

# Flagship

SEATTLE DISTRICT

## Helping After Hurricane Sandy

inside

## U.S. Army Corps of Engineers Volume XXIV No. 4

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Cover:

**Hurricane Sandy Response:** Seattle District employees Charles Ifft (left) and Doug Weber inspect storm-damaged facilities in Lavallette, N.J. They assessed 158 critical New Jersey facilities, including fire and police departments, schools, city halls, and medical and public works facilities. Eleven Seattle District members deployed to the East Coast in the days following Hurricane Sandy's landfall and assisted with various recovery efforts. See story on page 6. (Corps photo by Charlie Comer)

### Flagship

**Col. Bruce A. Estok,**  
Commander

**Patricia Graesser,** Chief,  
Public Affairs

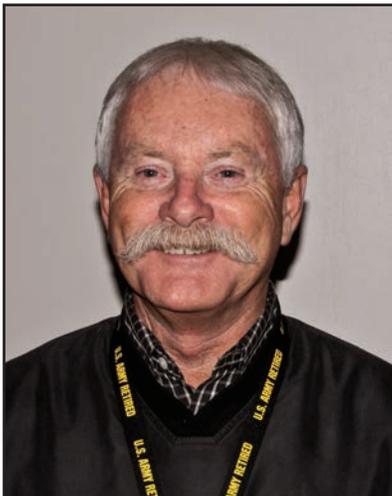
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## *Dan Madden: This Flagship is for you*



**Dan Madden** is the district's Facilities Manager but might be better known as the go-to guy for building repairs. He's also an Operation Oxbow Team member, helping to coordinate the building move by working tirelessly with moving companies. He worked with other districts and agencies to determine what to do with the remaining items and furniture once the move was completed. Dan does many things daily for the district that often go unseen, such as taking care of all aspects of the paper shredding service. It's his hard work and dedication to manage details seamlessly that make these kinds of services to district employees appear effortless.

**Dan Madden,** this *Flagship* is for you.

# It's (almost) all new

commentary

Cleaning the desk that 16 Commanders have sat in since 1973 when Seattle District relocated its headquarters from Pier 37 to Federal Center South, I'm mindful of lyrics from a song in the 1979 film "All That Jazz."

*Don't throw the past away  
You might need it some rainy day  
Dreams can come true again  
When everything old is new again*

The Oxbow headquarters, new fiscal and calendar years, and Corps leadership new strategic guidance all give us many reasons to look forward with excitement to the days ahead in the Seattle District and the U.S. Army Corps of Engineers. Here's what's new:

Corps' senior military leadership transitioned in 2012 and we can soon expect new strategic guidance in the form of the USACE 2020 Vision and Campaign Plan.

We've seen some of the early work, which supports the Chief's three priorities to: Transform Civil Works, Defend and Protect Our Nation, and Prepare USACE for the Future. It is organized in four goals with 46 subordinate actions, 13 of which are national-level actions directly linked to the Northwestern Division Campaign Implementation Plan and the district's Operations Plan.

Vertical alignment from district to headquarters levels is imperative in the resource-constrained environment we face. Details of how these plans and resources translate into district work and workforce will be determined at the Regional level where our deputy for Programs and Project

Management participates in the Long Term Programmatic Planning Meeting. I look forward to sharing a summary of all this information with you during February's Town Hall.

New years are a good time to assess the past and the future. We celebrated the district's many achievements at our End of Fiscal Year 2012 Barbecue, and as the first quarter nears its end, we've already set milestones and built budgets and schedules for our Fiscal Year 2013 work plans.

