

Engineering IN EUROPE

Species thrive where tanks drive

The Army Corps of Engineers is administering a contract to study how the Army can promote endangered species that thrive on military training sites

The Army's new "green"

U.S. Army to build new ultra-low energy townhouse community at Urlas site in Ansbach



US Army Corps
of Engineers
Europe District
Vol. 1 Fall 2007

From the Commander



By understanding that growth comes only through change, we can succeed in 2008

Welcome to 2008! The New Year allows us to reflect on what we've accomplished this past year, evaluate our successes and shortcomings, and plan for the future.

I first want to recognize the entire Europe District team for your commitment to performance in 2007. You've once again confirmed that the District is an organization of choice for our strategic partners and I thank you for the positive attitude, spirit of cooperation, and dedication to task that each of you has exhibited this year.

Our support to the nation exceeded \$738 million in projects in 2007, including \$468 million in military construction. We've accomplished work in new places like Romania and Bulgaria, we've taken on new missions such as our support of the Missile Defense Agency's European Interceptor Site, and we've shown an unwavering devotion to our customers. Undeniably, it was a peak year for Europe District and I'm heartened to see how professional, competent, and agile each of you has remained when supporting requirements.

The New Year brings with it new goals, new milestones and new challenges in meeting the needs of our customers. Already we've seen changes that signal growth and improvement.

We are adopting a new VoIP (Voice over Internet Protocol) phone system for the District, which will be a big improvement over our current system with many new and exciting features at a reduced cost.

We are establishing a new construction management office in Poland in support of the Missile Defense Agency and in Bulgaria in support of USAREUR's Joint Task Force - East.

And we've already begun planning for significant future work in support of AFRICOM, the State of Israel, the Army and Air Force housing programs in the Central Region, and USAREUR's transition to 7th Army and its move from Heidelberg to Wiesbaden.

Change as a fact of life, indeed, is the only constant. And with upcoming revised stationing plans in Europe, a growing Army, and the District's complete employee transition to NSPS in February, we will see a lot of it this year.

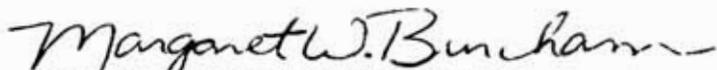
Luckily, the strength of agility is truly a key strength of our District. Our diverse workforce of architects, engineers, biologists, resource managers, and other professionals from many countries around the world has proven that it can meet the demands of changing times and requirements as a vital part of America's Army.

I've seen it first hand. And I know that the strength of our combined team we call "the Europe District" transcends the burden of change. We are a vibrant and engaged group who understands that growth comes only through change. And I believe that we've proven we can construct new rituals, adapt to new systems, and, most importantly, view disruptions as opportunity for development.

Our performance in 2007 required long hours, transformational thinking, and resolute execution. We set milestones, communicated transparently every day, and combined our strengths and resources to deliver a substantial and quality set of products and services. I know our workforce can and will maintain this attitude for success; there is literally no limit to what we can accomplish in 2008.

I'm extremely proud of our world-class workforce and I have utmost certainty that we will successfully work together to embrace change in the year ahead.

Happy New Year! Essayons!


MARGARET W. BURCHAM
COL, EN
Commanding

U.S. Army Corps of Engineers

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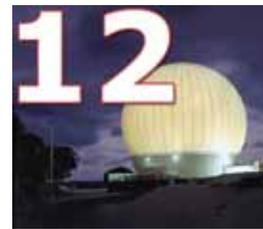


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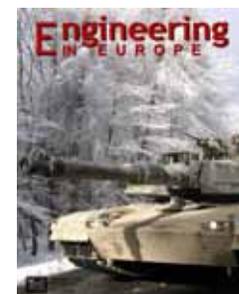
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On the Cover



Soldiers from the 1st Armored Division drive their M-1A Abrams tank through the Taunus Mountains north of Frankfurt, Germany, during Exercise Ready Crucible, Feb. 22, 2005.

