U.S. Army Corps of Engineers-Alaska District

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Arctic Engineer

"Building and Preserving Alaska's Future"

Village rebounds

See Page 8

Arctic Engineer

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An aerial view of Eagle Village shows the new location further away from the Yukon River on higher ground. Inset photos from top to bottom:
• A pickup truck crushed by giant ice blocks remains in the foreground of a rebuilt home next to the river.
• The temporary clinic meets the health care needs of the community.
• The temporary village public safety office contains a holding cell, office and interrogation room.
(Photos by Curt Biberdorf and Tom Findtner)

Commander's Corner

Work force targets greatness

Thank you for reading this issue of the "Arctic Engineer." It is the Alaska District's primary means of communicating with internal and external audiences about projects, programs and activities of great importance to the Last Frontier.

As the new district commander, I am particularly excited about this issue because it highlights the wide scope of our mission. You will read about how the district responded to assist those devastated by flooding in Eagle Village. The new Fort Richardson Health Clinic is notable for being the first Army medical facility to be built using the Military Construction Transformation project delivery process. In Ketchikan, a floating breakwater built by the district 20 years ago has been strengthened to continue its role of protecting the community's small boat harbor. Studying permafrost and ways to provide engineering solutions for building in the Arctic will expand with the proposed Alaska Permafrost Research Center.

Col. Reinhard Koenig

Our people make everything possible, so it's important to draw attention to them as well. Kris Stoehner, a contract specialist, possesses great passion for her other role as family readiness group coordinator and received high-level recognition for her efforts. Family readiness is a critical component to supporting our volunteers who serve in Iraq and Afghanistan on Overseas Contingency Operations.

We also like to have fun and enjoy the opportunities available in this unique part of the country. For a couple of district employees, that meant a 460-mile canoe race on the Yukon River.

Speaking of fun, I thank everyone for making my transition back to Alaska an incredible experience. I, along with my wife, Melissa, and our Alaska-born infant daughter, Caroline, have been overwhelmed by the warmth and camaraderie shown since our arrival in late June.

It has been an incredible joy to meet and get to know the entire team, and to learn about the positive difference you are making in the lives of our servicemembers and the citizens of this great state. As we move forward, I pledge my best efforts to help each of you accomplish your missions and make the Alaska District the place of choice to serve.

I also strongly endorse what began under Col. Kevin Wilson's watch: the Alaska District plan to go from "good to great." As most of you know, Chief of Engineers Lt. Gen. Robert Van Antwerp challenged us to look at what we are doing and identify where we can improve in order to make the U.S. Army Corps of Engineers (USACE) a "great" organization. Every member of the team is a key piece of the puzzle that will take us to that higher level.

For the Alaska District, "great" means:

• Delivering excellence all the time.

• Being recognized as subject-matter experts in engineering and construction in an Arctic environment.

• Doing something unique for Alaska, our nation and the world.

• Being an organization that is built to last.

Within the last year, USACE published its Campaign Plan with four goals and 16 objectives that when executed, will take USACE to "great." Since then, the Pacific Ocean Division, which serves as our higher headquarters, published an Implementation Plan (IPlan) that will help USACE get to "great." Now the district has published an updated Operations Plan (OPlan) with actions and tasks that support the Campaign Plan and IPlan to lead the district to "great."

Every member of the team makes important contributions, like a tug of war with everyone pulling on the rope in the same direction to accomplish the goals of the organization. To synchronize our efforts, I've asked each member of the district to fill out a standard form that poses the following questions and use it when developing job objectives for annual performance plans:

• What unique contributions do I make to the Alaska District, Pacific Ocean Division, USACE and nation?

• How do I contribute to the USACE Campaign Plan?

• How do I contribute to the Pacific Ocean Division IPlan?

• How do I contribute to the Alaska District OPlan for FY2010-2011?

This task may take a bit of time, but it will help each of us see how we fit into the big picture.

Some specific items on my form are working to reduce personnel turbulence and increase contractor safety, continue the outstanding support for Overseas Contingency Operations, oversee the development of a common operating picture and be a leader in Alaska for mitigating the effects of climate change.

Ultimately, the Campaign Plan is not about doing new things. It is all about achieving quality and excellence in the programs we are already executing. I look forward to hearing your thoughts and discussions on this topic.

Once again, thank you for the warm welcome. It is great to be back serving with each of you and helping with "Building and Preserving Alaska's Future."

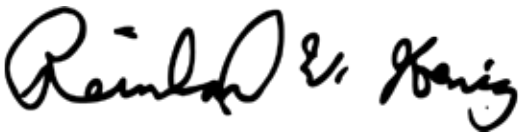


Photo by Daisy C. Bueno

Staff Sgt. Andrew Harrison, diving supervisor, 7th Engineer Diving Team, cuts an old chain that holds the breakwater in place. Soldiers from Fort Shafter Flats, Hawaii, repaired a floating breakwater system at Bar Point Harbor in Ketchikan during a monthlong deployment in July and August.

Hawaii-based engineer diving team repairs breakwater in Ketchikan

By Daisy C. Bueno
Contributing Writer

New life was added to a sea barrier in Ketchikan through the efforts of a team of Army underwater engineers.

Seventeen members of the Army's 7th Engineer Diving Team (EDT) from Fort Shafter Flats, Hawaii, swapped shorts and T-shirts for dry suits and sweat shirts in July as they began a monthlong mission to repair a floating breakwater system at Bar Point Harbor. It's one of two floating systems built and maintained by the U.S. Army Corps of Engineers-Alaska District.

"This job not only serves the Corps of Engineers and the local community, but it provides divers with an opportunity to improve their diving skills and gain valuable experience in a cold-water location," said 1st Lt. Jon-Paul Navarro, executive officer, 7th EDT.

Bar Point Harbor is used as a base of operations for commercial fishing and is capable of accommodating 520 vessels. In addition, Bar Point, along with Ketchikan's Thomas Basin, is used by more than 100 transient fishing boats as a seasonal base of operations.

