuing the study would provide meaningful insights. "We do not see a value in spending the cleanup budget to complete this study," the letter said. "The board strongly recommends that you not proceed with the remainder of this project and return its associated budget back to Hanford."

Q&A: Hedges Celebrates Her Victories at Retirement from Hanford Oversight

Chris Schneidmiller

The state of Washington's chief overseer for the massive cleanup of the Hanford Site will leave the job this month with a strong sense of accomplishment, but at least a few frustrations as well.

Under Jane Hedges' watch as the state Department of Ecology's Nuclear Waste Program manager, the federal government and its contractors have taken significant strides toward the ultimate remediation of the former World War II and Cold War plutonium production installation. The highly contaminated Plutonium Finishing Plant should be razed by the end of this year, and the cleanup of the Columbia River corridor is similarly approaching completion. Fifteen single-shell tanks that once leaked waste into the ground have been emptied under her watch, the material moved into double-shell containers designed to make sure it does not escape. The list goes on.

"Those are all things that I see as being really successful, and I've been very proud to be a part of," Hedges said.

But the project is also decades and tens of billions of dollars from completion, and the state and the Department of Energy are back in court contesting milestones set in their 2010 consent decree for Hanford cleanup. That includes the startup date for the Waste Treatment and Immobilization Plant, the facility intended to process up to 56 million gallons of chemical and radioactive waste left over from decades of nuclear weapons work at the Eastern Washington site. Hedges cited the WTP issue as a top source of disappointment during her tenure.

"It is in federal court, it's in front of the judge. The judge is going to work with a technical panel to understand some of the issues," Hedges said. "My guess, and I don't know this because it's up to a federal court judge, but we anticipate that she will then come back to both of the parties either with a schedule that she imposes, or direction to work to a mutually agreeable schedule. That's what we believe the outcome will be, but again that is in the hands of the court at this point."

Hedges' will retire on Feb. 29. The state has selected a Department of Ecology manager as her interim replacement while it completes its search for a permanent successor.

In an interview with *Weapon Complex Monitor* the month before she leaves state service, Hedges discussed relations between Washington state and DOE when it comes to Hanford, her experience working with a massive federal agency, and what she would tell her successor.

What is the job of the Department of Ecology's Nuclear Waste Program manager?

Basically what the job is, is I manage a program of about 70-plus people who oversee the cleanup of Hanford on behalf of the state of Washington. In addition, Hanford is 95 percent of our work, but we also permit four other facilities that treat, store, dispose of mixed radioactive and hazardous waste, so there are some other things. And we do low-level radioactive waste compact work as well for commercial sites in the state of Washington. But the majority is overseeing the Hanford cleanup.

The Nuclear Waste Program that I manage serves as the state's representative for the Tri-Party Agreement, so I am part of the Department of Ecology, and Ecology is the state agency that oversees environmental issues, and our program then has delegation for overseeing the Tri-Party Agreement as well as for the [Resource Conservation and Recovery Act]-delegated program to the state for Hanford. Basically what it includes are just what you'd think – legal negotiations, approving permits and permit modifications, issuing enforcement orders or monetary penalties, a lot of communication with affected tribes and stakeholders on issues around cleanup, and implementing the state's policies.

Then there's an element of national work. There are some national groups that I'm sure you're familiar with: the National Governors [Association] Federal Facilities Task Force and the State and Tribal Government Working Group, that this position serves as the technical representative on those groups as well. So it's having a national perspective on issues across the DOE cleanup complex.

Specific to Hanford, what would you say has been the greatest challenge among your responsibilities in overseeing the cleanup?

I think the obvious one has been the ability to get waste out of the aging single-shell tanks in central Hanford, in terms of retrieving the material and getting it treated, because of the delays to the Hanford Waste Treatment Plant. So that probably has been the biggest challenge. There are definitely other challenges just in terms of technical abilities to achieve the cleanup that we want to achieve in this unique environment.

Also, I think that infrastructure is a challenge, in that that's not the state's regulatory authority but it causes challenges for cleanup. For example, aging water lines break, and water spills into an area that was contaminated down, or the need to put new roofs on old canyons to protect them from any intrusion, that's a cost. And, again, things that are absolutely necessary but difficult to maintain cleanup while you're trying to maintain the facility as well.

How much progress would you say has been made in the Hanford cleanup during your tenure?

