



CONSTELLATION

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Workers test the water cannon system that can be turned on to knock down chemical particles at Lauderick Creek. Fire trucks could not reach all of the areas at the site or spray water instantly, so the team developed their own system mounted on armored personnel carriers.

(U.S. Army photo)

Setting the standard at Lauderick Creek

*by Marshall Hudson
Public Affairs Office*

At the Lauderick Creek project, a removal action at a former chemical weapons impact area, the project delivery team members know their jobs exist to support the men who put the shovels into the ground.

While he doesn't let them forget that, Billy R. Sanders, project field manager from the District's Environmental Remediation Resident Office, said that the team has also combined to set a new standard of excellence for ordnance removal projects.

"We never forget it's

about the job; that's always the bottom line, but the whole team deserves great credit for the many innovative ways they have overcome challenges and made the process better," said Sanders.

The \$20 million project to clear 453 acres at the U.S. Army's Aberdeen Proving Ground Edgewood area is approximately 80 percent complete and is on schedule.

There have been no chemical or explosive accidents, and the customer, APG's Department of Safety, Health and Environment, is very satisfied with the work to

date, said Paul Greene, senior un-exploded ordnance specialist with the U.S. Army Technical Escort Unit.

The first and most important challenge that the team overcame was creating a detailed removal plan before the intrusive work began in June 2000.

The plan, which was approved by the Department of Defense Explosives Safety Board, addressed all aspects of the project, including work procedures, protective measures and interface with the public.

The pre-execution

(Continued on p. 6)



U.S. Army Corps
of Engineers
Baltimore District

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Commander's Comment

Media wrong about Washington Aqueduct

by Col. Charles J. Fiala, Jr.
Commander & District Engineer

In a series of articles and editorials, the *Washington Times* has reported that the U.S. Army Corps of Engineers, Baltimore District, is "dumping toxic sludge" into the Potomac River as a regular part of our operation of the Washington Aqueduct.

Other media outlets have repeated this assertion in reporting on the *Washington Times'* stories.

I want to make it clear to everyone in the District that their description of the operations at the Washington Aqueduct is misleading and inaccurate.

Washington Aqueduct provides very high quality drinking water to one million residents of the District of Columbia and Northern Virginia every day. It also supports vital government facilities such as the Pentagon.

In doing that, it complies with numerous federal, state and local regulations that govern all aspects of the operation.

The diagram on the next page describes the various processes that are used to convert the Potomac River water, which contains dirt,

debris and other organic and inorganic materials, into drinking water.

Note that it is basically a three-step process: sedimentation, filtration and disinfection.

It is the sedimentation process that is the topic of concern.

To get the dirt, etc., out of the water, we use sedimentation basins to finish settling the dirt (i.e., sediment) out.

Periodically the contents of the sedimentation basin, i.e., water, sediment and a coagulant added as part of the process, are returned back to the Potomac River.

This is done under the terms of a National Pollutant Discharge Elimination System, or NPDES, permit issued by Environmental Protection Agency Region 3.

They regulate Washington Aqueduct operations through the permit.

Two sets of studies directed by EPA have demonstrated that these solids (i.e., the sediment and coagulant) are not harmful to fish or invertebrates in the river nor do they pose any risk of buildup in the river.

The assertions that the discharges are toxic are not correct.

Other assertions that they are oily or smelly are equally misleading.

Two lawsuits have been filed that address our compliance under the NPDES permit and the effect of the discharges on a specific endangered species, the shortnosed sturgeon.

We believe that **these suits are without merit** and we will assist the Department of Justice in vigorously defending our operations.

EPA Region 3 recently issued a draft for renewal of the NPDES permit.

They are working closely with us to find even more ways to be as protective of the environment as possible while still safely meeting our operational needs.

Washington Aqueduct and its customers will work with EPA to get a new permit in place and will meet its conditions.

At the Washington Aqueduct, as in all other endeavors, we in Baltimore District are engaged. We are committed to following and upholding the Corps' Environmental Principles.

I am proud of the work conducted daily by the employees at Washington Aqueduct.