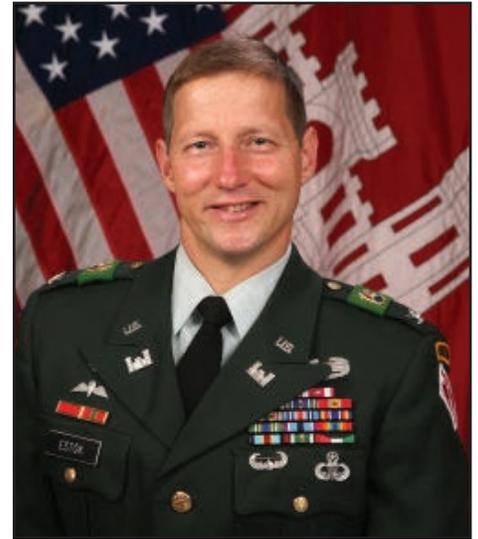
While the fiscal year drives organizational objectives, a new calendar year is more closely aligned with personal goal setting, and I urge all of you to make 2013 the year you do whatever it is you've been thinking about. Take the life-changing trip, try the new hobby you've always wanted to do, and commit to improving in an area of concern.

For me, balancing family and work with a quarterly family trip, and helping my children transition to middle school are priorities.

The new building will be a powerful multiplier. Engineering missions associated with national priorities ranging from the New Deal to the Cold War to the Columbia Treaty have driven size, structure, and the facilities we've occupied over a 116-year history.

People with a penchant for innovation and sustainability have been our hallmark during this nomadic existence. Without you we accomplish nothing; with you the possibilities are unlimited.

For the first time, we have the right physical space for a large portion



**Seattle District Commander  
Col. Bruce A. Estok**

of our world-class workforce to maximize its contribution as the nation's engineer for the next century. The flexibility, collaboration, and transparency of the Oxbow's physical layout provide the ideal 21st century environment to build on our legacy.

The building's sustainable features and smaller environmental impact match the district's core competency formalized earlier this year with our selection as the Northwestern Division's Sustainability Center of Expertise. The aesthetic beauty, quality, and linkage to the Corps' mission of integrated water resources management in the Northwest are readily apparent in the finished product – deemed by some as the "coolest building in Seattle."

I'm very pleased with the genuine enthusiasm this facility has generated among our employees, and know it will ratchet our performance up to the next level.

Thanks for all you do to build strong in the Northwest.

—*Essayons!*



**\*Editor's Note: in the previous *Flagship*, Walter Graham was incorrectly identified as a biological science technician. He is a journeyman electrician and power plant operator at Chief Joseph Dam.**

# Building Strong from Rocky Mountains to peaks of Afghanistan

**By Jasmine Chopra-Delgadillo**  
Kandahar Airfield Public Affairs Office

KANDAHAR AIRFIELD, Afghanistan — Nestled below the rugged peaks of the wild and pristine Cabinet Mountains rests Libby, Mont., home to skier and hiker, Jeff Regh.

He's explored the Rocky Mountains and volunteered as a search and rescue person. His professional time is spent at Libby Dam, Mont., as an electrical engineer with the U.S. Army Corps of Engineers, Seattle District.

In May 2012, Regh deployed to Afghanistan's Kandahar Vicinity Resident Office at Forward Operating Base Lindsey. He's a project engineer supporting the mission to build high-quality facilities for the burgeoning Afghan National Security Forces. Technical experts like Regh, who was once a general contractor and small business owner, are crucial to delivering these facilities within the time and budget allotted.

His work as a rescue technician, electrical engineer, and construction worker and his yearning for adventure contributed to Regh's decision to deploy to Afghanistan.

"I wanted to do something challenging that would get me out of my comfort zone," he said.

Having the right mix of experience has also contributed to his ability to get the job done.

"Professionals like Jeff, with a wide range of experience as well as technical expertise, possess the know-how

to manage complex projects from start to finish," said Lt. Col. Eric Bishop, Kandahar Area Office Officer in Charge. "We have an aggressive schedule and need to deliver first-rate installations in a timely manner. Folks like Jeff deliver."

Delivering high-quality facilities on time and on budget and helping Afghan contractors improve their processes are among Regh's deployment goals.

The son of a general contractor and from a long line of electrical workers, Regh has an aptitude for engineering, math and construction. His career path has been a mix of wanderlust and yearning to be home.

After high school, he left Montana for a construction job in urban New Jersey. Six years later he came home to pursue a bachelor of science in electrical engineering at Montana State University. After graduation, Regh went to Sweden for four months to work for an energy company.