Ketchikan first received harbor protection when a small boat basin was built in 1933 at Ketchikan Creek in Thomas Basin. By 1978, the Alaska District was authorized to expand the protection to Bar Point Basin.

In April 1980, the Alaska District completed construction and placement of two concrete floating breakwaters at Bar Point Harbor. The expansion project enclosed a basin of about 25 acres with structures measuring 963 feet and 120 feet.

Floating breakwaters ride on the water surface to reduce destructive wave energy in the harbor areas as opposed to fixed breakwaters that rest steady on the ocean floor.

The advantage of floating structures is a smaller footprint in deep water areas with moderate wave energy. Although fixed breakwaters can handle greater wave energy, they tend to cost more to build in deep water because of the large quantity of materials needed to construct them.

The downside of floating breakwaters is the greater maintenance expense because of necessary inspections and replacement of components corroded by salt water and general wear on moving parts.

"The anchoring system of a floating breakwater is critical because if they were to break away from their mooring chains, they can cause severe damage to nearby boats and harbor facilities," said Allen Churchill, chief of Operations and Maintenance for the Alaska District. "Corrosion is the biggest problem, but vessels can also damage the floats if they are tied to them and further stress the anchoring system. We do not allow this, but it still happens as evidenced from damages observed during periodic inspections."

In 1996, the Alaska District contracted with the Navy for a team of divers to rehabilitate the floating breakwaters at Bar Point. This time, the district contracted with the 7th EDT.

The repairs were necessary after storms caused several of the float modules to begin separating. "Fortunately, it got taken care of before it was a catastrophic failure," said Steve Corporon, director of ports and harbors for the City of Ketchikan. "It's snapped up now and looks straight and true. It's a pretty simple breakwater but an integral part of the harbor."

The district funded the nearly $500,000 project and provided technical

Photos by 1st Lt. Jon-Paul Navarro

(Left) Failure of the cross-lateral tension cable system between the four modules of the large floating breakwater section caused an overall misalignment. (Right) Replacing all cross-lateral cables corrected the problem.

structural engineering advice, while the dive team developed the scope of work and repaired the system.

Since the district paid expenses only associated with the dive team's repair work, it cost about half as much as contracting with divers on the open market.

"The Corps of Engineers benefited from leveraging the services of the 7th Engineer Dive Team that possesses unique knowledge, skills and abilities in underwater construction," said Robert Tedrick, structural engineer in Alaska District's Hydraulics and Hydrology Section.

The team completed a number of tasks during its deployment to Ketchikan. For the breakwater realignment and rewiring, they removed 18 one-inch wire ropes and replaced them with material that offers higher tensile strength and corrosion resistance.

Anchor chain replacement and pad-eye installation involved attaching 18 1 ¾-inch anchor chains assisted by a 20-ton crane operating from a barge.

Divers also removed and installed a new fender system by securing rock bolts to the breakwater, and then mounting wood to the rock bolts to protect it from passing boats.

They also patched concrete cracks on the surface of the breakwater, and used a pressure washer to remove barnacles and seaweed from concrete surfaces and chain both above and below the waterline.

The district provided inspection and repair information from the last rehabilitation project in 1996, according to Churchill.

Normally, a full project delivery team from the Corps would be involved with a project of this magnitude, but the dive team asked only for minimal assistance, he said.

"We were truly impressed by their capabilities to be able to pull this project off with so little input and technical support from us," Churchill said.

The task proved challenging, even without the day-to-day variables that can add to the workload.

"Every day the weather can change at a moment's notice—the tides shift, winds pick up, temperatures drop, plus you're not sure how the chain will be lying on the sea floor," said Spc. John Hoover, 2nd class diver, 7th EDT. "But, that's what makes it exciting. It's always a problem-solving activity."

The divers completed the project in August and later provided a report and timetable for future inspections and repairs.

Daisy C. Bueno is a public affairs specialist with the 8th Theater Sustainment Command Public Affairs Office at Schofield Barracks, Hawaii. Curt Biberdorf contributed to this story.

Photo by Daisy C. Bueno

Spc. John Hoover (left), removes the helmet from Pfc. Britton Hall after his dive. Both are 2nd class divers with the 7th Engineer Diving Team.

Photo by 1st Lt. Jon-Paul Navarro

Staff Sgt. Andrew Harrison, diving supervisor, 7th Engineer Diving Team, repairs concrete surface cracks on a breakwater with a sand and epoxy compound.

Frozen forever

Permafrost research, education to expand with new center

Story and photos by Pat Richardson

The main path inside the permafrost tunnel reaches 360 feet into the hillside. Near the entrance, a side tunnel excavated later to study underground mining techniques, drops more steeply for 200 feet to frozen gravels and bedrock.

Walking into the permafrost tunnel near Fairbanks is like stepping back in time 40,000 years. To our non-scientific group, it's like entering a primitive prehistoric museum exhibit, except it's too dusty. The air is icy cold and smells musty. This is not a manmade display. This is the real thing.

We step onto a steel-grate pathway leading into a long, dimly-lit cave-like tunnel excavated into a permanently-frozen hillside. Our "tour guide" points out the tip of a steppe bison's horn embedded in the frozen wall. He explains that steppe bison were common in the area during the Pleistocene Epoch.

We walk a short distance where he shines his flashlight up, and we see 35,000-year-old roots dangling from the ceiling. Deep inside the tunnel, he shares his enthusiasm for a frozen pond that we can see clearly in profile. There's frozen mud at the bottom, pond water that is now a white block of ice and ancient plants preserved at the top.

Our "tour guide" is Charlie Collins, a research physical scientist, who shares his amazement that researchers have taken samples from this pond and brought its bacteria back to life.

With his enthusiasm about the permafrost tunnel and "secrets of the dead" that it holds, he could be part of Alaska's tourism industry, but he's not.