All of us in Baltimore District and the Corps should be proud of the work performed by our fellow team members at the Washington Aqueduct, too. **Essays.**

How the Washington Aqueduct treats drinking water

Raw (untreated) water from the Potomac River contains suspended solids, sediment, bacteria and microorganisms that must be removed to produce drinking water. These are removed by full conventional treatment, described here:

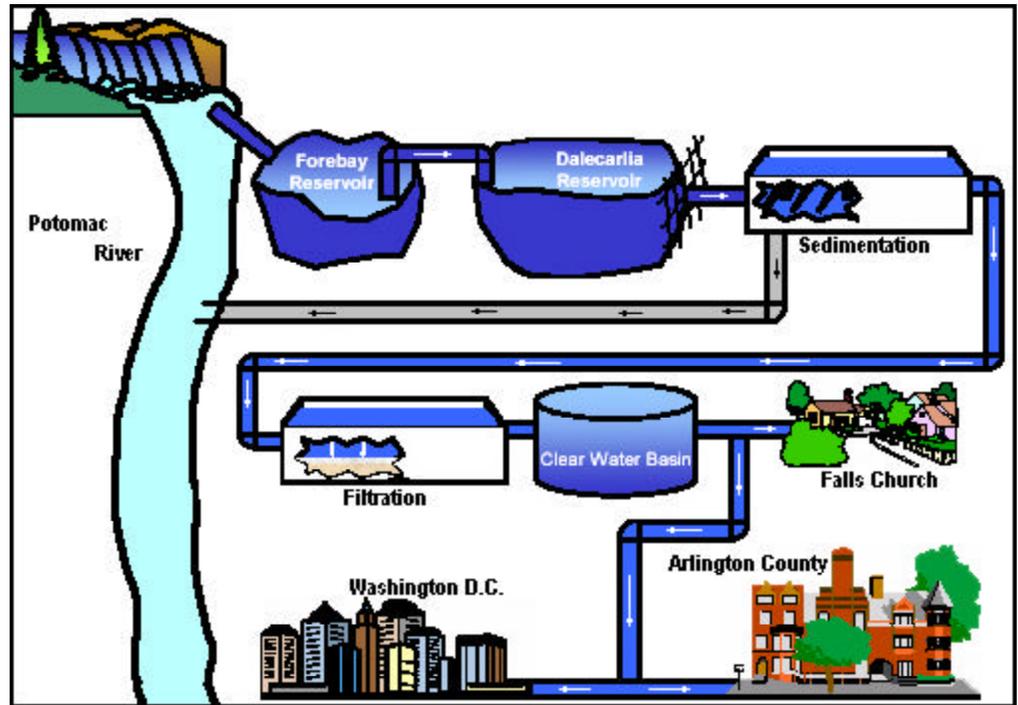
Screening— On its way from the river to the Dalecarlia and McMillan treatment plants, raw water passes through a series of screens designed to remove debris such as twigs and leaves.

Pre-sedimentation — While the water moves slowly through Dalecarlia Reservoir, much of the sand and silt settles to the bottom.

Coagulation —A coagulant, aluminum sulfate (alum), is added to the water as it flows to the sedimentation basins. Coagulants aid in the removal of suspended particles by causing them to consolidate and settle. Alum contains positively charged atoms called ions that attract the negatively charged particles suspended in water, causing them to gather into clumps of particles heavy enough to settle.

Flocculation — Water is gently stirred to distribute the coagulant; this causes particles to combine and grow large and heavy enough to settle. The process takes approximately 25 minutes.

Sedimentation — The water



flows into quiet sedimentation basins where the flocculated particles settle to the bottom. After about four hours, approximately 85 percent of the suspended material settles.

Filtration — Water at the top of the basins flows to large gravity filters, where the water flows down through filter media consisting of layers of small pieces of hard coal (anthracite), sand, and gravel in the bottom of deep, concrete-walled boxes. Filtered water passes through to a collecting system underneath.

Disinfection — Chlorine is added with precision equipment to kill pathogenic microscopic life such as bacteria or viruses. Ammonia is then added. The chlorine and ammonia combine to form chloramine compounds. The concentration of chloramines in the water is closely monitored from the time it is added at the treatment plants to points near the furthest reaches of the distribution systems. Disinfection is considered by many to be one of

the most important scientific advances of the 20th century.

Fluoride, in the form of hydrofluorosilicic acid, is added to reduce tooth decay.