I actually think a great deal of progress has been made, particularly in the areas of the Columbia River corridor cleanup, which is almost virtually done, the soil and groundwater cleanup there. In particular for me, the groundwater treatment, we have got either brand new groundwater pump-and-treat systems like the one in central Hanford, which is probably the largest pump-and-treatment system I would say in the country, and it's working very, very well. As well as either new or updated treatment systems along the river. One of the key accomplishments is the fact that we have almost completely gotten chromium out of the river, or at least the low levels that will affect the ecosystem, which was our goal.

Another huge one is the Plutonium Finishing Plant; it's not done, it's projected to be slab on grade at the end of the year, but that was by far the most challenging, hazardous building on Hanford, and the work that has been done there by the Hanford workforce is just awesome. They've had to use 50-year-old equipment and keep it running, and going into highly hazardous areas safely, so that's been a major accomplishment.

Retrieval of 15 single-shell tanks has been a great accomplishment, one we would like to see continue. Historically, getting all the weapons-grade plutonium moved off Hanford, so that cleanup would not be inhibited by the security

measures that had to be in place. Those are all things that I see as being really successful, and I've been very proud to be a part of.

On the other side of the fence, have there been significant setbacks or frustrations that you've seen over the last near-decade?

Clearly, the frustration about the inability to get the Waste Treatment Plant up and operating. As you know, the state had threatened litigation. We had settled and done a consent decree in 2010 with the schedule that we all agreed to, and then the Department of Energy was unable to do that. So we are in litigation again. The state takes litigation very, very seriously, it's all the way up to the state's governor's office and attorney general to really consider what it means. That has been very challenging. We certainly recognize the technical challenges, but we believe in vitrification, we have seen it work elsewhere, we think we can work through the technical challenges. The state is very supportive of doing the direct-feed of low-activity waste to get some of our waste to started to be treated and turned to glass so that we have some additional space to retrieve those old tanks. I think that probably has been, not surprisingly, the biggest challenge for me.

It's before the federal court now, but do you have a sense for how the consent decree might be updated through that legal process or through the work with DOE?

It is in federal court, it's in front of the judge. The judge is going to work with a technical panel to understand some of the issues. My guess, and I don't know this because it's up to a federal court judge, but we anticipate that she will then come back to both of the parties either with a schedule that she imposes, or direction to work to a mutually agreeable schedule. That's what we believe the outcome will be, but again that is in the hands of the court at this point.

What would constitute mutually agreeable for the state?

We've submitted a schedule, as has [the Department of] Energy. We, again, would like to see the low-activity waste plant start up not on the 2019 schedule it is right now, but certainly within three years of that, so we can begin making some waste. And then as soon as possible to get the high-level waste and the full pretreatment up and operating so we have the full plant up.

More generally, how has DOE been as a partner in this cleanup program?

You know, DOE has been a good partner in many ways. I certainly believe the local DOE management is committed to cleanup, they want to meet their obligations, both legally and morally. There's certainly always a tension between regulators and the regulated community. That is inherent in the process. DOE has been hampered in some areas by budget limitations, technical challenges. They're also a very large federal agency with a lot of processes and procedures that sometimes don't facilitate good progress.

For example, they recontract the major contracts every five years, and in some cases are looking at lessening that, which in my personal view is very disruptive. It takes a couple years for everything to transfer, for the new contractor to come in and be fully comfortable with their mission. Some of those areas have been frustrating. But as I said, I honestly believe we and EPA and DOE all are partners in this cleanup, we've got to get it done, we're trying to reach the same goal and we need to keep that progress moving forward.

Would you say it's the technical side primarily that has been to blame for the cost overruns and schedule issues, or are their other contributors?

Certainly the technical issues have played a big part, they have. ... I think that in the past there has been some project management issues within the Department of Energy. Certainly budget has also played a part. It's very costly and there is a lot of work to be done. Our Washington delegation, particularly Senator (Patty) Murray (D-Wash.), they have been phenomenal in their support of Hanford cleanup, and their just really never-ending work to provide a budget that addresses the compliance issues and the cleanup. But there's tremendous national pressure on Congress for funding in all areas, and we understand that.

Do you have thoughts on what could be done to expedite some of this work or address some of the concerns?

Establishing milestones that are reasonable but also proactive, so there's an expectation that everyone has to meet. I think continuing to have decisions made, if you will, and agreed to for work, so that if funding or innovative technologies are available that we can move right into those.