Collins works for the Alaska Project Office of the U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) at Fort Wainwright. To the scientist, the tunnel is much more valuable than an exhibit of a specific Pleistocene period dating from 30,000 to 50,000 years ago. To the scientific community, the structure is a unique laboratory. Its possibilities for education and research projects are endless and priceless.

Simple setting

The U.S. Army Corps of Engineers-Alaska District Public Affairs Office had arranged this tour for Mary Cochran, a Corps of Engineers video correspondent, to film the tunnel for a story to air on Soldiers Radio and TV. Employees of the Chena Flood Control Project Office joined us on the guided walk.

We learned that CRREL excavated the tunnel through ice-rich permafrost at an old gold mining location named Fox in the mid-1960s to investigate the feasibility of underground military installations in cold regions. As the only permafrost test facility in the Western world, it quickly became an important active underground laboratory where many geological and engineering research programs have been conducted for 50 years.

However, at first we saw no evidence of the facility's importance. Ten miles north of Fairbanks, we turned off the Steese Highway onto a gravel road. We parked the car by a shack that serves as a visitor center. It stands alone in a clearing that a gold dredge scraped flat years ago. Several hundred yards away, two even smaller shacks crouch against the hillside. One houses an outdated refrigeration system and the other is the tunnel's entrance portal. That's all we saw, except for the little green portable toilet behind the visitor shack. No offices, laboratories or parking lot, nothing to identify this research facility except for a simple sign.

Collins took our group inside the visitor shack for an orientation, where he handed us hard hats and offered heavy parkas. Maps and posters were tacked to the walls and fossil bones taken from the tunnel covered the tables along one wall.

A brochure says that bones of mammoths, steppe bison, saber-tooth tigers and arctic ground squirrels have been found in the tunnel. Also beetles, mites, fleas, moths, butterflies and snail shells have been preserved in the permafrost. Plant fossils, including seeds, grass, shrubs, tree stump roots, wood fragments, herbs and mosses have been recovered from the tunnel as well.

By studying the physical and mechanical properties of frozen sediments and ice formations, researchers can develop better engineering solutions for frost heaving and ice jacking that plague construction of buildings and roads in permafrost regions, according to the brochure.

Ice structures, such as wedges, ponds and lenses, viewed within the tunnel are responsible for most engineering problems in northern construction. The freeze-thaw cycle produces a phenomenon that engineers refer to as jacking, which causes building foundations to heave and potholes to form in highways.

Research from the tunnel was valuable in planning construction of the Trans-Alaska Pipeline System that bisects the entire length of the state and carries about 13 percent of the nation's

Inside the visitor shack, Charlie Collins (center), a research physical scientist at the Alaska Project Office of the U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory, orients guests before entering the tunnel.

oil production from the North Slope to Valdez. Since 85 percent of the state's land is underlain by permafrost, much of the pipeline route crossed these permanently-frozen soils.

Following our orientation, Cochran turned on her video camera as we walked across the clearing to enter the portal building. Inside, Collins walked to the back of this shack and pulled open an insulated door like those used in walk-in freezers and old-fashioned meat lockers. We stepped through this door into the main tunnel or adit that declines gradually and then levels out for a total of 360 feet into the hillside. Near the entrance, a side tunnel or winze, excavated later to study underground mining techniques, drops more steeply for 200 feet to frozen gravels and bedrock.

Oddly, during the Ice Age, the Fairbanks area had no glaciers. Silt called loess from surrounding mountains was blown by strong winds onto the valley floor. That silt is now frozen in today's permafrost. The permafrost inside the tunnel is frozen so rigid that the tunnel is unsupported except at the entrance. At this site 150 miles below the Arctic Circle, the simple refrigeration system chills the tunnel to 25 degrees in summer and blows the cold outdoor air into the tunnel during winter.

The entrance portal is one of three buildings at the site of the permafrost tunnel.

Taking us back up the ramp, Collins brushed the wall to demonstrate how easily the loess flakes off with the slightest touch. Exposure to air dehydrates the permafrost, similar to the sublimation process that reduces the volume of unused ice cubes in a freezer at home. The pungent odor comes from decaying plants and fossils.

As our tour ended, we exited the portal, shed our parkas and hard hats, and took a keen interest in the future of the tunnel.

Cutting-edge upgrade

CRREL and the Alaska District are now in the early planning stages of expanding the site into a $10.5 million modern world-class research and learning facility called the Alaska Permafrost Research Center.

CRREL is focusing on four areas to update and expand the tunnel and related facilities. The highest priority is to excavate a new tunnel parallel to the old tunnel with connecting side passageways at each end.

The agency also plans to construct onsite science facilities and develop a learning center for educating the public and decision-makers involved in permafrost issues. The fourth emphasis is on scientific and engineering research.

CRREL wants to conduct research during construction of a new tunnel as well as after the expanded facilities are completed. Excavation of a new tunnel would expose pristine permafrost, allowing observation, data collection and documentation, and enhanced research that were not pursued in the 1960s. Researchers were not as interested in climate change then as they are now. A new tunnel would provide expanded opportunities for measuring how much carbon might be released from thawing permafrost and to sample uncontaminated material for DNA.

In 2006, the Alaska District and CRREL joined together to form the U.S. Army Corps of Engineers Cold Regions Directory of Expertise (CRDX).

"The purpose is to integrate the unique research and development expertise of CRREL with the strong practical technical knowledge and experience of the Alaska District to accomplish applied research, engineering construction and operations in the cold regions of the world," said Trish Opheen, Alaska District's Engineering Division chief. "Think of it as a science to engineering bridge."

The Alaska Permafrost Research Center is an early and promising project for the CRDX alliance, she said. CRREL has $500,000 this fiscal year to fund exploration drilling and geophysics, site work and a design charrette.

CRREL and the Alaska District held a charrette with the intent to award a contract to drill the new tunnel next winter. Bob Glascott, a geologist, has been appointed project manager for the district.

"We at CRREL see this as a joint project with the Alaska District, one we are very excited about," said Matthew Sturm, a research physical scientist.

