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ADVOCATE

New Bethel Valley Groundwater Monitoring Wells in Place

A cluster of monitoring wells installed earlier this year will provide periodic data related to the movement of contaminants in groundwater coming out of the Bethel Valley Burial Grounds.

The three wells of various depths were drilled during the summer in the west end of Bethel Valley, just west of Highway 95, and about 75 feet west of a tributary of Raccoon Creek. The wells are sunk to depths of about 20, 40, and 115 feet. Bechtel Jacobs, Co. (BJC) did the work for the Department of Energy (DOE).

“The Bethel Valley Record of Decision identified the need to improve groundwater monitoring in the west end of Bethel Valley,” said Dick Ketelle, BJC project manager. “In 2004-05, we put in a multi-zone well near Highway 95 that we monitored. During the design phase for the Bethel Valley SWSA-3 (solid waste storage area) closure project additional wells were specified near Raccoon Creek. We installed those wells beginning in early summer 2010. We did one sampling and the water quality was good. That doesn’t mean we won’t see something down the road in future monitoring, however.”

That’s because the wells are about 100 feet from the end of a known strontium-90 plume

emanating from the burial grounds. Ketelle said it’s been known for some time that strontium-90 has been detected in seeps near the Raccoon Creek tributary. “The

groundwater sampling targets a particular geologic zone that’s been shown to have some past activity in transporting strontium from the burial grounds,” he said. “We’re evaluating how far and how deep that particular pathway is active in carrying contaminants.”

A second sampling was done recently, but the results are not in yet. The wells will be sampled semi-annually along with the other SWSA-3 monitoring.

If subsequent sampling indicates movement of the strontium plume to the wells, Ketelle said another set of wells must be

drilled farther to the west. “The wells are near the boundary of an exclusion area for the security forces’ practice firing range. There’s a wide swath of land down range of the firing zone you can’t go into on a routine basis,” he said. “So if we need to put in additional wells we’d be looking at a site near the Clinch River about a mile away and near the boundary of the Oak Ridge Reservation.”



Workers prepare a well drilling site on the Oak Ridge Reservation. DOE and Bechtel Jacobs, Co., drilled a cluster of three wells at various depths to detect possible migration of contaminants from the Bethel Valley Burial Grounds.

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The Advocate is a publication of the Oak Ridge Site Specific Advisory Board (ORSSAB)—an independent, nonpartisan, volunteer citizens panel providing recommendations and advice to DOE’s Environmental Management Program

Reservation Update

Bridge MOA Signed for Historic Preservation of K-25 Building

A ‘bridge’ memorandum of agreement (MOA) was signed in June 2010 that addresses interim historic preservation measures for the K-25 Building at East Tennessee Technology Park (ETTP). The agreement was signed by DOE Oak Ridge, the Tennessee State Historic Preservation Officer, the Advisory Council on Historic Preservation, the City of Oak Ridge, and the Oak Ridge Heritage and Preservation Association.

The west wing of K-25 has been demolished already, and the east wing is being prepared for takedown. But the North Tower that connected the two will remain – for now. A structural engineering study is being performed to determine the feasibility and cost of preserving a portion of the North Tower.

Until the results of the study are made available, which is expected soon, the bridge MOA has a number of stipulations. One is that pre-demolition activities of the remaining part of K-25 will continue, but no demolition of the North Tower will begin before June 30, 2011. If it’s determined that the North Tower can’t be saved, then at least 25 converters and associated material will be removed and saved for historic purposes.

Instead of retaining the so called ‘Roosevelt Cell,’ a similar cell and associated equipment will be preserved. The bridge MOA will allow the demolition of the upper 10 feet of the interior walls of the east and west legs of K-25. A 2005 MOA called for the retention of the walls, but they tended to collapse during the demolition of the west wing. The final MOA may call for rebuilding part of the wall.

Prior to a final MOA, a draft feasibility study for preservation options will be provided to the MOA signatories and consulting parties. After a 30-day comment period DOE will develop a draft final MOA and hold a meeting with the consulting parties to the MOA.