Calcium hydroxide (lime) is added to reduce corrosion in the pipes and equipment of the distribution systems.

Adding small amounts of lime achieves a slightly alkaline chemical balance, which prevents the water from corroding distribution pipes and equipment as well as consumers' plumbing. In addition to increasing the longevity of the distribution system, the lime reduces the leaching of substances such as lead from plumbing.

Powdered activated carbon is occasionally used for taste and odor control.

After the water has completed its path through the treatment process, it is referred to as finished or potable water. Most people simply call it drinking water.

Chief of Engineers visits District

by Chanel S. Weaver
Public Affairs Office

Outlining his vision for the remainder of his four-year term as chief of engineers, Lt. Gen. Robert B. Flowers addressed a crowd of over 500 Baltimore District workers in a town hall meeting last month at the Sheraton Inner Harbor Hotel.

Echoing the words of Secretary of the Army Thomas E. White, Flowers told District employees that while the Corps has an impressive history, its finest hour is a chapter yet to be written.

Flowers emphasized his short-term goals for the Corps of Engineers. One such goal involves improving relationships with others.

"The Corps needs to reestablish and strengthen the relationships we have with the administration, Congress and the public," said Flowers.

The general also reiterated the need for everyone in the Corps to operate by the same principles and guidelines. To achieve this goal, Flowers emphasized the need for the Corps to incorporate changes in business processes and the need for Corps employees to work cooperatively.

"We must constantly change how we do business," said Flowers. "We should create forums where we can come together and learn from each other. Everyone in the Corps

should be operating under the same process."

Flowers, the 50th chief of engineers, said his final goal is to ensure the Army Corps of Engineers is prepared to receive the next commander of the Corps.

"We want to be able to make a



Lt. Gen. Flowers does push-ups before District workers at the Town Hall. (Photo by Susanne Bledsoe)

seamless transition to the next chief," said Flowers.

Of course, the general reminded employees to take time to have fun and enjoy their jobs.

"You will have fun in the Corps of Engineers," said Flowers.

And Flowers used a brief moment to have fun by doing push-ups before the crowd of workers.

The general also recognized 18 District employees for their outstanding accomplishments.

The honorees were **Mary Bogdan, HR; Susan Platt, OC; Charlie Canitz, RE; Gary Miller, Susan Dix, Debbie Dawson and Frank Plewa, OP; Lynn Airey, IM; Denise Mellinger, CT; Joel Yancey, Larry Smith and Mary**

Medley, RM; Robert Kneten and Andy Carter, CO; Christy Pispitsos and Cliff Kidd, EN; Robert Gore, PL; and Mike Pfarr, PPMD.

Also recognized were the Public Affairs Office, the Pentagon Renovation Wedge 1 Team, the 9/11 Army Recovery and Space Planning Team, the Pentagon Memorial Project Team and a team that offers support to the nation's security agencies.

Flowers concluded his address by urging employees to be proud of their jobs and to share the Corps' story with others.

"Work with other organizations so they understand who we are and what we do," said Flowers. "When you can say something

positive about the organization you work with and about what you do, it makes a strong statement about the pride we have in our organization."

And it appears the general is very proud of the Army Corps of Engineers. He frequently boasted of the excellent progress of the Corps' 41 districts, eight divisions and 35,000-member workforce.

Flowers said he is especially pleased with the workers in Baltimore District.

"This District is a crown jewel of the Corps of Engineers," said Flowers. "We at the Corps have looked at Baltimore District for years and you have never let us down."

Retiree builds plane from scratch

*Story and photo
by Chanel S. Weaver
Public Affairs Office*

To say Charles Crook Sr. likes airplanes would certainly be an understatement. Airplanes are his life.

“I’ve been interested in building models of planes since school days,” Crook said.

Crook, who retired from the Corps in 1987, has always been a fan of aviation. In his family room, a small model plane he built behaves more like a ceiling fan and makes orbits around the room. Adorned with self-built models of the first Wright brothers plane and the B-17 Flying Fortress—a bomber plane he piloted in World War II—Crook’s home looks like the flying capital of the world.