Other goals for the project are to improve the lighting and develop 3-D mapping, a 3-D model and virtual tours for classroom use.

Indoor bathrooms would replace the outhouse and state-of-the-art displays would replace posters tacked to the wall, while an updated refrigeration system would control humidity in the tunnels. New scientific methods would include remote-sensing, surface geophysics, or airborne and satellite platforms used to produce more refined and more cost-effective engineering best practices, a benefit to Alaska District, CRREL and all northern communities.

Mary Cochran's video story on the permafrost tunnel is found by searching "permafrost tunnel" at http://www.army.mil/media/amp/

Disaster relief

District expertise essential to village recovery

Story by Curt Biberdorf

Water and ice chunks, some towering up to 20 feet high, crushed the Alaska Native community of Eagle Village in early May 2009. The tiny community, located on the Yukon River near the Canadian border, took the heaviest hit when an ice dam that formed 10 miles upstream broke after an above-normal snowpack merged with a springtime warmup. The resulting ice floes and heavy flooding toppled trees, washed out the gravel road, turned vehicles into twisted metal and shoved buildings off their foundations.

"It was like a giant glacier moved through the village," said Donna Westphal, Eagle Village finance officer.

Among the destruction were two critical public facilities—the health clinic and public safety office. Eagle and Eagle Village were declared disaster areas and qualified for federal assistance.

Border to sea

Flooding reached across the state from Eagle Village on the east side, where homes also were destroyed, and continued down the Yukon River to Emmonak near the Bering Sea to the west.

"It was ice, water or a combination of the two," said Sam Walton, state public assistance officer, Alaska Division of Homeland Security and Emergency Management. "The concern (in Eagle Village) was to get the clinic and (public safety office) set up before winter."

He said the Federal Emergency Management Agency (FEMA) brought resources to the affected communities as soon as possible, and that included the U.S. Army Corps of Engineers-Alaska District.

"By making it a Corps mission, it accelerated the whole process," Walton said. "The Corps is a resource FEMA uses frequently. They are a vital partner. They came right on board, took over all the planning, research and were engaged all along on the facilities."

Federal and state disaster assistance is divided into individual assistance where residents are provided grants or loans, and public assistance, such as critical public facilities and debris cleanup.

Working with FEMA and the Alaska Division of Homeland Security and Emergency Management, the Alaska District provided technical assistance for housing, general FEMA operations and debris removal, and helped replace the health clinic and public safety office for Eagle Village.

Although the Corps also manages public housing assistance in emergencies, FEMA determined that the cost was so high that it made more sense to use various church groups that volunteered to build replacement homes, said Catherine Shuman, chief of planning for the water resources section at the U.S. Army Corps of Engineers-Los Angeles District, who deployed as subject-matter expert for the critical public facilities mission.

The Corps housing team remained available if its expertise was needed, but overall the plan was "very successful," she said.

Site survey

To understand the magnitude of the disaster, the Alaska District and FEMA teams first surveyed housing damage in Eagle, Eagle Village, Stevens Village and Tanana.

All buildings in the original Eagle Village town site, including the health clinic and public safety office, were pushed inland and collapsed by ice floes. Meanwhile in the neighboring community of Eagle, riverfront buildings were severely damaged. Other villages were affected only by flooding.

The next task was providing technical assistance on debris removal in these affected areas. FEMA learned that Eagle and Eagle Village had a far worse debris problem than other impacted areas, and funded a contract for Eagle to remove and dispose of debris for both communities. The Alaska District helped the city develop and award the contract, and monitored the work while serving as an adviser. The contractor cleaned up thousands of cubic yards of debris and disposed of it in landfills.

The Alaska District activated its Temporary Housing Planning and Response Team to define and write the scope of work for the design and site preparation of both critical public facilities.

The Alaska Division of Homeland

Photo by Curt Biberdorf

Dale Hartmann, Alaska District Temporary Housing Team manager (left), speaks with Joyce Roberts, Eagle Village administrator, about the operations of the temporary health clinic during an inspection and turnover of the clinic and public safety office Oct. 20.

Security and Emergency Management leased a prefabricated health clinic and FEMA leased a prefabricated public safety office, each installed by the vendor, while the Alaska District arranged for a contractor to provide the buildings with electricity, running water and septic service.

Until spring, the health clinic will be the only local facility for community members to receive routine medical treatment, said Merv Mullins, civil engineer in the Alaska District Emergency Management Office. Otherwise, residents must fly to Fairbanks.

Critical facilities

The Alaska District deployed its housing team July 16 to manage the critical facilities mission. The group consisted of four people—an electrical engineer, civil engineer, regulatory specialist and mission manager—but nearly 25 Corps employees were involved in some respect.

FEMA tapped the Corps for technical assistance because of its knowledge of Alaska, what to ask and who to contact, said Dale Hartmann, team mission manager.

The Corps knew to inquire about permits for the two 1,000 gallon fuel-oil tanks, find out if permafrost existed and determine whether the area is wetlands. Permits were waived because of the emergency, and the latter two conditions were not present. The team ensured a level space was available to place structures and contacted the Alaska State Troopers for guidance on the temporary public safety office in order to comply with standards for a jail.

Initially, the Corps built an elevated deck as a platform to set up a soft-sided shelter as the temporary health clinic, according to Hartmann. This deck later became an entryway for the prefabricated trailer that replaced the tent.

Bigger oil tanks were necessary to last through the winter because the road to Eagle, located at the northern end of the Taylor Highway and 160 miles from the Alaska Highway, is closed from late October to April.

Higher ground

When Westphal started working for the village in 1996, a plan was in progress to move the village of about 75 residents to higher ground located 90 feet above the river and nearly five miles inland after the village flooded in 1992.

In the wake of this spring's devastating flood, health clinic offices were immediately relocated to the community center and Eagle Village school, but there was no realistic way to have a functioning clinic for emergency health, dental and mental health counseling services within those spaces, Westphal said.

