US Army Corps of Engineers
Baltimore District

# The Corps'pondent

a newsletter by the U.S. Army Corps of Engineers for the residents of Spring Valley

*August-September 2004*

## Arsenic soil removals continue, Lot 18 pauses as planned

*by Gary Schilling*
*Program Manager*

### Soil removals

The removal of arsenic-affected soil is complete and restoration activities are nearing completion at the second and third residences of the remaining 113 properties requiring remediation. Removal activities are underway at the fourth property, and preparations are set to start at the fifth house in early September. This work will continue uninterrupted into Fiscal Year 2005, which begins Oct. 1.

### Lot 18

At Lot 18, excavation has been temporarily stopped until the new fiscal year funds are received. The tentative start-back date is Oct. 18. The Corps is presently demobilized from the site. The tent has been repositioned for the restart of excavation operations, and it, along with the filters and most of the monitoring equipment will stay on site during this down period. The site will be guarded during the shut down.

**A yard with arsenic-affected soil above the cleanup level is excavated in Spring Valley.** *Photo by Doug Garman*

Since the removal operation began June 24, 474 55-gallon drums of soil have been excavated and about 890 items recovered. Seven items are undergoing further analysis at Edgewood Chemical and Biological Center, or ECBC. Results are not yet available.

All of the other items are "scrap." Fewer than 30 of these are ordnance-related scrap, such as expended fuzes, empty projectile casings and broken pieces of munitions. The other types of items recovered are empty or broken test tubes and bottles, other broken glassware and ceramic pieces, construction debris like pipes and bricks, battery components and horseshoes.

Among the seven items being analyzed at ECBC, two ordnance-related scrap items have been cleared by the Material Assessment Review Board, or MARB. One is an open cylinder with a tar-like substance, and the other is a sealed metal container with an unknown liquid.

The MARB's evaluation determined that the two items are not chemical warfare munitions and that neither was explosively configured.

The other items at ECBC are four sealed containers and one open container.

Operations at Lot 18 have been progressing slower than originally planned mainly due to the large volumes of rain water and shallow groundwater collecting in the excavation areas. Over 48,000 gallons of water have been collected. The Corps is testing and discharging the collected water into the sanitary sewer system.

### Corps availability sessions to precede RAB meetings

Starting in September, the Corps Spring Valley team members will hold an informal session before the Restoration Advisory Board meeting at 6:30 p.m. for community members who would like to discuss issues or direct specific questions to the Corps.

The Spring Valley RAB meetings are held the second Tuesday of the month from 7 to 9:30 p.m. at St. David's Episcopal Church, 5150 Macomb Street NW. Meetings are open to the public, and there is a community question time allotted at the end of each board meeting.

# Ferns under study may prove to be arsenic removal tool

*by Mary Beth Thompson*
*Public Affairs Office*

The Spring Valley team is now testing whether some ferns would make useful tools in the arsenic remediation process.

Baltimore District is in the midst of a multi-year effort to remove arsenic-contaminated soil at about 150 residential properties in Spring Valley. As it stands now, removing soil with elevated arsenic levels involves ripping up yards with mechanical excavators, removing two feet of soil, the landscape and constructed features from the contaminated area. After the removal, the soil, sidewalks, driveways, patios and walls are replaced.

Work at each yard requires intensive interaction with its homeowners—information exchange, rights of entry, appraisals, negotiations, scheduling. During the project team's work with the first 20 properties, one homeowner concern emerged head and shoulders above all the others.

"There are some spots where the property owners or nearby homeowners, essentially, said, 'You're not going to touch the trees,'" said Ed Hughes, project manager for the arsenic-contaminated soil removals.

Recognizing that losing ancient trees and shrubs which shade and add character to yards is an emotional issue for people, Hughes looked for other solutions. He pursued a recent Florida discovery that certain ferns were removing arsenic from contaminated soil.

**Michael Blaylock of contractor Edenspace Systems examines the roots of a fern that is part of the Corps' Spring Valley phytoremediation study.**

*Photo by Doug Garman*

"I knew we had a lot of properties to deal with, and I definitely thought it was worth a try," he said.

Working with Cindy Teeter, a physical scientist with the Corps' Engineering Research and Development Center in Vicksburg, Miss., Hughes is having this green approach studied in Spring Valley. It's called phytoremediation—the use of plants to remove contaminants from soil or water.

Teeter conducted the initial greenhouse study last winter in Vicksburg. She used soil from Spring Valley and several different species of brake ferns, and tested a normal moisture regime and a high moisture regime.

After the plants were grown for four months in the greenhouse, they were harvested. All the biomass, the plant matter above the root, was collected from each individual plant and analyzed.

"Comparing the two, we saw that the wet treatment regime had a significantly higher increase in arsenic concentration than the normal, so we're using that moisture regime here in the field study sites," she said.

Hughes and Teeter identified three Spring Valley locations—two private properties and a section along the fence bordering the Van Ness Reservoir. Edenspace Systems, of Dulles, Va., planted brake ferns called Pteris multifida, Pteris cretica mayii and Pteris vittata in May. The contractor maintains and checks the plants.

Early evidence is positive. The plants are thriving in the soil of Spring Valley.

"The roots have to expand out of the initial potting mix into the soil before they're going to take up arsenic, and it looks like, from what I've seen so far, we're getting very good root development that correlates very well with the above ground growth," Edenspace's Michael Blaylock said. "It looks like the roots are expanding into the contaminated soil, which is the important thing that we have to have."

Preliminary tests show that the plants are absorbing arsenic. Everyone involved in the study is upbeat about the possibilities of this method.