Crook, 81, was born and raised in Florida. He came to the Corps as a surveyor after serving in the war and working in the private sector. With a bachelor’s degree in general studies, Crook progressed significantly in the Corps, eventually being named the chief of planning and control, a small office in Real Estate. Many of his former co-workers said Crook was an excellent worker.

“He worked with me on a project and made sure I would contact everyone involved in order to resolve any problems,” said Angie Blizzard, a realty specialist.

Joyce Henne, another former co-worker of Crook, says Crook had a warm personality.

“He had a lot of friends here,” said Henne. “Many of us



It took Charles Crook five years to build this Zodiac 601HD/S from scratch.

genuinely still care about him.”

Crook, too, said he values the time he spent in the District.

“I loved being there and surveying the projects,” said Crook.

After he retired 15 years ago, Crook turned his attention to his first love—planes. Not only does Crook love making models of airplanes, but he also loves building real ones.

“I always dreamed of building a plane,” said Crook, “but I assumed building a plane would not be practical and would be too expensive.”

But Crook’s dream became a reality when he constructed a Zodiac, all metal, single-engine plane from scratch.

“I came across an ad for *Kit Planes*, a magazine, and I subscribed to it,” he said. “I ordered a kit and built the plane from plans.”

It’s a process that took five years.

Crook is also fond of boats, according to Blizzard.

“Mr. Crook enjoyed boats and was always building them,” Blizzard said.

Today, Crook has a real plane in his front yard and a real boat in his back yard. He completed the 25-foot, six-passenger boat shortly before retirement. He took his maiden voyage in the plane this summer.

Edie, Crook’s wife, says her husband is very good with his hands.

“He likes to mend things that are broken,” she said. “Whenever the grandkids break their toys, he fixes them.”

Crook’s other hobbies include traveling, eating out and spending time with his family. He enjoys attending church services and is a member of the Experimental Aviation Association.

The retiree lives in Glen Burnie. He and Edie have five children, nine grandchildren and two great grandchildren. As the patriarch of the family, Crook said he tries to lead by example.

“I try not to tell everyone what to do,” said Crook, “and I only do my best to ensure I do what is right.”

Lauderick Creek

(continued from cover)

phase of the project included tabletop exercises, field exercises and training sessions to inform local emergency response professionals about the risks of the project and their role in responding to an emergency.

Every single police officer in Hartford County, about 270 total, as well as many emergency medical technicians, came for training. Local school officials and the area's school bus drivers were briefed as well.

The execution, or intrusive, part of the removal plan included extensive protective measures to ensure the safety of the workers and the nearby public.

The team wanted a mobile pressurized water system, so they could instantly knock down and potentially mitigate any chemical vapors that might be released. Traditional fire

trucks were investigated, but would not meet their needs. Instead six armored personnel carriers that had been modified to fight trench fires during the Gulf War were acquired. The water cannons' nozzles were converted to spray water instead of foam, and they wired them so the spray could be released by remote control.

Other equipment developed or modified by the team to meet job-specific needs included setting up remote cameras to monitor the work from a safe distance, building a chemical agent monitoring platform and creating fragmentation barricades that can be moved hundreds of times.

"This team is not only finishing with great results, they are also contributing to the safety controls and the engineering for these kinds of projects in the future," Greene said.

Many of the controls devel-

oped are used daily by Dawn Pisarski, civil engineer, and Ricky Whitten, UXO safety specialist, who work in the project's command post, a trailer stationed about 100 yards from the digging.

From there they monitor the workers and have access to the water cannons, the siren and radios to the APG and Hartford County emergency operations centers.

Pisarski monitors a computer that checks wind speed and direction from onsite weather platforms. It can calculate an up-to-the-minute model representing the worst case scenario footprint of where a plume would go if chemicals were released.

"If the most dangerous area of the potential footprint ever leaves the post, or if any area of it ever passes over a school or the day care center, the work is immediately halted," she said.

The team puts so much focus on controlling and managing the project's risks because more than 4,000 people live within one mile of the excavation area. Some houses are as close as 300 feet from the area. This close proximity also led the team to develop and execute an effective community relations program.

The U.S. Center for Disease Control's Agency for Toxic and Substance Disease Registry called the team's public involvement plan one of the most comprehensive outreach programs in the United States.