Building permanent structures must wait until spring 2010 because of the short construction season. After research and discussion, the state of Alaska contracted for a prefabricated trailer to be hauled to Eagle Village to best serve the health care needs of the community.

The clinic is operated and managed by the Tanana Chiefs Conference in partnership with Eagle Village and treats only tribal members.

For the public safety office, an unusual requirement was a holding cell, according to Shuman, but the team was able to work with a company to install one.

Photo by Tom Findtner

Project Manager Cathy Shuman of the U.S. Army Corps of Engineers-Los Angeles District briefs members of the Tanana Chiefs Conference before a tour of the newly-installed temporary facilities at Eagle Village in September 2009.

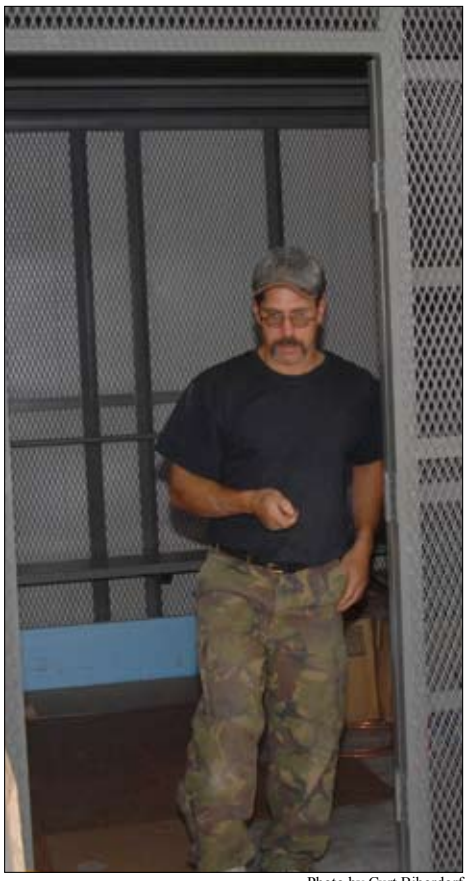


Photo by Curt Biberdorf

Tim Beaucage, Eagle Village public safety officer, inspects the holding cell in the temporary public safety office. The Corps consulted the Alaska State Troopers in order to comply with standards for a jail.

Besides the holding cell to detain prisoners, the trailer has an office, bathroom and interrogation room.

Tim Beaucage, Eagle Village public safety officer, had been working out of a makeshift office at home. He said he lost his computer and fax machine in the flood and found it distracting to write reports with his three young children in their small house.

"This has everything I'm looking for in an office," he said. "I'm just really glad to have my office back."

The flood that forced the village to relocate to higher ground may have turned out to be a blessing.

"Thank God we are where we are today because I don't know how we'd be doing," Westphal said. "It has taken so many people to make this (recovery) happen. We couldn't have done it without them."

Both trailers will be returned after their service is no longer needed, but the deck and fuel oil tanks will remain in the village for other uses.

"We're so happy to get lots of help," said Rebecca Malcolm, Eagle Village second chief. "We just have to get used to living (at the new site)."

Medical marvel

Team sets new standard with construction of health clinic

Story and photos by Curt Biberdorf

The U.S. Army Corps of Engineers-Alaska District successfully applied Military Construction Transformation in 2009 for the first time on a medical building.

The U.S. Army Corps of Engineers former deputy commanding general for Military and International Operations and former Army Surgeon General chose the $37 million Fort Richardson Health Clinic to be the pilot project for application of "transformation" principles using design-build acquisition and appropriate industry standards for medical facilities.

This transformation is the project delivery process the Army uses to provide quality, adaptable and sustainable facilities quicker and with less expense. Transformation involves standardizing processes and facilities as well as adopting private sector best practices.

The district met its commitments and exceeded customer expectations in this new way of doing business even after facing an aggressive schedule, limited budget, unexpected chemical contamination on the site and a winter construction schedule caused by delayed environmental documentation.

Along with the other project delivery team members—U.S. Army–Alaska, U.S. Army Garrison–Alaska, U.S. Army Health Facility Planning Agency, U.S. Army Medical Department Activity-Alaska and Bristol Design Build Services, LLC of Anchorage—the Alaska District stayed proactive while moving through the design process and into construction to ensure success.

"What (the project delivery team) accomplished is truly amazing," said Col. Ron Stephens, commander of the U.S. Army Medical Department Activity-Alaska, at the ribbon-cutting ceremony June 1 to officially open the clinic. "Not only did they overcome the obstacles inherent to the process, but they did it in Alaska, where, as everybody knows who lives here, there are two seasons—winter and construction."

The project's request for proposal document incorporated transformation principles while targeting a 15 percent cost reduction and 30 percent shorter project schedule, according to Terry Stone, project manager for Army construction.

Applying transformation principles to a medical facility required team members to review and reconfigure applicable unified facilities criteria specified by the Department of Defense Medical Military Construction Program.

When the medical community hesitated over whether the project should be executed under the old model or through transformation processes, the team quickly broke the deadlock and moved the project forward.

"Through our partners and stakeholders, our project delivery team was able to successfully 'plan the work' and 'work the plan' using the Military Transformation principles, resulting in a beautiful and functional facility that has set a new standard for future medical projects," Stone said.

Fish art decorates the outside main entrance to the 36,390-square-foot Fort Richardson Health Clinic. The building's location is oriented to take advantage of sunlight exposure to lower heating costs and brighten the atmosphere inside.

Expanding need

The 36,390-square-foot clinic with a staff of nearly 100 provides primary health care service to active-duty soldiers, retirees and family members. It's about twice the size of the former facility, which served the installation for almost 54 years.

Besides needing to replace an outdated building, the Army wanted more space. The number of soldiers at Fort Richardson is increasing from 2,463 to 5,223 as part of the Army Modular Force restationing, according to Stone, creating a shortage of facilities that provide active-duty medical care.

"The new clinic is an important part of the assurance that this growing population need will be met," said Maj. Gen. Patricia Horoho, commander of the Western Regional Medical Command, at the ribbon-cutting ceremony.