"If the pilot study shows the technology is successful, we will have an option which will help save trees and other irreplaceable vegetation, and in limited circumstances may be the cleanup answer for properties with contamination just above the cleanup goal," said Steve Hirsh, EPA's Spring Valley project manager.

After the ferns are harvested in the fall, Teeter will analyze the biomass and the soil for total arsenic. The data will

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# Corps, RAB relationship based on trust, communication

*By Ted Henry*
*Community Outreach Team*

The Corps established the Spring Valley Restoration Advisory Board, or RAB, in 2001 at the request of the community to provide residents with more regular involvement in the cleanup process. While RABs are not official advisory bodies under the Federal Advisory Committee Act, the RAB serves two important roles.

For the community, the RAB provides an open, public process through which they can convey their thoughts and concerns on current project efforts and future plans. For the Corps, the RAB provides a monthly opportunity to share information and get diverse feedback from a cross-section of community stakeholders.

Healthy discussions and working together allows the Corps, the Environmental Protection Agency and the D.C. Department of Health to carefully weigh community opinions and make project decisions that best meet the needs of all.

Given the diversity of opinions and needs within the community, it is difficult to satisfy all interests. But the Corps is committed to listening to all, discussing all interests openly and addressing them to the extent that technical or project limitations allow.

Because of its importance, the Corps invests significant time and money in the RAB process as part of its larger community involvement plan.

A healthy RAB process requires commitment and a working trust from both the Corps and the participating community members. One recent effort to show commitment and trust by the Corps was the sharing of a draft-final report on the Small Disposal Area cleanup.

The report was not yet final and, thus, not releasable to the general public when community concerns arose about the results of the excavation and the length of time it is taking to release the report. The concerns were discussed at the following RAB meeting. The Corps willingly provided a copy of the draft-final report to the RAB's science task group, which consists of three community RAB members with technical backgrounds.

The task group members and the RAB's technical advisor reviewed the document, evaluated the findings and provided feedback to the Corps.

The Corps had concerns about allowing a draft-final report for review outside of the partnering agencies and the property owner. Almost all Spring Valley work involves private property and generates voluminous, complicated data. The Corps and its partners must continually balance property owner privacy, the public's right to know and the potential misunderstanding or misuse of such information.

Sharing these concerns with the RAB members, program manager Gary Schilling noted the report was not yet final and asked the task group members to not share it beyond the group. The Corps trusted the science task group to do the right thing. In return, the task group showed its commitment to the process by reviewing the document, providing its opinions to the RAB and returning the document.

This simple example shows that when the different parties work together, most issues can be worked through effectively.

The reality is that a RAB can only truly be effective in the long term if such a working relationship, based on trust and communication, is supported and allowed to flourish by all agencies and individuals involved. One or two people may feel the Corps' approach was inappropriate because it did not give out several copies of the draft-final report or share it with all RAB members. However, the positive results of this good-faith exchange are clear.

First, the community concern raised by the RAB was brought to light and addressed. Second, the Corps was able to share a document earlier than required by law and still protect both property owner privacy and the integrity of the document finalization process. Third, the efforts made by both sides strengthened the working relationship, which enhances the RAB's ability to address future issues and challenges in a healthy, proactive manner.

This was a win-win situation for all parties involved and shows that the Spring Valley RAB process is maturing and bearing fruit. It also illuminates a path for the future through which the RAB can be more active, property owner privacy can be respected, and the Corps can be more inclusive.

While not always achievable in the field or on every issue, the Corps is absolutely committed to working toward establishing such a consistent, workable and productive process.

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Official Business

# Media misses marks

Well-meaning journalists sometimes miss the mark. Here are a few reporting errors about the Spring Valley Formerly Used Defense Site that we've noticed lately.

✓WUSA Channel 9's Aug. 16 report on phytoremediation may have left the impression that ferns could replace arsenic-contaminated soil removal. If the study is successful, phytoremediation would give the Corps another tool but would not replace soil removal as the primary means of cleanup.

✓The *Northwest Current*'s Aug. 18 article incorrectly reported that the notes of the three officials who reviewed the Fort Leonard Wood records were confiscated. They were not.

✓The *Northwest Current*'s Aug. 25 article inaccurately states that the Corps' Washington Aqueduct team studying alternatives for disposal of water treatment residuals is pitted against the Corps' Spring Valley team. In fact, the two teams are cooperating. The *Current*'s statement was belied later in the article when Aqueduct chief Thomas Jacobus was quoted as saying the Aqueduct will do nothing to interfere with the Spring Valley investigations.

## Phytoremediation study

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help determine how effectively the ferns take up arsenic in Spring Valley and the length of time needed to reduce the arsenic in the soil to the cleanup level of 20 ppm.

"We will get some facts and figures for how it would perform for us and make decisions early next year, so that for next growing season we can hopefully employ it to the greatest extent it can be used," Hughes said.

Because these are tropical ferns, their ability to survive a Washington winter is another question mark.

"We're hoping that the P. multifida, which is known to be more cold tolerant, will grow longer into the growing season here to get maximum arsenic uptake," Teeter said. "Over the winter, we will not remove the roots from the soil, but we'll wait until next spring to see if the plants come back."

If the study is successful, it would not be a panacea, but it would offer another solution that has great side benefits.

"Phytoremediation will not take the place of excavation," Hirsh said, "but it would give the project another tool which is economical, minimizes disruption to the property owner and helps shorten the time to finish the arsenic cleanup."

*The Corps'pondent*

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