"I'm very proud to be part of the contract team working with the Army Corps of Engineers," said Carrie R. Johnston, direc-



Ricky Whitten, UXO safety specialist, monitors the workers on a closed circuit television inside the command center. (Photo by Marshall Hudson)

tor of Advanced Engineering Associates International, the community relations contractor. "The integrity and values reflected by the Army Corps make the job of public involvement very easy."

The community relations team have visited schools, farmers' markets, and even gone door-to-door to keep the public informed and knowledgeable about the project and what to do if there was an accident.

They run a radio station that gives daily messages to the local area. It would also give instructions in the event of an emergency. They have a web-site that is updated regularly.

The community relations team also uses a mobile community office, which is parked in the community closest to the excavation site whenever digging is in progress. If there ever

was a release of poison gas, the siren and megaphone would help alert the residents. It would also serve as a headquarters for the first emergency responders who arrive at the scene.

The team's great relationship with the community is also expressed by their effective working relationship with the local restoration advisory board.

The team has implemented many of the RAB's recommendations, such as only digging from 9 a.m. to 3:30 p.m. so the local children would be in school if there ever was an accident.

The Lauderick Creek project is expected to be completed before spring of 2003.

According to Sanders, they are, "closing in on the end of the project, but we're still doing everything the same way, focusing on the job at hand, one grid at a time, one shovel at time."



A worker places sensing equipment around the excavation site to monitor for chemical hazards. (U.S. Army photo)



When metal anomalies that may be ordnance are found, the final digging is done by hand with a barricade in place. (U.S. Army photo)



Workers move an explosive barricade with a crane. (U.S. Army photo)



Workers rehearse emergency preparedness in Level A protective suits. (U.S. Army photo)

Baltimore District participates in exchange with Dutch officials

Story by Chanel S. Weaver
Public Affairs Office
Photos by Robert Pace
Planning Division

As a senior technical advisor in Baltimore District, Robert Pace's duties typically involve giving advice on water resource management and providing assistance with other environmental issues.

With all of this experience, however, Pace still admits he is no expert in water management. In fact, when Pace traveled to Europe this spring, he found himself on the opposite end of the spectrum – receiving advice from the Dutch on water quality control and watershed protection.

"Sometimes we tend to think that our method is the only way of doing things," said Pace, "but you can learn a lot from other people."

At the request of the Royal Netherlands Embassy and the Environmental Protection Agency, Pace represented the District on a study-tour of the Netherlands from May 27 to June 8. The purpose of the visit was for delegation members from the Chesapeake Bay community to observe Dutch practices in water management and watershed protection so they could apply them to the Chesapeake Bay.

And Pace admits that there were many aspects of Dutch practices that were worth imitating.

"I was most impressed with the fact that the Dutch have an established national environmental policy," said Pace.

"Literally everyone we met with...was aware of the policy which guides everything they do. There really seems to be a unity of purpose which we in the United States can stand to learn from."

The Dutch National Environ-

mental Policy was established by their Parliament with input from citizens all over the Netherlands.

The policy serves as a unified statement of what environmental practices are important to the entire country.

Not only is the Netherlands concerned with protecting the environment, but the country is equally concerned with protecting their homes from the damage of a major flood.

With increases in rainfall, subsiding land and a rising sea level each year, the threat of flood damage to buildings, land and ecosystems is very real for the Dutch.

"By far, the biggest issues the Dutch face are climate change and sea level rise," said Pace. "With over 25 percent of the country below sea level and about 75 percent of the country's 60 million inhabitants living in this area, the Dutch have ample reason to be concerned."

Like the United States, the citizens of the Netherlands have taken measures to protect themselves from floods. They have created numerous storm surge barriers, dike systems, levees and canals.

But Dutch water management also differs from the United States. Pace said the



Delegates from the Chesapeake Bay community meet with Dutch officials to discuss environmental policies.

countries' water management procedures differ because the flood control projects in the Netherlands are designed for extremely high levels of protection. Design levels for sea protection are 40 times higher than U.S. levels and for river protection, they are 10 times higher.

"The Dutch are dead serious about protecting their country and they pull no punches when it comes to flood protection," said Pace. "Everything is at stake here."

In addition to water management, the delegation also discussed such issues as chemical management, dredged material disposal, biodiversity, water quality and land use planning.