Cover photo by Richard Bumgardner



Urlas Training Range today

The Army will soon have a new shade of green.

Through a partnership with the Installation Management Command-Europe Region (IMCOM-E) and the Nürnberg *bauamt* (or state construction office), the U.S. Army Corps of Engineers has voluntarily agreed to set a new benchmark for Army Family Housing projects in Europe – an entire neighborhood of ultra-low energy townhouses.

The new energy standards, known in Germany as *Passivhaus* standards, are similar to LEED (Leadership in Energy and Environment Design) or SPiRiT (Sustainable Project Rating Tool) paradigms used in the States, said Michael Hogg, the former project manager for the project. But *Passivhaus* standards are much more rigorous, he said. Much more.

“Although it’s hard to compare scales, the goal is that our Passiv-houses will use about ¼ of the energy demanded by typical facilities constructed in Germany,” said Hogg. “And these rating system levels already surpass traditional American standards. ... So this is really above and beyond anything we’ve done before.”

The new neighborhood, to be located in Urlas, an Army community in Ansbach, Germany, started with a discussion between the U.S. Army Corps of Engineers, IMCOM-E, and the Ansbach Directorate of Public Works (DPW).

“The main impulse came from the project manager from IMCOM-E, who,

Urlas's ULTRA create new ben



A-low energy townhouses benchmarks for Army housing

*Story and photos by Justin Ward
Renderings by AB Bayer*



A multi-unit rendering of the upcoming townhouse neighborhood in Urlas - a U.S. military training area near Ansbach, Germany - shows an artist's depiction of what the ultra-low energy community could look like when completed in 2010. The townhouses, currently in design, are proposed to meet what's called the "Passivhaus" standard for energy use and will be the U.S. Army's most modern and energy efficient housing units in Europe.

along with the Ansbach garrison, was interested in building a showcase for the world to see,” said Wolfgang Hagenau, an Ansbach DPW environmental contractor. “These houses will be like a business card the garrison and IMCOM can give to everyone, showing that the garrison is developing in a sustainable way.”

Hagenau added that IMCOM-E’s Joe Baltar and the Ansbach DPW have both championed the project well and have are certain that the Passiv-houses will greatly advance the reputation of the U.S. Army to even the most environmentally aware German citizens.

Urlas’s planned community

**Passivhaus
community
of 22 units**



Rendering by Resch + Stiefler + Partner

How it works

Still in the design process, these *Passivhaus* townhouses will incorporate a “whole building” perspective, which entails not only responsible stewardship of natural resources, but also responsible stewardship of financial resources through lower operating costs and improved facility life-cycle management, said Karla Krieger, project manager.

They’re called Passiv (or passive, in English) because the interior climate is intended to be maintained without active heating and cooling systems. Thus, the house heats and cools itself.

The way it does this, said Krieger, is very complex, involving a precise interior airflow design using computational fluid dynamics, multizonal airflow models, and an innovative heat exchange system.

Because of the ventilation system, insulation, and degree of air tightness, not only is it a very quiet house, said Krieger, but there’s also a consistent temperature throughout the house in summer or winter, with only

a one- or two-degree temperature difference between the center of the room and the area by the window.

“The way in which it recovers heat during the winter is probably the most interesting part of a *Passivhaus*,” said Krieger. “Especially here in Central Europe, where the winters are often very cold.”

Like many low-energy houses, *Passivhaus* standards include the employment of specialized thermal insulation, triple-paned and insulated glazed window technology, and carefully sealed air barriers, all of which serve to retain existing and incoming solar heat.

However, fundamental to the *Passivhaus* is the innovative heat exchange system, which controls building temperature using only the normal volume of ventilation air. It does this by heating ventilation air from the hot water tank and then recovering about 92 percent of “waste” heat from the exhaust air.