We didn't talk about it earlier, but one of the huge successes was during the ARRA period when a substantial amount of

additional funding came to Hanford, and because we had worked together as tri-parties and had decisions made, a tremendous amount of work was done. The Department of Energy should have been used as the poster child for successful ARRA work, because they were able to get a lot done. And at Hanford they did a tremendous amount, shrinking the footprint of the contamination so that we could concentrate on some of those harder areas. So having those decisions made that we agree to with dates, that we can hold to and keep moving to and continue to work to help people understand both in this region what the work is and what needs to be done, as well as nationally, so that we will have the support to get the budget. Those are all things that I think can be done, certainly.

Investing in technology is another one, so that we can address those technological issues we know of now, but also to address issues that we don't have the technology for, so that we can keep that progress going. That's another area I think would be helpful.

Are you optimistic that these things will happen?

Let me say I'm hopeful. I think that we will be able to deal with some of our technical issues. I hope that we will be able to put in place realistic milestones that either through the court action for the Waste Treatment Plant and tank retrieval, and through our milestone changes currently under consideration for the central part of Hanford cleanup, that we will have those dates and they will be able to work through them.

Again, continued support by our congressional delegation, I don't see that changing dramatically unless there's some unpredictable dramatic change in the folks there, because they are all regionally committed to that. So hopefully the Department of Energy is, and we're looking across the complex at ways to raise across the board the level of funding, not just Hanford, so that the Environmental Management program can meet their compliance requirements across the country and keep cleanup going.

Looking at the entire picture, what is the environmental and safety situation at Hanford today versus when you started on this job?

I would say that the Department of Energy focuses a great deal on safety. I certainly think that, as I said, there have been improvements made in terms of groundwater treatment that are positive for human health and the environment. There have been a tremendous amount of contaminated soils and buildings removed and put into a safe configuration. We've moved the spent fuel off the river, which was a huge, huge risk. Now hopefully the sludge that's remaining will get moved as well, further protecting the Columbia River.

I think the reactors being put into their safe configuration is another, so I think that there has been. That said, there's still huge challenges that remain, I mean huge challenges. Again, we've got 177 tanks out there, a number of them are single-shell, a goodly number are either known or suspected to have leaked in the past. We've one that's currently suspected or known as a leaker. And one of our double-shell tanks is leaking. So there's still material moving down through the vados zone, the area between the groundwater and the surface of the ground, toward groundwater that we need to address so that we can get that groundwater cleaned back up to a safe level.

So there are some major challenges. There are challenges with worker safety in terms of the vapor issues having to do with tanks, that we need to be very cognizant of making sure that the workforce stays safe as well.

As you leave, what will or what would you tell your successor about the job and what to expect?

I would tell them that they need to celebrate their victories as well as concentrate on the things they need to improve. Because often I think with huge jobs like Hanford we look at how long it's going to take to get it all cleaned up, and that at times can be frustrating and disheartening. But when you actually sit down and look at what has been accomplished and continues to be accomplished, to celebrate those.

We have an amazing, amazing group of people that work for the state here. I can't say how much I admire them – they come every day, they work hard to move this cleanup forward, and I'm sure to them many times it seems like one step forward and three back, or just baby steps, but they continue to be out there encouraging, pushing, monitoring, making sure things are safe. I think that's what I would say to whoever succeeds me in this job, is to keep that goal of getting this cleaned up and protecting the river and just continue every day to work on any method to get that done.

K-27 Demolition Project Starts at ETTP

Staff Reports

Amid some hoopla and a few dozen VIP onlookers, workers on Monday began tearing down the historic K-27 Building at the East Tennessee Technology Park.

K-27 is the last of five gaseous diffusion plants in the East Tennessee valley that once housed the world's largest uranium-enrichment complex and provided fuel for early generations of nuclear reactors and fissile material for the nation's Cold War arsenal of nuclear weapons.

In some ways the hardest work on the big demolition project has already been accomplished. Over the past 2 ½ years, workers prepared the four-story, 380,000-square-foot building for demolition, removing significant deposits of enriched uranium and equipment with the worst hazards, such as technetium-99. The transite exteriors had already been stripped away, minimizing airborne hazards, and inside equipment was foamed or stabilized to make the demolition job more worker-friendly.