Interestingly, Pace learned that clean sediments in many of the tidal rivers are placed back into the rivers to maintain sediment balances and reduce the potential for bottom erosion. This is very different from Chesapeake Bay practices, where environmental policies prohibit the placing of dredged material back into the water.

Pace said he especially admired the Dutch use of spatial planning, a form of planning that specifies efficient and environmentally prudent use of their land.

Highlights of the trip also included meetings, discussion, presentations and field visits to The Hague, Delft, Rotterdam and other Dutch cities. The group also visited numerous project sites throughout the south and central Netherlands.

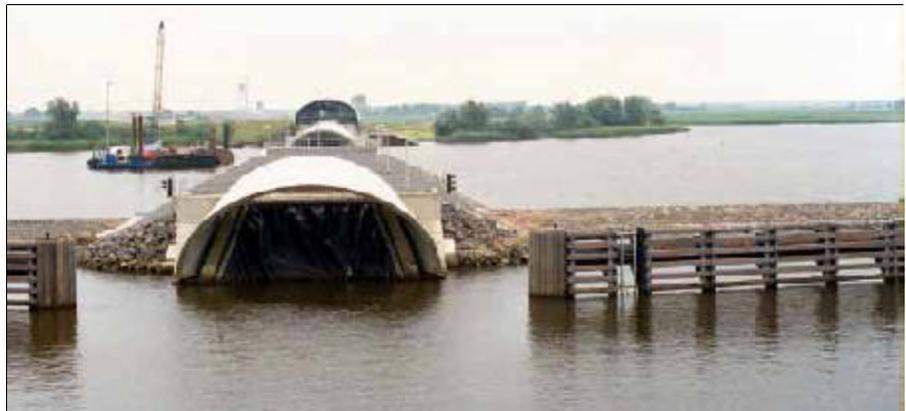
Not only were the delegates introduced to important places in the Netherlands, but they

also met key figures. The delegation had the privilege of meeting with high-ranking officials of the Dutch government including

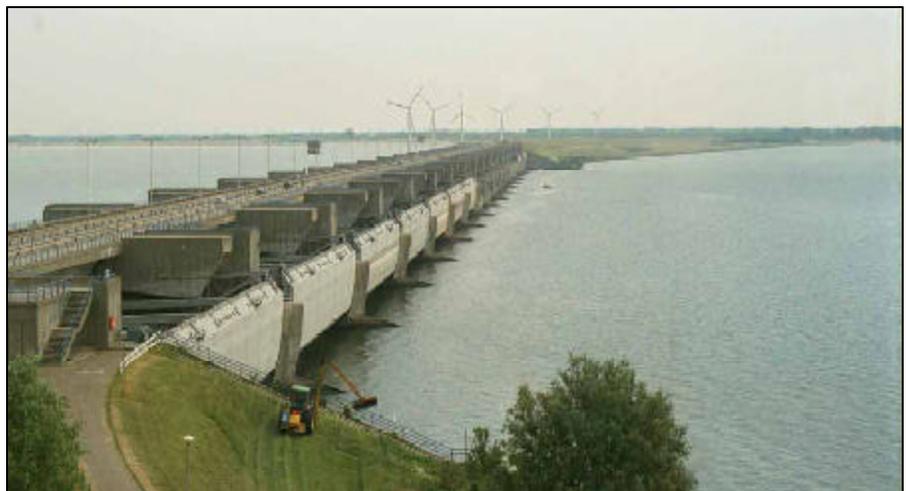
members of the newly elected parliament. They also met Clifford M. Sobel, the U.S. ambassador to the Netherlands.



The Dutch have constructed vast networks of dikes (levees) throughout their country. This dike is located in West Overijssel.



Inflatable dams, like this one at Ramspol, inflate during high water to keep flood waters out. They fill with air and water when flooding is imminent. These dams are deflated after a flooding event.



With about one-fourth of the country below sea level, tidal surge barriers like this one are innovative forms of flood protection.



It's a hands-on effort for participants as they plant oyster spat in the Patuxent River by breaking open bags of spat-covered shell and dumping the material overboard. (Photo by Susanne Bledsoe)

Corps sows seeds for oyster recovery

Expressions on faces varied from serious concentration to big smiles as participants planted oyster spat in the Patuxent River Aug. 21.