"I just really wanted to be in Montana, but jobs were scarce," the self-described country boy said. "The only way I could stay in Montana was to make my own job, so that's what I did."

Regh secured a small business loan and bought out a Montana-based electrical contractor.

"When you're building a business, you're either working on existing contracts or looking for new work," he said of working 12-hour days, seven days a week.

Looking for predictable hours, Regh took the Libby Dam electrical engineering job, giving him more time with family and to pursue skiing and hiking.

In 2001, Regh and his nephew found a fallen hiker in a deep, narrow glacier crevasse. Regh, his nephew, and the victim's companion cared for the severely injured man until the next day when volunteers from a local search and rescue organization arrived along with personnel and a helicopter from Montana's Malmstrom Air Force Base.

"It was a milestone moment for me," said Regh. "I knew I wanted to help rescue victims."

Regh has since participated in many rescue events and trained to become a crew leader, including courses in FEMA's National Incident Management System, small unit leadership, maps, land navigation, hazardous terrain, and stress management.

All of these events he said shaped not only his desire to deploy, but his ability to be successful while deployed.

"Be flexible, patient and prepared for challenges," is Regh's advice to those considering deployment. "Deployment life is sometimes uncomfortable, other times it is hilarious or surprising and often, it's all three at once."



Corps photo by Jasmine Chopra-Delgadillo

**Jeff Regh, (center) is a Libby Dam electrical engineer deployed to Kandahar, Afghanistan, as a U.S. Army Corps of Engineers Afghanistan Engineer District-South project engineer to build high-quality facilities for Afghan National Security Forces.**

Scan with smartphone for



www.mileslostmiles gained.org

# Miles Lost

# Miles Gained

**By Bill Dowell**  
Public Affairs Office

To the north of Seattle District’s new Oxbow building is a marker of steel and rubble.

This marker is a public art and historic interpretation project by U.S. Army Corps of Engineers engineer and artist Zachary Corum.

The marker is part of a project Corum founded called Miles Lost, Miles Gained. The project celebrates the restoration of the Elwha River, “a river lost for a century,” and investigates other lost rivers of Puget Sound.

Sculptural river mile markers along the paths of the “missing rivers” will allow viewers to gather insights into the scale and pace of transformations that have taken place and the importance of maintaining and restoring natural systems.

Since early October a small and dedicated volunteer Seattle District team, led by Corum, has been busy building the first historic mile marker of the pre-industrial Duwamish River. The sculptural river mile marker is composed of rubble from the Elwha dam and spanned by a steel structure with interpretive signs.

The base, a cross, reflects the mile marker symbol found on modern maps, but also represents the diverging and intersecting trajectories of the Duwamish and Elwha rivers. The marker is placed at the northernmost estimate location of river mile 1, based on the 1875 U.S. Coast and Geodetic survey. In the center is a brass survey bench mark, commemorating the historic river location.

For more information about the project, visit the website at [www.mileslostmiles gained.org](http://www.mileslostmiles gained.org).



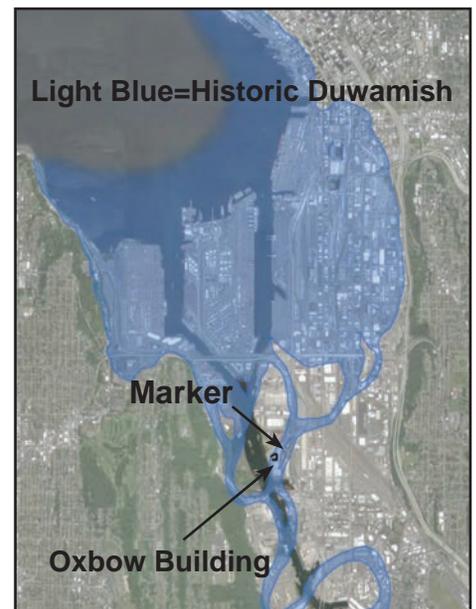
Corps photo by Bill Dowell

Local welder Anna Sher assembled the I-beam structure for the project.