The Department of Energy estimates the cost of demolishing K-27, which last operated in 1964, at \$292 million. That dollar figure includes the work that has already been done at the site.

Sue Cange, DOE's cleanup manager in Oak Ridge, told the gathering that tearing down K-27 is a big deal, completing what she has called "Vision 2016." By the end of the year, all of the old uranium processing plants will have been torn down, paving the way for redevelopment of the site as an industrial park and eliminating some major hazards once and for all.

"This may be more historic than you realize," Cange said, noting that the project will mark the first time in the world that an entire uranium-enrichment complex has been deactivated and demolished.

Prior to K-27, Oak Ridge workers demolished K-29, K-31, K-33, and The biggest of them all, K-25 -- the original World War II plant that was a mile-long in the shape of a U.

Ken Rueter, president of URS-CH2M Oak Ridge (UCOR), the DOE cleanup manager in Oak Ridge, said the demolition projects have cleared about 50 acres of high-hazard, high-security, and highly classified facilities.

"In the end, we owe thanks to people who trusted us with the taxpayer dollars to do this work," Rueter said.

Hundreds of UCOR workers contributed to the predemolition activities that helped ensure safe operations during demolition and also helped prevent the spread of hazardous materials.

Rueter said demolition of K-27 will generate about 10,000 truckloads of contaminated rubble and debris. Some of the higher-risk equipment, containing deposits of enriched uranium or significant levels of radioactive technetium-99, has already been removed from the structure and shipped to the Nevada National Security Site for disposal.

UCOR spokesman Mike Butler said about 70 percent of the process gas equipment in K-27 will be shipped off-site because it doesn't meet criteria for the CERCLA landfill in Oak Ridge that is known as the Environmental Management Waste Management Facility. So far, the DOE contractor has made 159 shipments of K-27 materials to the Nevada site.

Cange said DOE's national environmental program chose K-27 as one of its most important projects of 2016, and Secretary of Energy Ernest Moniz cited the importance of the Oak Ridge demolition projects during his presentation this week on the fiscal 2017 budget.

"We intend to deliver on our commitment to safely complete the demolition by the end of the year," Cange said.

Officials praised the Knoxville Building and Construction Trades Council and the skilled crafts workers who reportedly accumulated about 5.3 million safe hours during the predemolition work.

Mike Koentop, executive officer of DOE's Oak Ridge Office of Environmental Management, said the K-27 cleanup team will apply lessons learned from the earlier demolition at K-25 — particularly the unexpected spread of technetium-99 that infiltrated a city of Oak Ridge sewage treatment plant -- to this project.

At Hanford

Exchange Monitor

Washington State Appoints Interim Nuclear Waste Program Chief

The Washington State Department of Ecology has named an interim manager of its Nuclear Waste Program starting March 1. Tom Tebb, the manager of Ecology's Office of Columbia River, will do both jobs until the department permanently fills the position that oversees the state's regulation of the Hanford Site. "Tom's extensive resume at Ecology, including his experience working at our Hanford office for five years, makes him uniquely qualified to help us out in this key position and give us the time we need to select the best person as Jane Hedges' successor," said Polly Zehm, Ecology deputy director. Tebb worked in the Nuclear Waste Program during the 1990s. The current office holder, Jane Hedges, announced in early November that she planned to retire at the end of February. Tebb is expected to fill in as acting manager of the Nuclear Waste Program for at least a month.

At Portsmouth and Paducah

Exchange Monitor

Fluor Gets 73.6 Percent of Possible Award Fee for 2015 at Portsmouth

Fluor-BWXT Portsmouth earned a \$10.5 million award fee in fiscal 2015 for cleanup work at the former Portsmouth uranium enrichment facility near Piketon, Ohio, good for 73.6 percent of the total available, DOE said Thursday.

In the fiscal year ended Sept. 30, Fluor-BWXT "continued to excel and exceed contract requirements in the safe shipping of large amounts of newly generated and legacy waste for the project," much of which is shipped to the Nevada National Security Site disposal facility by federal drivers, according to DOE's award fee scorecard.

In December, however, DOE's Office of Enterprise Assessments said shipments were not always timely.

Meanwhile, Fluor-BWXT also made progress toward building an on-site waste facility at Portsmouth and awarded a subcontract in the quarter to begin site preparation work in what is known in DOE engineering parlance as critical decision 3A; critical decision 4 is the milestone that precedes construction.