Study to Look at Future Waste Disposal Options

The final expansion of the Environmental Management Waste Management Facility (EMWMF) in Bear Creek Valley is basically complete, and DOE is working on a report about how to handle future waste.

Completion of the fifth cell in May added 465,000 cubic yards of capacity to EMWMF. Completion of Cell 6, all but complete except for a few finishing touches, will bring the facility to its final capacity of 2.2 million cubic yards.



EMWMF expansion is complete with the addition of Cells 5 and 6 on the west end (left) of the facility.

But there’s more waste to be generated than can be disposed at EMWMF. So DOE is looking at several options to handle the next generation of waste. “We’re very early in the process,” said Jason Darby, the DOE manager for a future waste management plan. “The decision we’re looking at is not just future disposal on-site. It’s a decision of how we are going to handle future waste management. We’re going to evaluate on-site disposal, off-site

disposal, and minimization of waste or not generating the waste that’s in the forecast.”

DOE is doing a focused feasibility study that will evaluate alternatives for future waste management. From the study a preferred alternative will be selected and a proposed plan will be written. The results of the study are due in September 2012.

“If the proposed plan is a selection of a new waste cell we need to have it ready by 2016 to meet the waste forecast,” said Darby.

White Oak Dam Modifications Complete

Work to improve the stability of DOE’s White Oak Dam was completed in December.

An inspection of the dam by the Federal Energy Regulatory Commission in October 2008 identified five potential problems that could have compromised the dam’s effectiveness, including overtopping under flood conditions.

In June 2010, DOE issued an action memorandum to address those issues. Modifications included grouting the box culvert under the southern end of the embankment; reducing the slopes on the upstream and downstream faces of the dam; and armoring the slopes to protect against erosion, failure from flooding, and overtopping.

Work on the dam began in August and was completed in late December.

Long-term Stewardship at Ongoing Missions Sites Is Open Question with Board Members

The question of stewardship on the Oak Ridge Reservation after environmental cleanup is completed is still an open one says ORSSAB Chair Ron Murphree, who attended a recent conference related to long-term stewardship (LTS).

Four other board members, Stewardship Committee Chair Darryl Bonner, Betty Jones, Maggie Owen, and John Coffman attended the three-day Long-term Surveillance and Maintenance Conference in November in Grand Junction, Colo. Stewardship Committee member Roger Macklin also attended.

The stated purpose of the conference, sponsored by the DOE Office of Legacy Management (LM), was to provide technical information and education for government agencies and regulators, political office holders, tribal groups, and other stakeholders interested in long-term surveillance

“It was evident from the presentations that LM’s focus is on legacy sites and LTS at ongoing missions sites is not their business or goal” - Ron Murphree

and maintenance of remediated sites and facilities.

LM is the landlord responsible for the long-term surveillance and maintenance of large Environmental Management (EM) sites with no further mission that had been contaminated by radioactive, chemical and hazardous waste as a result of World War II and Cold War activities. The largest of number of sites within the LM program are Uranium Mill Tailings Remedial Action Sites with EM contributing only a small percentage.

ORSSAB was invited to participate after submitting a recommendation to DOE EM requesting a national workshop on LTS. Since the Grand Junction conference was already being planned a spot was made available on the agenda for presentations by ORSSAB and the Hanford Advisory Board.

ORSSAB has been concerned for some time that there is no definitive stewardship plan for remediated

areas at sites that have continuing missions, such as the Y-12 National Security Complex and Oak Ridge National Lab (ORNL). EM is cleaning up areas at both places. The question is, ‘who will be responsible for monitoring those sites when EM finishes its work?’ It’s not LM because it is responsible only for closed sites and no other entity appears ready to take that responsibility.

LTS at ongoing missions sites is not their business or goal,” said Murphree. “Until it’s turned over to them as a closed site it’s an EM, Office of Science, or NNSA (National Nuclear Security Administration) function depending on who the landlord is. We also had presentations by Science and NNSA, and it’s clear from them that they are not set up for that; it’s not their mission. Their mission is pure science or national security.”

“I learned a lot about stewardship across the DOE complex,” said Bonner. “It appears that LM has

a more developed, more mature stewardship program than I thought. They are the standard within DOE for stewardship.