Corps photo by Bill Dowell

Engineer and artist Zachary Corum ensures the marker is level during installation. The marker is part of a project Corum founded called Miles Lost, Miles gained.



Corps graphic by Bill Dowell

The public art Miles Lost, Miles Gained marker is located north of the Seattle District’s new Oxbow building. Zachary Corum’s historic interpretation project gathers insights into waterway transformations as pictured above. The light blue shows where the Historic Duwamish once flowed.

in response

# Sandy devastates E Corps sends relief

**By Tanya King**  
Public Affairs Office

Even before Hurricane Sandy made landfall along the East Coast, U.S. Army Corps of Engineers officials were already making plans to provide assistance to those who would need it most.

It was the largest Atlantic hurricane on record, causing severe damage across 24 states, hitting New York and New Jersey especially hard.

The super storm's 95 mph winds and storm surge wreaked havoc on communities throughout the region, especially those in coastal areas. Saltwater flooded streets, subways and vehicular tunnels. It created major debris issues and

knocked out millions of residents' power.

Not long after Sandy made landfall near Atlantic City in the evening of Oct. 29, nearly 1,000 USACE members, including 11 from

Seattle District, deployed to the East Coast and began helping in a variety of ways.

The Corps teamed with federal, state, city and regional agencies to drain flooded areas, provide temporary power, remove debris and inspect critical facilities.

With so many people working in unfamiliar locations with people they don't know with limited resources, it can be challenging, said Doug Weber, Seattle District infrastructure assessment team member, but they made it work as a team, despite the circumstances.

"We got here shortly after the storm and things were still getting organized," said Weber. "There were a lot of federal agencies and resources coming into the region, it was pretty chaotic in the beginning."

"We inspected shore protection, storm water outfalls, sewage treatment facilities, ferry terminal, levees and state parks," said Charles Ifft, the USACE IA mission manager and Seattle District team member.

"I've really appreciated being here to help the

communities and provide assistance where they need it," Weber said. "It's been rewarding to see how they all pull together and help out and to be part of that response."

"The local fire stations were usually the hub for all the locals and volunteers to meet and coordinate the rebuilding efforts," said Charlie Comer, Seattle District IA team member. "Spouses of emergency services personnel and others in the community were always busy cooking a meal or taking donations to those who lost everything. Grandmothers brought in homemade pies, football teams hauled sand in wheelbarrows—everyone just pitched in and did a part."

In addition to supporting the IA mission, other

Seattle District members deployed to help with contracting, public safety and health, general mission support, emergency management operations, mapping, and organizing and managing recovery efforts.

***"I've really appreciated being here to help the communities and provide assistance where they need it. It's been rewarding to see how they all pull together and help out and to be part of that response."***

***—Doug Weber, Seattle District***

"We are just one piece of all the work the Corps is doing here," said Weber, who returned in December after nearly 30 days deployed. "Several missions are continuing on."

In any disaster, USACE's top priorities are to support immediate emergency response priorities; sustain lives with critical commodities, temporary emergency power and other needs; and initiate recovery efforts by assessing and restoring critical infrastructure.

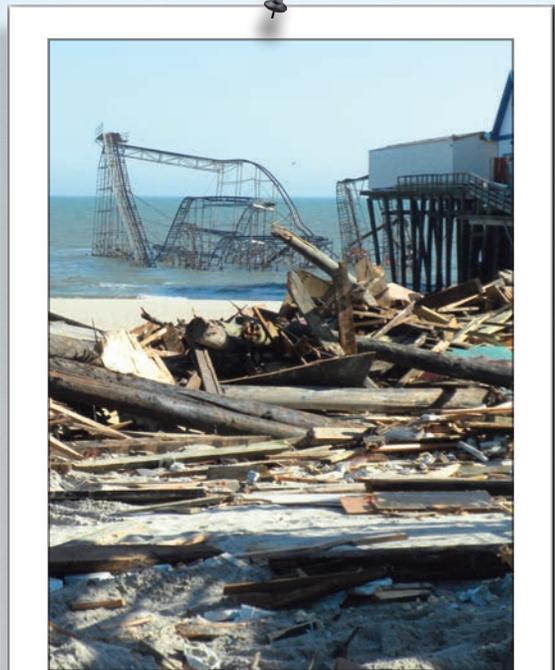
"I feel very fortunate that I was able to be a part of the Seattle District IA team because the folks that deployed with me were very dedicated and wanted to do the best job they could for the folks needing help," said Comer. "I don't think most of (those needing assistance) expected any help from us, so what we were able to do was a bonus for them."