The new health clinic provides a state-of-the-art facility with audiology, behavioral health, laboratory, optometry, pharmacy, physical therapy, preventive medicine, primary care and radiology services. Guests now check in using an electronic management system intended to optimize efficiency during their visit.

The facility has physical examination rooms, a reception area in an open atrium, administration cubicles and medical records storage areas. Heated sidewalks around the entryway to the building extend to the handicapped parking area. As a new medical facility built under an innovative process, its modern exterior is unique to the installation.

So much is different that even the name has changed. The old facility was called the troop medical clinic.

"There's a big difference between these names," Stephens said. "A medical clinic implies disease or illness, something that needs to be fixed. A health clinic does not imply anything. It says health without boundary."

Fish art decorates the outside entrance and other Alaskan art is on

Guests view the inside of the Fort Richardson Health Clinic after a ribbon-cutting ceremony June 1. Dominant architectural design elements are exposed structural steel members, rounded walls, clerestory windows to allow maximum daylight exposure and an open floor plan with one expansive hallway.

display inside. Dominant architectural design elements are exposed structural steel members, rounded walls, clerestory windows to allow maximum daylight exposure and an open floor plan with one large hallway leading to areas designated for each medical specialty. The building's location is oriented to take advantage of sunlight exposure to lower heating costs and brighten the mood inside. Energy efficiency is also enhanced with a new, out-of-sight heating system on the roof that eliminates ductwork through the building.

Light fixtures in examination rooms feature nature scenes that give patients something more soothing to gaze at than fluorescent lighting or white ceiling tiles. Meanwhile, patients in the physical therapy room can look at the Chugach Mountains through the top portion of the windows along the wall.

"If you haven't been inside yet, it's a wonderful facility," said Col. Edward Daly, deputy commander of U.S. Army–Alaska, at the ribbon-cutting ceremony. "It looks so nice that it almost tempts you to be sick just to visit the place."

Time crunch

The priniciples of Military Construction Transformation demand an accelerated schedule for design and construction, according to Chris Dalsfoist, project manager for Army construction. The clinic was completed within 18 months of the notice-to-proceed being issued to the contractor.

Patients and staff in the Fort Richardson Health Clinic physical therapy room can peek at the mountains through the top portion of the windows along the wall.

An "alpha procurement" strategy provided the framework for immediate and positive interaction between the contractor and government entities, resulting in quick development, presentation and acceptance of a medical clinic floor plan.

An established floor plan early in the process prevented extra expenses from modifications during the design phase, Stone said. With a clear definition of the agreed-upon scope of work, Bristol Design Build Services was able to maintain the desired product quality while staying within the target cost.

Meeting the schedule required a fast-track design for civil and structural elements that allowed for essential site, foundation and exterior shell work to be completed before winter. It also enabled the contractor to continue interior work before the detailed design of interior construction and systems was finished.

Furthermore, the project delivery team stayed on schedule despite a one-month contract award delay while awaiting completion of the Army's preconstruction environmental survey that assessed whether the site was clean. Another slowdown, once construction was under way, came when some possibly chemically-contaminated areas were discovered and examined before being declared safe for workers and future building occupants.

After breaking ground in July 2007, the project reached its occupancy date in January 2009. While acquiring furniture and equipment, the clinic transitioned out of six temporary modular structures and fully moved into the new facility in April 2009.

"This entire project was a tremendous undertaking by a lot of dedicated and hardworking individuals," Horoho said.

The project delivery team finished the clinic with everything the customer wanted, within cost and on time, according to Dalsfoist. Team members continually provided quick responses in resolving issues, such as scheduling the testing of installed equipment or changing the radiation room requirements, and remained focused throughout the design and construction process.

The project delivery team's success in navigating through uncharted territory will have an impact on a grander scale. The health clinic has provided lessons-learned to the Medical Military Construction Program for projects at Fort Bliss, Texas; Fort Carson, Colo. and Fort Lewis, Wash.

Employee profile

Contract specialist leads family support

By Curt Biberdorf
Editor

Kris Stoehner understands some of the hardships encountered by the people she serves through her employment with the U.S. Army Corps Engineers.

A contract specialist at the Alaska District for the past 10 years, Stoehner works with the military contracting team to solicit bids and proposals, and prepare documents for contract awards.

"Our goal in contracting is to figure out the most efficient and effective way to use taxpayer money and still attain the goals of our customers," she said. "As a side bonus to the job, I get to see places I never would have seen otherwise."

Those places include six-month deployments as a contract specialist in New Orleans after Hurricane Katrina in 2006, and in Afghanistan in 2007.

"(New Orleans) was a real eye-opener with the immense pain that city's been through," she said. "The Corps is doing great things in Afghanistan. We're trying to bring the country into the modern world with basic infrastructure to people who have never had it."

Originally from Beaverton, Ore., Stoehner moved to Anchorage in 1975. Her parents had relocated there, and she wanted to take advantage of downhill skiing at a nearby resort. Her father wouldn't allow her to just ski, so she soon found an administrative assistant job at Merrill Field for an aviation business, where she met and married her husband, John. In 1976, they moved to Kenai and opened a fixed base operation with an air taxi, flight school, repair station and fuel service.

"Owning that business allowed me to fly all over the state and to take our only child to work and see him grow," she said. "It was great!"

They eventually both decided to leave the business to further their education and moved to Texas to attend the University of Houston. That plan was interrupted when they lost everything they owned in the damage caused by Hurricane Alicia.

The couple stayed in Texas, and after regrouping, Stoehner earned a bachelor's degree in geology from Texas A&M University, which led to Stoehner's first job with the Corps. As an engineering technician with the Galveston District, she processed surveys of the intercoastal waterways. Two years later, they returned to Alaska, where she worked for the U.S. Minerals Management Service as a physical science technician and the Department of Interior's Office of Aircraft Services. Her next career move was to the Alaska District.