“There were a number of themes that came up in the presentations, and one of them was to start early.” Other

LM’s scope does not include ongoing mission sites. However, they were interested in what we had to say. Being the experts within DOE they could appreciate our concerns” - Darryl Bonner

themes, he said, included having a clearly defined endpoint in cleanup documents, regular meetings with transition team members, developing a transition checklist, and having a plan for adequate stewardship funding.

“The main message I received is that management needs to be planned well in advance of property or a facility being turned over to LM. LTS seems to be an afterthought in many cases,” said Owen.

“It gave me an opportunity to hear presentations from other DOE sites as to how they manage legacy waste and long-term surveillance,” said Jones. “Common ground was to keep the public informed on cleanup issues,” she said. “There was also a lot of discussion about using cleaned up areas for the energy parks initiative and other industrial usage.”

“LM’s scope is broader than what I thought,” said Murphree. “Not only do they have the role of stewardship at closed sites, they also manage the Uranium Mill Tailings Sites and the Formerly Utilized Site Remedial Action Project sites and a number of smaller CERCLA sites around the country.

ORSSAB EM Committee Ponders What DOE Should Do About Bear Creek Burial Grounds

The ORSSAB EM Committee has been studying the Bear Creek Burial Grounds (BCBG) in hopes of coming up with a suggestion for DOE to address the problem of uranium contamination entering nearby Bear Creek.

The BCBG are just one part of a collection of waste disposal areas in Bear Creek Valley a couple of miles west of the Y-12 National Security Complex main plant. The other sites include the Boneyard/Burnyard, the Oil Landfarm, the Disposal Area Remedial Action Solids Storage Facility, and the S-3 Site, which consisted of the remediated and closed S-3 Ponds.

Over the years all of the waste areas have contributed various contaminants to Bear Creek and its nearby tributaries. In 2000 a record of decision (ROD) was signed that provided remedies for all of the waste sites, except for BCBG. The goal was to reduce uranium contamination in surface water to levels compatible for residential use.

While uranium releases to surface water in Bear Creek have been declining in recent years, uranium levels continue to exceed the 2000 ROD goals. Recent data indicate BCBG to be a more significant contributor of uranium to Bear Creek than first thought.

The burial grounds were used from the mid-1950s until 1993 primarily for the disposal of depleted uranium turnings and industrial waste contaminated with uranium. Reportedly the burial grounds hold more than 40 million pounds of uranium. During closure in 1993-94 BCBG were covered with an engineered cap, layers of clay, a

geomembrane to prevent infiltration, and finally a concrete blanket over the entire surface.

But there was always the intent to go back and do more extensive remediation. A focused feasibility study and proposed plan to remediate BCBG were developed and submitted to the Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC) to review. Remediation alternatives include hydrologic isolation, in situ treatment, complete excavation and removal, and collection and treatment of water. Estimated costs ranged from about \$21 million for hydrologic isolation to more than \$3 billion for excavation.

During the November EM Committee meeting, Dave Adler, DOE Oak

long-term monitoring, maintenance, and protection of the site.

While excavation would remove the problem of long-term stewardship it has several problems, money perhaps being the largest. Budget allocations to DOE Oak Ridge for cleanup have not been enough to cover existing work and probably won't get much better.

There's the question of what to do with the large amounts of radioactive material if it's excavated, and the material that's buried there tends to be shock sensitive and pyrophoric, which could flame up if disturbed.

So while the project is on hold the EM Committee is pondering what to do. "It's a problem that requires some creative thinking," said committee chair Bob Olson. One idea Olson has

suggested is bioremediation of groundwater in the area. Adler said at the EM meeting that such a study had been done for the S-3 Ponds and results indicated it could work, but no similar analysis has been done for BCBG.

For now the EM Committee has suggested that DOE at least do what it agreed to do in the 2000 ROD. One part of the agreement was to intercept and treat shallow groundwater at the S-3 Site Pathways that still contributes contamination to Bear Creek Valley. That part of the ROD was never implemented.