It even recycles “waste” heat from major appliances, lighting fixtures, and body heat from people or



The north (top) and south (bottom) views of the Passivhaus neighborhood, to be located on Ansbach’s Urlas training range, shows potentially colorful buildings that would blend in with the rest of the community. The ultra-low energy houses are still in the design stage, with construction slated to begin in 2009.

animals inside the building.

Additionally, plans are in the works to supplement the current energy demand from these houses with renewable energy sources such as thermal solar panels.

“To be honest, only mechanical engineers will probably understand how the system works,” said Krieger. “But what’s important is that it works and ... that it’s easy to operate for those living in the townhouses.”

In fact, according to the *Passivhaus* Institute’s Web site, living in a *Passivhaus* does not require an advanced degree.

“*Passivhaus* technology is so simple, there’s no need to hire someone to perform annual air filter changes,” the site explains. “The ventilation system has fewer controls than a normal television.”

The finished product

Living in these new townhouses will be junior and senior noncommissioned officers and field-grade officers from the 12th Combat Aviation Brigade, U.S. Army Europe’s first modular aviation unit, merging Soldiers from five units around Germany. These Soldiers will move in to their new homes – anticipated to be run by low-energy appliances – in 2010, Krieger said, when Phase I is scheduled to be completed.

In total, Phase I includes 138 dwelling units, 22 of which are scheduled as *Passiv*-houses. The remaining 116 units in Phase I will adhere to what’s known as the EnEV standard, the current German energy-saving standard, which still bests the typical American standard.

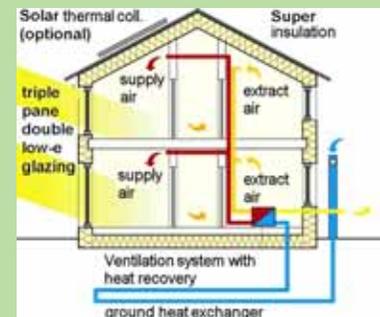
Phases II and III, which combined call for another 392 dwelling units, might also include *Passivhaus* neighborhoods, Krieger said. But that decision has yet to be made.

Another first for the Urlas community, said Dorothy Richards, Army housing program manager, is that those 12th CAB Soldiers will also be living in the Army’s first townhouses to be constructed in Europe.

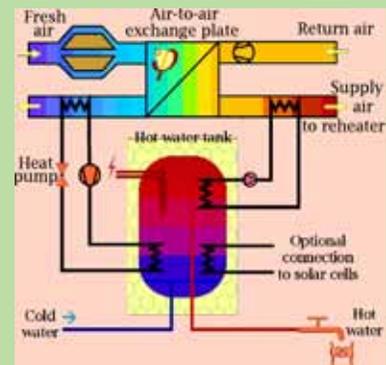
“Just the fact that these new dwelling units are townhouses is important for the Army, not to mention that many of them will be designed with environmentally responsible practices,” said Richards. “Generally speaking, I think the townhouse is a better option for the warfighter and their family members because it gives them the higher quality of life that they deserve – one that fits the sacrifice they’re making for this country. ... And I hope we can continue to design and build to the townhouse standard.”

PASSIVHAUS AT A GLANCE:

Graphics by
Passivhaus Institut



The *Passivhaus* uses a combination of low-energy building techniques and technologies.



The ability to control building temperature using only the normal volume of ventilation is fundamental.



Currently built up with bunkers, training facilities, and electrical substations to support U.S. military missions at Ansbach, the green fields of the Urlas training range will soon be home to 22 of the U.S. Army’s most modern and energy efficient housing units, called *Passiv*-houses.