Fluor-BWXT lost out on some available award money because it underperformed in the environmental safety, health, and quality area, for which DOE gave the company an adjectival rating of "satisfactory" for fiscal 2015.

The Enterprise Assessments report from December noted Fluor-BWXT failed to ensure all low-level radioactive waste intended to be disposed of at Portsmouth was dealt with in an expedited fashion or kept in "appropriate facilities protected from the elements," in line with DOE rules.

Fluor-BWXT also took a ding for only partially meeting a milestone to "Cut, Cap, and Remove Process Gas Equipment from X-326," a former uranium enrichment plant at Portsmouth.

Meanwhile at the Paducah site, another former DOE uranium enrichment facility in southwestern Kentucky, Fluor netted \$4.2 million of a possible \$6 million or so available from July 2014 to July 2015.

During that time, Fluor Federal Services took over Paducah remediation work from LATA. Fluor had a tough time with the transition and "struggled to provide timely deliverables that complied with the terms of the Task Order" to clean up irradiated soil and groundwater at the site, according to DOE.

As a result, the company replaced "some key personnel" at the site.

DOE also dinged its contractor for unspecified "safety-related events," and for missing "a major milestone for submittal of contractor performance baselines."

Portman Decries Lack of Funding for American Centrifuge Plant

Sen. Rob Portman (R-Ohio) dinged the White House on Tuesday for sticking to its guns about defunding the American Centrifuge Plant near the former uranium enrichment facility at the Energy Department's Portsmouth Site.

DOE announced in September it would pull the plug on the advanced centrifuge facility at Portsmouth, and plant operator

Centrus Energy, of Bethesda, Md., has been paying out of its own pocket since October to keep the facility online.

The department had the option, under the 2016 omnibus spending signed in December, to divert \$50 million from other programs to the centrifuge project this year. The agency opted not to, and instead concentrated domestic uranium enrichment research led by Centrus at the Oak Ridge National Laboratory in Tennessee.

In a Tuesday press release, Portman said he was “disappointed that the Administration has not provided any resources for the American Centrifuge Plant,” which the junior Ohio senator said is “critical for our national and energy security.”

If the plant closes down, Centrus will lay off up to 70 people. A final decision on the layoffs is expected later this month or in early March.

Elsewhere at Portsmouth, legacy cleanup work handled by Fluor-BWXT Portsmouth and overseen by DOE’s Office of Environmental Management would get an 11 percent bump, up to about \$322 million, in fiscal 2017.

Within that total, the White House proposed increasing the Portsmouth cleanup budget by about \$11 million to nearly \$215 million, about 5 percent over 2016 levels. Funding for the 15-U-408 on-site waste disposal facility would nearly double from 2016 levels to about \$42 million.

It remains to be seen whether Congress will approve these elevated levels of funding, as it would require lawmakers to go along with a proposal in the White House’s latest budget request to pay for uranium cleanup by tapping into the moribund United States Enrichment Corp. Fund. Congress would have to pass a law authorizing DOE to spend any of the \$1.6 billion fund for that purpose. The agency wants to make a \$674 million withdrawal for several projects in fiscal 2017, which begins on Oct. 1.

DOE Saves \$500K at Paducah Cleanup Project

The Energy Department said Friday it saved close to \$500,000 by using a lubricant it already owned to clean a polychlorinated biphenyl-contaminated oil once used in transformers that helped power the now-shuttered Paducah Gaseous Diffusion Plant in Kentucky.

DOE did not say how much the cleanup cost in total.

“In compliance with the Toxic Substance Control Act, the Fluor Paducah Deactivation Project initiated removal of PCB oil from the transformers in early summer 2015” DOE said in a press release. “To ensure all PCB oil has been removed from the transformers, Environmental Protection Agency regulations required that the transformers be rinsed. Rather than purchasing a rinsing agent, such as kerosene, DOE and its contractors developed a unique idea to rinse the transformers with lube oil already at PGDP that also was scheduled for disposal. This idea saved nearly a half-million dollars, while enabling an existing product to be reused before its ultimate disposal.”

The department by the end of 2015 moved about 100,000 gallons of transformer oil and 113,000 gallons of PCBs safely off-site, ahead of schedule.

The Paducah Gaseous Diffusion Plant once refined uranium for the Pentagon’s weapons and, later, for commercial power plants. Fluor Federal Services Inc. Paducah Deactivation Project is the prime on the cleanup under a three-year, \$420 million contract that phased in back in July.