In the meantime the hope is that some new idea will be put forth that will stimulate work again on BCBG.



Bulldozers smoothed the ground over the Bear Creek Burial Grounds prior to the area being covered with a concrete cap.

Ridge liaison to ORSSAB, said DOE's current assumption is that the BCBG would be hydrologically isolated. That would leave long-lived radionuclides in place. TDEC wants DOE to provide a perpetual care trust fund to pay for

ORSSAB Vice Chair Says Board Can Be a Vehicle for Moving Projects Forward

“It’s a good time to be a member of ORSSAB because there are a lot of big issues, but not a lot of clear answers,” says board Vice Chair Kevin Westervelt. “There are also questions about sufficient budget allocations from DOE Headquarters to do the work that needs to be done.”

Kevin was talking about some of the technically challenging jobs facing the DOE Oak Ridge EM Program, things like the final takedown of the K-25 Building at ETTP; the removal of fuel salts from the Molten Salt Reactor; the Building 3019/ Uranium-233 Downblending Project; contamination detected in Melton Valley groundwater; demolition of surplus buildings at Y-12 National Security Complex and ORNL and any residual contamination, particularly mercury, which may be in the soil underneath.

“Maybe we, as a board, can be the vehicle to encourage DOE, EPA, and TDEC to be moving together in setting priorities for Oak Ridge.”

Kevin has been a member of ORSSAB since July 2006. “I learned about the board through newspaper articles I’d seen, and I’d been involved with work going on at K-25 and knew the board was involved in the EM arena. I’d taken all of the graduate courses in environmental engineering at the University of Tennessee, and I saw this as a way to put that education to use.”

Since joining the board Kevin has served as the chair of the Public Outreach Committee and in FY 2010 was elected board vice chair, now in his second term in that position.

Kevin is a native of the northwest Indiana area, Merrillville to be specific, which he says is an Indiana suburb of Chicago. He attended Purdue University earning a bachelor’s degree in civil structural engineering. After graduating he went to work for the Sargent and Lundy engineering firm working on power plant design and construction.



ORSSAB Vice Chair Kevin Westervelt in his Mesa Associates office in West Knoxville.

In the mid ‘80s he was promoted as a field supervisor of power plants. “After a tour of duty of about three years at a plant in downstate Illinois, in 1988 I was sent down to the TVA-operated plant at Watts Bar where I worked as a consultant on the operational readiness review team. I did that until the plant was fuel loaded and operational. I had been here eight years, liked the area and had the opportunity to join Mallia Engineering in Knoxville in 1996, and then I joined Mesa Associates in 2004.”

He currently is a structural department head for Mesa in charge of civil and structural engineering and architecture for government and industrial projects.

Since joining the board he has been encouraged by the active participation of members. “I’m glad to see more members stepping up,” he said. “I think we were relying too much on a few key people. On any topic we had just a few who would ask penetrating questions. In the last year or so it’s become more balanced with more people taking an active role.

“But I’m also seeing some frustration on the major issues like mitigating groundwater and surface water contamination from uranium in Bear Creek Burial Grounds and finishing the demolition of K-25, especially in light of technetium-99 contamination in some of the sections. I’m not sure anyone really knows the schedule and cost to finish some of these projects.”

In his off time from Mesa and board work Kevin likes to write. He’s been a sports writer and general columnist for the Farragut Press Enterprise. He’s currently fleshing out ideas on a book he’d like to write on growing up in the industrial Midwest and how that area has been affected by the loss of much of its industrial base.

He’s also coached youth sports like competitive baseball and AAU basketball.

Kevin and wife Lois have been married 25 years and have three children. Their oldest son Daniel is working on a doctorate in environmental engineering. Their daughter Mariel and younger son Brian are studying music and engineering respectively.

Oak Ridge Resident Appointed to ORSSAB

Oak Ridge resident Jenny Freeman has been appointed to ORSSAB by DOE. Jenny is the business development manager for Strata-G, an environmental consulting firm in Knoxville.

“I think Jenny is going to be a wonderful addition to the board,” said John Eschenberg, the DOE Oak Ridge Assistant Manager for EM and the Deputy Designated Federal Officer for the board. “What I respect most about Jenny is her energy.”