# East Coast;



Corps photo by Andrew Stamer

*From the beginning recovery has been a team effort with emphasis on local, state and federal responders working together to help people in the areas impacted by this weather event.*



Corps photo by Charlie Comer

*The destructive force of the ocean is visible at the popular vacation destination on the Jersey Shore, Seaside Heights, N.J., and at many other places as Hurricane Sandy buried cars and knocked houses off foundations.*

## Corps response totals

- At peak response, **1,000** USACE members from other divisions supported mission response.
- Debris teams have been clearing debris along the Atlantic Seaboard. More than **400,000** cubic yards of debris have been removed.
- The dewatering mission at **14** critical locations included **162** pumps and removed more than **475** million gallons of water.
- The water delivery mission provided **512** truckloads of **18,000** liters of water per load.
- Teams installed **198** generators, generating **55** megawatts of power for **50,000** families.
- The critical public facilities mission assessed **158** facilities including fire and police stations, schools, city halls, medical and public works buildings.



Corps photo by Charles Ifft

*Doug Weber assesses building damages in Mantoloking, N.J., after Hurricane Sandy subsided.*

in the field

# District tackles levee repair projects

By Scott Lawrence  
Public Affairs Office



Corps photo by Scott Lawrence

(Above photo) Les Soule (right), the Corps' Cedar River I-wall project manager, discusses willow stake mitigation plantings with Steve Lee (center) from the City of Renton and contractor James Kephart from HEC Lawn & Garden. (Background photo) A blanket of riprap armor is placed along the left bank of Union Slough. This is one of three Union Slough sites that underwent repairs from January 2009 and February 2012 flood event damage. (Corps courtesy photo)

As construction season in the Pacific Northwest comes to a close, the U.S. Army Corps of Engineers' Seattle District is wrapping up the last of its fiscal year 2012 levee rehabilitation projects throughout the district's area of responsibility.

The district tackled eight projects, spread throughout three states, at a cost of nearly \$8 million during this year's levee rehabilitation effort.

Work was primarily focused on restoring damaged levees to their pre-flood levels of protection and included adding levee toe-rock, replacing riprap armor to riverward slopes and making levee slopes more gradual at several of the sites.

In addition, many of the projects include environmental features such as willow plantings and the addition of large woody debris to improve fish habitat, among other environmental and habitat improvements.

"We had a successful year repairing levees across the district from Montana to western Washington," said Lynn Wetzler, Seattle District levee rehabilitation program manager.

"Regardless of location or scale, each project shared similar complexities – such as being well designed, environmental coordination, local sponsor involvement, and coordination with resource agencies – coupled with completing in-water work within the fish window and restoring flood protection before the next flood season."

The Corps worked closely with a number of federal, state, tribal and local representatives during the planning process for this year's levee construction projects which include: Drummond, Mont.; St. Maries and Bonners Ferry in Idaho; and Washington projects such as the Yakima River levee system, Union Slough, Startup, Cockreham, and Renton's Cedar River I-type flood wall.

Most of the projects are under cost-share agreements where the Corps and local sponsors split costs.



# Center helps federal planners manage historic structures

in restoration



The TCX crafted a plan to restore, manage the Jenkins House.

**By Bill Dowell**

*Public Affairs Office*

Historic buildings and structures are part of the nation's heritage and legacy. Preserving and protecting them means following preservation standards which should, and in the case of federal actions must, be followed.