SUPPORTING THE ENVIRONMENT



Photo by Martin Sandera
Bufo calamita (Natterjack toad)



Photo by Nathalie Strippe
Gentiana ciliata (Fringed gentian)



Photo by P. Dubois
Oedipoda caerulescens
(Blue-winged grasshopper)



Photo by Linda Lee
Aira caryophylla
(Silver hairgrass)



Photo by Anders Ohlsson
Cicindela hybrida
(Brown sand-beetle)



Photo by John Crellin
Teesdalia nudicaulis
(Shepherd's Cress)

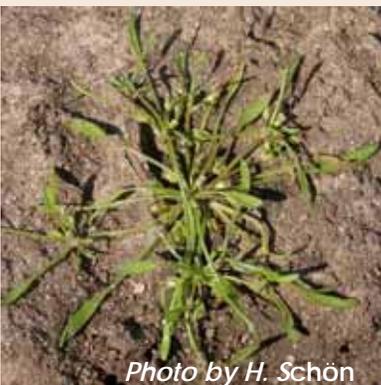


Photo by H. Schön
Limosella aquatica (Mudwort)



Photo by Klaus Bogon
Bombina variegata
(Yellow-bellied toad)



Photo by Michael Linnenbach
Corynephorus canescens
(Silvergrass)

species thrive where tanks drive

Military training areas are well known for their crisscrossing tank trails, disheveled heaps of ruptured earth, and a grab bag assortment of bogs, pits, puddles, and mounds. But in spite of the apparent damage, these areas have been found to provide sanctuary to a diverse and sometimes threatened host of plant and animal species. And now the U.S. Army Corps of Engineers, Europe District, is helping to study why they exist and what can be done to promote these and other vulnerable ecosystems.

Story by Justin Ward

Nature likes order. Sometimes. We know down to the minute when the sun will rise and set each day. We know when asparagus is in season and we know why apples don't fall up.

But nature also likes disorder. New life that appears after natural disasters like forest fires and landslides suggest a more irregular natural law – one that isn't as uniformly tidy as we humans like, with our neat rows of corn and our well manicured golf courses and back yards.

The U.S. Army Europe (USAREUR) discovered that most evidently in places that are used to occasional distress, said Mark Mann, U.S. Army Corps of Engineers, Europe District, environmental project manager. Places like Hohenfels and Grafenwöhr – two of the U.S. Army's Major Training Areas

(MTAs) in Europe – have become vital breeding grounds for diverse biological species that, without the continued disruptions caused by roaring tanks and exploding artillery rounds, would be homeless.

"It seems counterintuitive," said Mann, who is administering an Installation Management Command, Europe Region (IMCOM-Europe) contract to study the relationship between measuring biodiversity on these training lands through visual cues and through satellite imagery. "But certain species actually flourish in areas that are disturbed."

The hypothesis behind the estimated three-year study, said principal researcher Dr. Steven Warren from Colorado State University, stems from a realization that biodiversity is

decreasing because of the human desire to suppress natural disturbances like forest fires, floods, insect outbreaks, and migrating herds.

"Our world is becoming more and more uniform," said Warren. But on these MTAs, where non-uniform disturbances in size, shape, duration, frequency, and severity occur sporadically, biodiversity is among the highest densities in Europe.

"Different species, including some threatened and endangered species, prefer different conditions," said Warren. Some prefer severely disturbed conditions, while others prefer pristine conditions. And because MTAs tend to have a variety of conditions along this spectrum, these lands "appear to provide ideal habitat for a much wider range of species than lands



U.S. Army photo

Despite the apparent destruction caused by military training activities, military training areas around the world are recognized for their biodiversity and for providing refuge for threatened and endangered species.

managed more uniformly.”

In fact, some species are called “disturbance-dependent” – a term used to describe plants and animals that can only thrive in temporary ecosystems free of competing species and predators, such as puddles and ditches created by tanks – because they thrive best in disturbed areas.

Eliminate that disturbance, and you may eliminate those species.

This study should be a major advance in curbing the unwarranted criticisms of those who accuse the Army of being a poor steward of the land, Mann said. “There are people ... who say ‘get these old mean ugly Army tanks out of our area. They’re bad, they’re bad, they’re bad. Let the land be natural and everything will be back on balance.’ Well, it’s been theorized that, in some areas ... a little disturbance now and then will allow for variation of habitat.”