Jenny has worked with citizen groups since the early 1980s when she was employed under a grant from the EPA to educate communities impacted by hazardous and radioactive waste. Throughout the years, she has consulted with environmental organizations on issues such as clean



Jenny Freeman

air, hazardous waste laws and regulations, and land use planning. Her interest in cleanup issues on the Oak Ridge Reservation began in 1992 when she worked on the ORNL site-wide remedial investigation/feasibility study as an ecological risk assessor. From that work, she led for six years the Energy, Technology, and Environmental Business Association (ETEBA), a non-profit trade group composed of

air, hazardous waste laws and regulations, and land use planning.

Her interest in cleanup issues on the Oak Ridge Reservation began in 1992 when she worked

businesses engaged in environmental cleanup and technology development. In 2003, she helped organize a grass-roots effort to research and produce “The Oak Ridge Story,” a booklet that described in layman’s terms the extent of contamination on the reservation and the ongoing cleanup effort. Jenny also has worked for CDM Federal Services, an Oak Ridge business that provides business development and proposal writing.

Jenny has a bachelor’s degree in anthropology from the University of Memphis and a master’s degree in forestry from the University of Tennessee-Knoxville. She has memberships in the Tennessee Citizens’ for Wildlife Planning, the East Tennessee Economic Council, and the Oak Ridge Business Safety Partnership.

Reservation Update

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TWPC Operating Again After Dealing With Maintenance Problems

The Transuranic Waste Processing Center (TWPC) is back to normal operations after having some equipment failures in October and early November.

A remote-controlled mechanical arm called a PaR Manipulator, which removes waste from storage casks, stopped operating in October. That required workers to enter the hot cell where waste is removed from casks, sorted, characterized, and repackaged for shipment. “To do that we had to remove all waste containers from the hot cell and perform extensive decontamination activities in order to minimize worker dose. It was a big effort to plan and execute,” said Bill

McMillan, Transuranic Waste Program Manager.

“We replaced several mast bearings within the PaR Manipulator, as well as repaired the PaR wrist assembly and resolver. While we were in there we installed a new lid extraction tool, which takes the lids off the casks. The old one was bent, and we had a new one ready to install during a planned outage in December. We also did a number of other maintenance tasks while we were in there.”

But even after the work was finished there still were some problems with the manipulator. This time repairs were made to some loose bolts without having to re-enter the hot cell. McMillan said the operation was down about three and a half weeks. Work re-started the first of November.

“We’re not too far behind schedule,” he said. “We adjusted our baseline in October to account for the outage. We anticipate catching up with our schedule.”

The TWPC began shipping contact- and remote-handled transuranic waste in 2009. It has since shipped 588.9 cubic meters of contact-handled and 34.2 cubic meters of remote-handled transuranic waste to the Waste Isolation Pilot Plant in New Mexico.

McMillan said 911 cubic meters of contact-handled waste remains to be shipped by the first quarter of fiscal year 2015 and 525.8 cubic meters of remote-handled waste by the end of fiscal year 2014.

Strong Leader Needed to Assure Continued Funding for Oak Ridge EM Cleanup

By Ted Lundy, ORSSAB member



“Why was Tennessee chosen as one of the major sites for the Manhattan Project?” I have heard over the years

that President Franklin D. Roosevelt had asked Tennessee Sen. Kenneth McKellar to the White House for a private meeting in about 1940 saying that he needed large amounts of money for the project. The question asked of the senator was: “Can you keep the project secret from all the members of Congress?” The response was: “Yes, Mr. President and where in Tennessee will the project be?”

Now, after my web search on Sen. McKellar, I am quite convinced that the above mentioned quotes were close to what actually happened at the meeting. McKellar had been in the U.S. Senate representing Tennessee since 1916 and held a key position on the Appropriations Committee. Earlier, he most certainly had pushed Roosevelt for the creation of the Tennessee Valley Authority.