Restoring, rehabilitating or preserving these resources helps shrink carbon footprints, conserve materials and energy, and reduce landfill waste.

For federal installation property planners and facility managers a big question can be, "Where do I start?"

The answer is the U.S. Army Corps of Engineers' Technical Center of Expertise, or TCX, for the Preservation of Historic Structures and Buildings located at the Seattle District. The Center's staff offers the Corps, military installations and federal agencies best practices and informed decision making for historic structures.

"There is great diversity among the older buildings and structures Corps districts, federal properties and (Defense Department) installations must account for," TCX Program Manager Lauren McCroskey said.

When the Corps' Huntington District acquired mitigation lands along the Ohio River, the parcel included the General Albert Gallatin Jenkins House. The 1830 Virginia farm was constructed by slaves who hewed local timbers, pegged them together and laid up handmade bricks and stone. Years of ill-advised repairs and neglect marred the home's historic features and damaged materials.

Through a series of site investigations, public meetings and coordination, the TCX staff crafted a plan to help the District meet its historic preservation responsibilities.

A growing focus of the TCX is the promotion of state-of-the-industry technology for the treatment of historic materials. The Center's recently revised specification for repair and restoration of historic masonry and mortar exceeds standard guidance and technical bulletins provided by other

preservation agencies. This push for excellence generated a forensic investigation of the Jenkins House structural components using instruments developed in Europe and rarely used in the U.S.

"Areas of the house were evaluated in systematic fashion to determine structural load bearing capacity," McCroskey said. "Ultrasonic waves were used to measure the continuity and stability of wood fabric. The wood substrate's resistance levels were also probed."

Test data was compiled and analyzed, yielding an accurate picture of the home's structural performance. District managers will use the findings as they negotiate a future use and stewardship of the building.

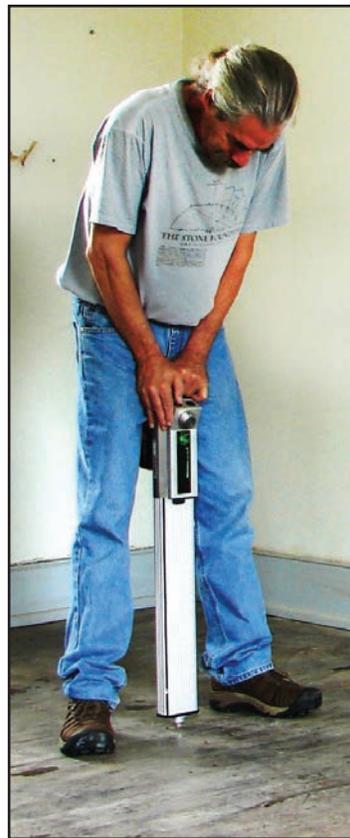
The Center's staff applied similar techniques in a recent study of historic stone components that once graced entrances in Arlington National Cemetery. Originally salvaged during demolition of the War Department Building in the 1870s, the individual pieces of columns and cornices

were tested. Soon, the reconstructed gates may once again honor those who pass through.

The foundation of the Center's work is the National Historic Preservation Act, which directs federal agencies to act responsibly when their actions affect historic buildings, structures or landscapes.

To help accomplish this, the Center offers a three-fold approach: keep property owners in compliance with federal historic preservation laws and guidelines; use creative planning to ensure that mission and project goals are met in a timely manner; and preserve and protect significant structures by applying high standards and best practices.

The Center also acts as a clearing house for technical information. Depending on campus or installation needs, the TCX staff offers tailored training for property and facility managers, planners and cultural resource staffs.



Corps courtesy photos

**Contractor Mark Liebman uses forensic technology to evaluate historic wood components.**

# Enjoy holidays safely

**By Seattle District  
Public Affairs Office**

Winter holidays are a time for families and friends to get together. During the holidays, this can also mean a greater risk for fire. Following a few simple tips will ensure a happy and fire-safe holiday season.

## **HOLIDAY DECORATING**

Be careful with holiday decorations. Choose flame-resistant or flame-retardant decorations.