USAREUR’s push to maintain native species’ habitats on training facilities comes as a result of the U.S. Department of Defense’s recognition that healthy, diverse ecosystems provide more realistic, sustainable training resources.

“In essence, [USAREUR] is leading the way in understanding the impacts of training on the environment,” said Warren.

The motivation also comes amid growing emphasis of the European Union’s Natura 2000

legislation, which seeks to protect the habitats of threatened and endangered species across Europe and has classified 77 percent of all U.S. Army training lands in Europe as “special areas of conservation.”

“The Natura 2000 legislation assists us by identifying and giving legal status to red list

species,” which exist on the MTAs, said Warren. “If the data show an enhancement in the abundance of some of [these species], it will draw more attention to the effort and to the fact that the Army has unwittingly become one of the best stewards of the land to be found anywhere.”

Two threatened and endangered disturbance-

dependent species thriving on the Hohenfels and Grafenwöhr MTAs are the natterjack toad and the yellow-bellied toad, both on the World Conservation Union’s “Red List of Threatened Species.”

These species find refuge here not only because of their love for disturbed environments (see Figures 1, 2), but also because their historic natural habitat along rivers where seasonal flooding scoured the flood plains have all but disappeared due to modern flood control and irrigation practices.

Other species, while not endangered or threatened throughout the world, are threatened in these areas because of the risk of vanishing habitats. Studies conducted at former U.S. Army training

“In essence, [USAREUR] is leading the way in understanding the impacts of training on the environment.”

-Dr. Steve Warren, director and senior research scientist for Colorado State University’s Center for Environmental Management of Military Lands

areas throughout Germany where tanks once roamed show dramatic shifts in biodiversity due to the loss of heterogeneous disturbance. Recently, the German government undertook initiatives at these abandoned Army sites – many now called Nature Protection Areas – to help the disturbance-dependent species by ripping the soil to produce similar markings caused by tank traffic.

Although these activities temporarily promoted biodiversity, Warren advises against establishing any sort of fixed training schedule at U.S. Army MTAs, despite the waning intensity and frequency of land-based training present in a post-Cold War world. “The disturbance should vary in space and time in order to maximize biodiversity,” he said. “This may have serious repercussions for species dependent on frequent large-scale disturbance from force-on-force maneuvers. However, the military should not be in the business of scheduling the nature, frequency or intensity of its training to favor

specific species.”

The contract Mann is administering plans to compare field data from 2008 with existing satellite imagery from 2006 and 2007 to study the training areas in three phases. The studies will measure the current rate of change in the structure of the ecosystem – a concept in ecology called succession – to determine if, where, and how quickly the sites are transforming from uncultivated meadows to scrubland to forest.

The intended outcome of this “whole landscape” comparison, Warren said, would be to determine if satellite imagery alone could be used to compare the biodiversity of training areas with surrounding areas around the world.

“The science we are conducting in Germany will eventually pay dividends in the [continental United States military community] as well as build recognition that training impacts can have very positive effects on the ecosystem,” Warren said. This is an exciting opportunity to take the research to the next level.”

These simple charts show that the amount of disturbance in a particular area can greatly affect the representation of disturbance-dependent species. Each chart shows a strong correspondence between the amount of surface disturbance in a particular plot of land and the number of disturbance-dependent species present. When possible, the study used similarly positioned and vegetated plots as well as measured each area of disturbance in equal amounts.