One of the references disclosed by the search indicated that shortly before Roosevelt’s death in April 1945, the president had contacted Memphis political leader Edward Crump requesting that he withdraw his support from McKellar’s upcoming re-election in 1946. Crump refused! Perhaps McKellar had been demanding too much from the president and was pestering him for more. We probably will never know more about those

demands; but later in 1952 McKellar did not win his political party’s nomination for his seventh term as a U.S. senator from Tennessee. The nomination went to Albert Gore, Sr., of Carthage, who was elected to his first term in the Senate.

As a native Tennessean, I grew up near Nashville in the town of Goodlettsville. Both sets of my grandparents had lived in the DuPont Village at Old Hickory where my parents had met as teenagers and married. My father was educated by DuPont to be an electrician and was employed by that company for much of his life. Within a month of Pearl Harbor, we were moved to Alabama with Dad’s job at a “powder plant” in Childersburg.

Many years later after I had completed grade school and high school at Goodlettsville and college at the University of Tennessee with a few years into employment at ORNL, I asked my father if he might have known about the heavy water plant in Childersburg. He looked at me in surprise and said “I’ve never said a word about that!” After the surprise

was over, I told him he could talk about it now because it was in the history books. He went on to describe the extra security at the heavy water plant where he had worked during World War II.

As one of the volunteer members of the Oak Ridge Site Specific Advisory Board, I have been very pleased with the progress I have observed and perhaps somehow influenced in the cleanup of hazardous wastes left behind from operations at the ORNL, Y-12, and K-25 areas. A high degree of professionalism exists among all DOE employees and their contractors as I have observed. I applaud their detailed work, and my sincere hope is that adequate future funding will be forthcoming.

My suggestion is that we need to spur at least one outstanding individual within a key political and/or appointed federal government position to have the drive and determination shown by Kenneth McKellar to assure outstanding future budgets for Environmental Management. “Who will that be?”



ORSSAB Student Representative Josh Monroe checks out some fish at the Aquatics Ecology Laboratory at ORNL. Josh and his classmates from the Oak Ridge High School Advanced Placement Environmental Science Class took a tour of a number of facilities recently at the lab, including a look at one of the supercomputer displays at the Center for Computational Sciences. The class also visited ETTP.

LTS Still an Open Question

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“We also got some good information about the interpretive center at the Fernald site that might have some applicability to a similar center at ETTP.”

So what’s next for the dilemma of LTS at ongoing missions sites? A long-time employee of LM, Tish O’Conor, has joined EM and is the EM point of contact for LTS. She will be working with sites like Oak Ridge to address the issue of LTS.

“It gave me an opportunity to hear how other DOE sites manage legacy waste and long-term surveillance” - Betty Jones

“Our position has always been that LTS at ongoing missions sites needs to be separate from LM,” said Murphree. “We think the best organization postured to do that is EM, even after they finish cleanup. We’re going to

have to see if Tish’s role is what we think it should be. We’re going to have to

continue to push EM about stewardship at ongoing missions sites, because they are fundamentally different from closure sites.”

ORSSAB FY 2010 Annual Report Now Available

The FY 2010 ORSSAB Annual Report can be accessed online at www.oakridge.doe.gov/em/ssab/pubs.htm. Copies are also available at the DOE Information Center, 475 Oak Ridge Turnpike, Oak Ridge.



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ABBREVIATIONS

- CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
- DOE - Department of Energy
- EM - Environmental Management
- EPA - Environmental Protection Agency
- ETTP - East Tennessee Technology Park
- ORNL - Oak Ridge National Laboratory
- ORSSAB - Oak Ridge Site Specific Advisory Board
- TDEC - Tennessee Department of Environment and Conservation

UPCOMING MEETINGS

All meetings are held at the DOE Information Center, 475 Oak Ridge, Turnpike, Oak Ridge, Tenn.

Board Meeting

- January 12, 6:00 pm

Committee Meetings

- January 18, 5:30 pm – Stewardship
- January 19, 5:30 pm – Environmental Mgmt.

To add your name to or remove it from our mailing list, or to advise us of an address change, call the ORSSAB Support Office at (865) 241-4583 or 241-4584. **Web address:** www.oakridge.doe.gov/em/ssab