Keep lit candles away from decorations and other things that can burn.

Some lights are only for indoor or outdoor use, but not both.

Replace any string of lights with worn or broken cords or loose bulb connections. Connect no more than three strands of mini light sets and a maximum of 50 bulbs for screw-in bulbs.

Use clips, not nails, to hang lights so cords don't get damaged.

## **HOLIDAY ENTERTAINING**

Test your smoke alarms and tell guests about your home fire escape plan.

Keep children and pets away from lit candles.

Keep matches and lighters up high in a locked cabinet.

Stay in the kitchen when cooking on the stovetop.

Ask smokers to smoke outside. Remind smokers to keep their smoking materials with them so young children do not touch them.

Provide large, deep ashtrays for smokers. Wet cigarette butts with water before discarding.

Before heading out or to bed, Blow out lit candles when you leave the room or go to bed. Turn off all light strings and decorations before leaving home or going to bed.

**Food** borne illness is preventable and causes an estimated 48 million illnesses and 3,000 deaths each year in the United States. It is an illness that comes from eating contaminated food.

Follow these food safety guidelines to avoid foodborne illness.

Use hot water and soap to clean the sink, counters, cutting boards, pans, knives, thermometer and other utensils and serving pieces. Sanitize countertops and your cutting boards with a diluted bleach solution of one tablespoon of bleach per gallon of water. Let the bleach solution stand on the surface for a few minutes, then rinse and blot dry with paper towels.

When preparing meals, rinse fresh fruits and vegetables under running tap water, including those with skins and rinds that are not eaten. Blot dry with a clean cloth towel or paper towel.

Wash hands with warm water and soap for 20 seconds before and after handling food. Remind others who will be in the kitchen handling food to wash their hands too.

Using a food thermometer is the only reliable way to ensure safety and to determine desired "doneness" of meat, poultry and egg products. Cooking these foods to a safe minimum internal temperature will destroy any harmful microorganisms.

However, if not inserted correctly or placed in the wrong area, the reading will not accurately reflect the internal temperature of the food. In general, it should be placed in the thickest part of the food, away from bones.

In the refrigerator, store turkey and other raw foods that will be cooked on the bottom shelves and ready-to-eat foods on the top shelves. Put turkey in a rimmed pan to catch any leaking juices.

Designate separate cutting boards for raw meats or clean and sanitize cutting boards between uses for different foods. Clean and sanitize knives between uses on different foods and place only sanitized knives back in their racks. Sanitize any utensil, equipment or food contact surface after it has been in contact with raw foods, especially meat or eggs.

Foodborne illness symptoms may occur within minutes to weeks and they often present as flu-like symptoms.

An ill person may experience nausea, vomiting, diarrhea or fever.

Because the symptoms are often flu-like, many people may not recognize the illness is caused by harmful bacteria or other pathogens in food.



**Congratulations:**

New chiefs are **Jessie Winkler**, Civil Works Branch; **Laura Orr**, Geology and Instrumentation Section; and **Valerie Ringold**, Planning Branch. **Justin Fairley** is the Civilian Personnel Advisory Center director and **Liz Bonner** is the Deployment/Family Readiness coordinator.

Operations Officer **Lt. Col. Derek Ulehla** was promoted from the rank of major Nov. 2.

**Emma Chen**, **Tyler Bush**, **Kyle Shaw**, and **Jennifer Ramirez** are Certified Passive House Consultants, enabling them to use the CPHC designation.

**Doug Knapp** received the Edmund Friedman Young Engineer Award for Professional Achievement.

**Out and About:**

In October, **Olton Swanson** attended the

17th Annual STEM (science, technology, engineering and mathematics) conference in Dallas.

**Moving On:**

Team members leaving the district include:  
**Kecha Bray-Coleman**  
**Mikel Costello**  
**Spc. Christopher Eby**  
**Jim Hines**  
**Sean Irby**  
**Shauna Kirk**  
**Sara Olin Malo**  
**Shawn Patterson**  
**Valerie Whitney**

**Retirements:**

**Rob Romocki**  
**Art Miltner**  
**Dru Butterfield**  
**Paul Erickson**  
**Mary Smith**  
**Matthew Satter**

**Condolences:**

Retiree **Stanley Bales** died July 21 and Retiree **Jimmie Sadler** died Feb. 1.