Portsmouth Again Opening for Public Tours

The Energy Department said Friday it would for a fifth year open the onetime Portsmouth uranium enrichment facility in Ohio up for public tours.

Those interested in touring the facility this year should contact Sandy Childers either by phone at (740) 897-2336 or by email at sandy.childers@fbports.com. Messages should include a name and a daytime phone number, DOE said. The deadline to register for the first tour is March 4. They are offered free of charge and on a first-come, first-served basis.

According to DOE, available tour dates are:

Saturday, March 19, 2016

Saturday, April 16, 2016

Saturday, May 21, 2016

Saturday, June 18, 2016

Saturday, July 16, 2016

Saturday, Aug. 20, 2016

Saturday, Sept. 17, 2016

Saturday, Oct. 15, 2016

The roughly Portsmouth site, located about 100 miles south of Columbus, Ohio, from the early 1950s produced highly enriched uranium for the Pentagon and low-enriched uranium for commercial reactors. Fluor-B&W Portsmouth of Piketon is DOE's prime contractor on the cleanup under a contract awarded in 2010 and potentially worth about \$2 billion over 10 years.

Wrap Up

Exchange Monitor

AT DOE

As part of a broader effort to make a dent in a roughly \$20-billion shortfall for uranium cleanup, the White House in its fiscal 2017 budget plan proposed tapping into a \$1.6 billion fund that has been gathering dust since 1996.

The three-year drawdown of the United States Enrichment Corp. (USEC) Fund would begin in the next budget with a \$674 million withdrawal to pay for decommissioning and demolition projects at Energy Department sites in Oak Ridge, Tenn., Paducah, Ky., and Portsmouth, Ohio, according to the 2017 DOE budget request the White House unveiled Tuesday.

That is roughly the same level of funding Congress approved for the work in 2016 as part of the \$1.1 trillion omnibus spending bill signed in December. Currently, cleanup at the three former uranium enrichment sites is paid for through the Uranium Enrichment Decommissioning and Demolition (UED&D) Fund. That DOE-managed fund faces a more than \$20 billion shortfall and, at the current rate of spending, would run dry in 2020, some two decades before DOE thinks it can finish remediation at the three sites.

The USEC fund was created in 1992 to pay for operating expenses at the government-run uranium enrichment company privatized in 1996 and now known as Centrus Energy. The fund has sat in the U.S. Treasury for the past 20 years. In a 2015 floor speech, Sen Dan Coats (R-Ind.) dubbed the money pot a "zombie fund."

Including USEC, UED&D, and a third fund called the Uranium Supply and Enrichment Account, DOE has about \$5 billion it could use to narrow its looming uranium cleanup shortfall, Secretary of Energy Ernest Moniz said in a Tuesday press briefing at DOE headquarters in Washington.

However, only UED&D money may legally be spent on uranium cleanup. Getting access to all \$5 billion would require new authorizing legislation from Congress. Likewise, lawmakers would have to approve a perennial DOE proposal, which the agency made again in the new budget, to reauthorize new government and industry contributions to the UED&D fund. Industry has opposed making new contributions.

"That will be a discussion," Moniz told reporters.

Representatives the deep borehole nuclear waste storage demonstration project in North Dakota will host an informational meeting on the controversial plan on Feb. 15 in the city of Rugby.

Officials from the Department of Energy and representatives from the contract team, a partnership between Battelle and the University of North Dakota Energy & Environmental Research Center, will be on hand from 4:30 p.m. to 7:30 p.m. at the Cobblestone Inn & Suites.

The estimated five-year, \$35 million project, proposed across 20 acres of state land near Rugby, would provide data on whether deep borehole drilling is feasible for storage of DOE-managed waste. The plan has drawn the attention of residents and local officials concerned that the test, which will not involve nuclear waste, will eventually lead to waste storage in North Dakota.

Local farmer Chuck Volk has reportedly circulated a petition against the project, garnering more than 100 signatures at a recent farm show, according to The Associated Press.

Correction

Exchange Monitor

An article in the Feb. 9 edition of *WC Monitor* cited an incorrect amount proposed to be spent in fiscal 2017 for the Department of Energy’s nuclear waste management operations. The amount is \$76.3 million.

Weapons Complex Monitor regrets the error.

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