This marked the start of Phase II of the Chesapeake Bay Oyster Recovery Project, Mary-

land. Rep. Steny Hoyer and others joined Baltimore District Engineer Col. Charles J. Fiala, Jr., in St. Mary's County for the occasion.

"We have come to realize the important role these mollusks play in the health of the Bay's

ecosystem," Fiala said.

Oysters remove algae from the Bay. Reducing algae allows more sunlight to penetrate under water and improves aquatic habitat.

Phase II, planned as a 10-year endeavor, builds on the four years of successful effort in Phase I, according to Claire D. O'Neill, project manager.

In Phase I, an estimated 200 acres of oyster habitat was constructed using more than 1.2 million bushels of shell.

Phase II includes work in both the Maryland and Virginia portions of the Bay.

It will involve creating new oyster bars and rehabilitating existing ones. A long-term oyster recovery master plan will also be developed.

Fiala described the Oyster Recovery Project as a solid building block that, along with other efforts, is providing a foundation toward re-establishing the critical oyster population in the Chesapeake Bay.

Corps conducts site tours — The Pentagon Memorial project team conducted tours at the site of the future memorial on the Pentagon grounds during late July and early August. The site is within the Phoenix Project reconstruction staging area, so visiting it presented both security and construction obstacles for participants in the ongoing competition to select an artistic concept for the memorial. At right, a tour group gathers around as project manager Carol Anderson-Austra (3rd from left) discusses the site. (Photo by Mary Beth Thompson)



Study names telephone bacteria worst

Microbiologists from the University of Arizona took bacteria samples from workstations in New York, San Francisco, Tucson and Tampa. The results were surprising

Telephone receivers had the highest bacteria counts with an average of 25,000 per square inch.

The desktop was next with 21,000 per square inch, probably because people eat and spill

things there, and nobody really cleans it.

Receptionists' desks were worse. Many people pause there and touch the desk.

The keyboard was a little better with 3,000 bacteria per square inch.

Toilet seats were cleanest with an average of just 50 bacteria per square inch. People use disinfectant to clean them say the researchers.

Ranger station, visitor center at Tioga, Hammond, Cowanesque lakes

A ribbon cutting ceremony to celebrate the opening of the new Tioga, Hammond and Cowanesque Lakes' Ranger Station and Visitor Information Center at Ives Run, Hammond Lake, Pa., occurred Aug. 9.

Speakers included Rep. John E. Peterson from Pennsylvania and Col. Charles J. Fiala, Jr., commander of the Baltimore District.

"I'm proud that we now have a facility that will make these recreational areas easier to enjoy and more user friendly for the

public," said Fiala. "And our rangers, who work so hard to maintain these areas, keeping them safe, clean, and enjoyable, now have a place to work that is up to the standard they deserve."

The facility is part of the newly approved master plan, the blueprint for the three lakes.

It calls for an addition of two new recreational facilities, new facilities at the existing areas and nine natural resource management enhancement activities.



A diamondback terrapin makes its way to the water at Poplar Island, Md. The Baltimore District's beneficial-use project in the Chesapeake Bay is using clean dredged material to create nesting and nursery habitat for dozens of endangered and threatened native species. Over 1,000 terrapin hatchlings are expected to emerge at Poplar Island this year. (Photo by Susanne Bledsoe)

Courteous employee of the month

William N. Longus, Maintenance Branch, Washington Aqueduct, has been named September's courteous



William Longus

employee of the month.

"William is responsible for the maintenance and repair of the piping in all the buildings, the water treatment plant process equipment and the major transmission mains that deliver water to the customers. Therefore, he personally interacts with all employees of the Washington Aqueduct, the District of Columbia Water and Sewer Authority and the public.

"His talent as a pipefitter and his positive attitude make him a pleasure to work with. He takes special care to determine what effects his job may have on those in the immediate area. If they will be inconvenienced, he keeps them apprised of the status of the work.

"One element of his job is to set up special devices for periodic water samples the laboratory collects, and he can be counted on to work cheerfully and smoothly with the laboratory technicians and scientists.

"It is a tribute to William that the people he supports suggested him for recognition as Courteous Employee of the Month."

Tom Jacobus
Chief, WA Division



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