**Deployed:**



**Michael Baldaia**



**Sean Doherty**



**Jacob Firle**



**Joseph Heckenlaible**



**Gerald Quintua**



**Ronald Muriera**



**Michael Likavec**



**Richard Sanchez**



**Mark Ross**

**Welcome to the district**



**Brad Nygaard**  
 Electrical Engineer  
 Chief Joseph Dam



**Daniel Watson**  
 Laborer  
 Chief Joseph Dam



**David Clark**  
 Power Plant Operator\*  
 Chief Joseph Dam



**Eric Hessman**  
 Power Plant Operator\*  
 Chief Joseph Dam



**Justin Fairley**  
 Civilian Personnel  
 Advisory Center Director



**Christine Prettyman**  
 Contracting Specialist



**Jason Williams**  
 Laborer  
 Chief Joseph Dam



**Kenneth Graham**  
 Power Plant Operator\*  
 Chief Joseph Dam



**Kraig Adamson**  
 Power Plant Electrician\*  
 Chief Joseph Dam



**Patrick Couvillion**  
 Laborer  
 Chief Joseph Dam



**Scott Lynn**  
 Operations Section Chief  
 Chief Joseph Dam



**Sean Sherrard**  
 Power Plant Operator  
 Chief Joseph Dam



**Thomas Marsh**  
 Power Plant Mechanic\*  
 Chief Joseph Dam



**Albert Olvera**  
 Equal Employment  
 Opportunity Chief



**Morgan Miller**  
 Civil Engineer



**R. Brian Bell**  
 Hydrologic Technician

\* denotes trainee

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# District moves into new, green building; among top one percent in country

**By Tanya King**  
*Public Affairs Office*

After waiting more than three years, those working in the U.S. Army Corps of Engineers, Seattle District, Federal Center South location finally moved into their new building at the end of November.

The U.S. General Services Administration owns what's been nicknamed the "Oxbow Building," which sits on a former superfund site and once housed a World War II bomb factory.

The 209,000 square-foot building is a model for green buildings and is anticipated to be among the top one percent in the country for energy performance. It's one of the first in the region to combine the use of geothermal heating and cooling systems with structural piles.

Nearly 200,000 board-feet of timber was salvaged from the old warehouse, which can be seen throughout the atrium, known as "The Commons."

Beneath the courtyard space facing the Duwamish River, a 25,000-gallon cistern provides storage and treatment for rainwater collected from the roof and is reused for irrigation, toilets and a rooftop cooling tower.

It is projected 430,000 gallons of water will be harvested annually, resulting in drastic reductions in water usage compared to a typically-sized building. Energy use is also expected to be at about one third that of a similar non-green building, on track to achieve an ENERGY STAR score of 100.

"There have been several studies over the years that show that the operating and employee costs of a building over a 25-year cycle are 90 percent of the costs, compared with the initial construction, which would be 10 percent," said Rick Thomas, GSA project manager.



Corps photo by Rob Nevitt

**Col. Bruce Estok, U.S. Army Corps of Engineers, Seattle District commander, addresses employees Nov. 19 in a ceremony at the Oxbow Building to celebrate its completion.**

Portland-based ZGF Architects and Seattle-based Sellen Construction partnered on the project to create an open, inviting atmosphere.

"We had an ambitious energy performance target," said Dan Simpson, ZGF Architects principal. "We were challenged to just meet the targets in the best way possible."

"Building a home for the Corps of Engineers, an agency dedicated to designing, engineering and construction, is a tall order," said Col. Bruce Estok, Seattle District commander. "We are an exacting customer that knows the business. GSA, ZGF, and Sellen delivered a building that far exceeds our expectation. Our employees are excited about the positive effects it will have on our ability to serve the nation and the Northwest."