"I love my job," Stoehner said. "I work with the greatest team. There's a good atmosphere, and the people here are really supportive. We're the USACE (U.S. Army Corps of Engineers) family, not just USACE employees."

At home, she and her family continue to embrace their love of the outdoors in Alaska by taking float trips as well as hiking and backpacking.

Besides being a contract specialist, 10 hours of her work week is dedicated to serving as coordinator of the district's family readiness team, which formed last year as a way to provide professional and personal assistance for employees who volunteer for duty in Iraq and Afghanistan to support Overseas Contingency Operations.

U.S. Army Corps of Engineers photo

Kris Stoehner, contract specialist and family readiness group coordinator, accepts the 2008 U.S. Army Corps of Engineers Family Readiness Outstanding Achievement Award from Chief of Engineers Lt. Gen. Robert Van Antwerp at the U.S Army Corps of Engineers Summer Leaders Conference in Orlando, Fla., Aug. 3.

On behalf of the Alaska District team, Stoehner received the 2008 USACE Family Readiness Outstanding Achievement Award from Chief of Engineers Lt. Gen. Robert Van Antwerp at the USACE Summer Leaders Conference in Orlando, Fla., Aug. 3.

"People in Alaska are family-oriented," she said. "District employees are willing to help whenever I have a request from family members staying home while their spouse is deployed."

That willingness to help others flourished during her deployment to Afghanistan when she became involved in the Women of Hope Project, a non-profit organization dedicated to helping local women and their families. Her church donated 3,000 pounds of sewing materials and school supplies to the group with postage paid by her husband's employer.

She said the Corps is an adventure and brings opportunities for travel around the world, but it is the "grand beauty" of Alaska that makes this a special place to call home.

ACTIVE IN ALASKA

Joel Spano, quality assurance representative at the Elmendorf Resident Office, hoists a halibut caught during a fishing trip to Deep Creek in the lower Cook Inlet.

Dave Case, safety specialist in the Safety and Occupational Health Office, boated a 103-pound halibut on a trip to Homer.

Becky Breeding, structural engineer in the Structures and Architecture Section, and her dog, Koda, enjoy the view after hiking to Blacktail Rocks from the Baldy Trailhead in Eagle River July 24.

Forest Brooks, planner in the Civil Works Project Formulation Section, competes in the 500-meter freestyle event during a post swim meet at Fort Richardson Oct. 22.

Ken McInally, geotechnical engineer in the Soils and Geology Section, crosses the finish line for the Humpy's Half Marathon in Anchorage.

Paddle power

Team of canoeists tackle 460-mile Yukon River Quest

By John Pennell
Contributing Writer

Courtesy photo

Team Loonies start the 2009 Yukon River Quest with 77 other racers June 24.

Ah, yes … a nice relaxing canoe trip for the weekend. Sounds fun, right?

What if that canoe trip covered nearly 500 miles, came complete with blistered hands, aching muscles, sleep deprivation and hypothermia, and the goal was to complete it in 70 hours or less? Still sound fun?

This was the challenge a group of local canoeists willingly signed up to face when they entered the 2009 Yukon River Quest (YRQ) June 24-28. Considering their upcoming undertaking, the group decided to name themselves "Team Loonies."

Team captain Melanie Harrop, project manager, and Merlin Peterson, hydraulic engineer, for the U.S. Army Corps of Engineers-Alaska District were two members of an eight-person team that paddled a 25-foot-long, 4-foot-wide, bright red fiberglass voyager canoe 460 miles across Canada's Yukon Territory from Whitehorse, down the Yukon River, across Lake Laberge and on to Dawson City.

Other team members were Karen Zelch, project manager for the U.S. Army Corps of Engineers-Walla Walla District; Melanie's father, R.C. "Bear" Harrop, of U.S. Army-Alaska's G-4 section, and Lt. Col. Mark Holmquist, commander of the 3rd Maneuver Enhancement Brigade at Fort Richardson; Dan Mitchell, school teacher; Joseph Nash, civil engineer; and Ray Knechtel, engineer.

Melanie Harrop set the team's training plan for the race. In the winter, they sat on the edge of the pool at Fort Richardson's Buckner Physical Fitness Center and paddled. And paddled. And paddled. When the weather warmed enough to allow it, they hit area streams and lakes to build their stamina and comfort level in the canoe.

In early June, as team members prepared to row around Wasilla's Lake Lucille, Melanie Harrop ticked off the challenges of the upcoming race.

"About 46 miles down the river, you come to Lake Laberge," she said. "Lake Laberge is about 30 miles long and it traditionally has strong headwinds and storms that come up the lake. If you get caught on the lake in a storm, you're stuck unless you're close enough to the edge to get off."

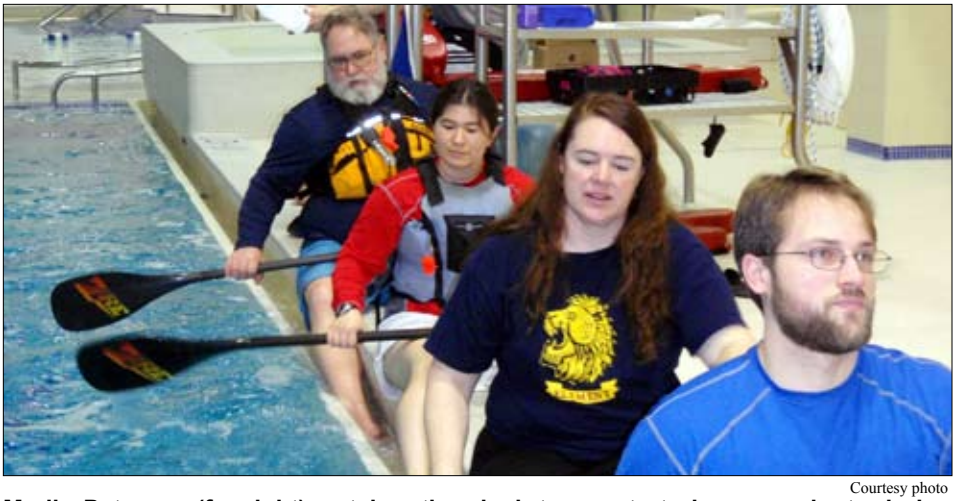
She said a strong storm caught racers off guard in 2006, with many having to withdraw from the competition before they were even halfway across the lake. This year the lake proved no match for the team's intense training program.

"Once you get across the lake, it's what we call 'smoother sailing,'" she said. "You have a current as fast as 6.7 mph without paddling, so you just work your way until you come into Carmacks, which is 206 miles into the race."

At this checkpoint in Canada, the paddlers faced a mandatory seven-hour layover. The Loonies self-appointed "pit crew," which included the Alaska District's Audrey Harrop and Anne Burman, as well as Kris Cook, Kelly Mitchell and Judith Vermilya, were waiting for them to arrive and took care of cleaning out and restocking the canoe while the team got a much-needed break.

After Carmacks, the crew hit the river again with only 26 miles between them and another major obstacle—Five Finger Rapids.

"It actually has five paths, five channels you can take down the river," Melanie Harrop said. "If you go through any of the channels to the left, you're going to basically consider yourself dead."



Courtesy photo

Merlin Peterson (far right) watches the clock to count strokes per minute during wintertime poolside training at Fort Richardson's Buckner Physical Fitness Center. Behind him are (from front to back) Karen Zelch, Melanie Harrop and R.C. Harrop.

Courtesy photo

Team Loonies warm up and dry out with a campfire after nearly sinking while passing through Five Finger Rapids.

The Loonies aimed for the far right channel.

"If you're going down this section of the rapids and you're not tired, it's considered a Class 2 or Class 3—nothing too challenging, nothing difficult," Melanie Harrop said. "But, because you're so tired, you basically take it up an extra level of difficulty. Every year there are racers who get swamped there. Every year a lot of people will scratch if they get swamped at that spot."

This year was the Loonies' year for trouble at Five Finger Rapids.

"We hit the rapids about 12 o'clock at night, and the clouds had moved in. It started to drizzle and ended up being freezing rain a little later," R.C. Harrop said. "We had practiced and rehearsed emergency action drills. We reviewed what was going to happen. We double-checked the boat to make sure everything was tied down before we hit the rapids.

"We went through the rapids and the boat handled perfectly, but because the water level was so high, even the 'safe rapids' were a whole lot bigger than what we were counting on," he said with a chuckle. "We busted through the waves and the guys did awesome, but we took on a little bit of water. Then we hit a big wave.

"The water came over the top of about four of the paddlers. It came in on the sides, and I'm thinking 'We're going to get flipped on this,'" R.C. Harrop explained. "But the guys maintained their balance. They locked in and didn't panic. We filled the boat up about a third with water—not a problem, the boat is specially-built.

"We got through that wave and everybody yelled and cheered and screamed because we thought we'd made it," he continued. "I screamed at them and said 'Guys we've got one more roller.'"

He said the next wave was a steep one. When the canoe went up the wave, all the water in the boat rushed back to the rear where R.C. Harrop sat.

After making it through the last wave the front paddlers excitedly began bailing water from the canoe back into the river.

"I had to yell and say 'Guys, forget it, we're sunk,'" R.C. Harrop said. "All the water had rushed to the back of the boat and the back of the boat went under."

However, because of the team's preparation, the boat remained upright, no one fell out and the only thing the team lost other than valuable time was three sponges.

"We had come prepared for this," he explained. "We had everything tied in and snap-linked in."

He said the Canadians had search and rescue boats on standby at the rapids and soon they towed the wet, cold Loonies to the shore where they expected the team would quit the race.

"Everybody who got caught in the rapids immediately scratched," R.C. Harrop explained. "It wasn't even in our frame of thought."

The team immediately began building a fire to warm up and dry out their equipment.

After about three hours, the boat was emptied and reloaded. The Loonies were back on the river again with another set of rapids looming.

R.C. Harrop said the team passed these rapids easily enough, made it through miles of strong headwinds, fought off hypothermia from being unable to get dry, and finally pulled into Kirkman Creek for their mandatory three-hour layover.

This gave the team time to eat, nap and change into drier clothes before the final 100-mile sprint to Dawson City.

"We were pretty much punch drunk by then. We were laughing at all kinds of stupid jokes," R.C. Harrop recalled. "We saw a bear. At least we think we saw a bear. We weren't sure, because you get to that point where you look and there's something, and the next minute you look, and it's not there. You're not really sure what you're seeing after a while because you haven't had sleep for a long time."

Exhausted and sleep deprived, the team paddled the final leg into Dawson City, arriving well under their goal of a 70-hour finish at 60 hours and 22 minutes for a very respectable 38th place finish overall, and fourth place in the open category of the Voyageur Class.

John Pennell is the command information officer at the Fort Richardson Public Affairs Office.

Courtesy photo

Back in the race, Team Loonies enjoy the sunshine after surviving the previous night's swamping.

Courtesy photo

After paddling 206 miles, the Loonies arrive at Carmacks in Canada's Yukon Territory for their seven-hour mandatory layover.

U.S. Army Corps of Engineers file photo

District flashback

Former Alaska District Commander Col. Carl Y. Farrell (May 1, 1954-May 30, 1956) helps orphans at the Valley Christian Home for Children operate a toy train. Mrs. Harold A. Richards, who with her husband supervised the facility, looks on. Farrell and district employees visited in 1956 to deliver Easter baskets. The District Engineer Orphan Fund was established in 1948 to aid the home near Palmer. Employees donated 25 cents or more each pay day to the effort. By 1958, the district had raised $26,000 to help purchase washing machines, a dryer, bunk beds and the drilling of a new water well, in addition to holiday gifts and food. The Territory of Alaska placed the youngsters in the home and provided a monthly payment for each child. All other expenses were covered by charitable donations. (Public Affairs Historical Files)

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