Study by Dr. Steven Warren, director and senior researcher for Colorado State University's Center for Environmental Management of Military Lands and Dipl.-Biol. Reiner Büttner, Institut für Vegetationskunde und Landschaftsökologie, April 2006

Figure 1

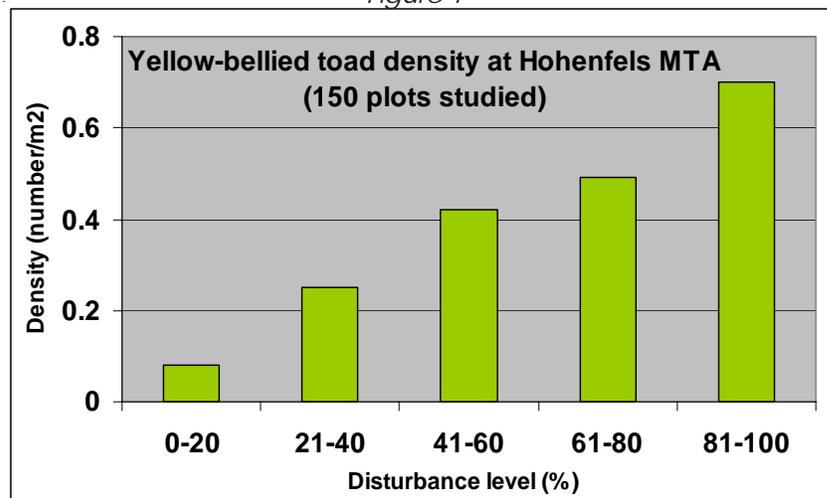
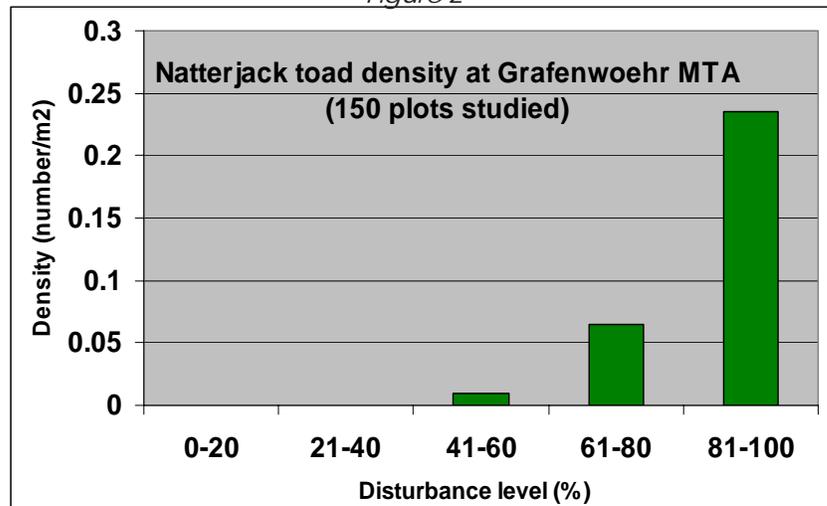


Figure 2





AMEC, an engineering and construction firm, starts soil and groundwater borings near Trokavec, Czech Republic, in preparation for a U.S. missile defense radar to potentially be placed here by 2011. The U.S. Army Corps of Engineers, Europe District, is executing the geotechnical and environmental work on site.

P I O N E E R I N G

In response to the growing threat of ballistic missiles around the world, the United States is fielding a limited and defensive capability to protect Europe from a long-range missile attack from the Middle East. The U.S. Army Corps of Engineers, Europe District, has been commissioned to assist in this effort and has already made significant progress in pioneering the future in a safe, expeditious, and environmentally friendly way.

*Story by
Justin Ward*

MISSILE DEFENSE

Ben Gompers and Sharon Lehn are part of a small group of U.S. Army Corps of Engineers employees to receive Poland and the Czech Republic stamps in their official passports. But that group will soon grow.

In the near future, pending host nation agreements, it's anticipated that the Corps' Europe District will send upwards of 30 project engineers and construction representatives to Poland and the Czech Republic, deployed to manage the construction of the largest missile defense site outside of the United States.

In a partnership with the U.S. Missile Defense Agency, the District will set up two separate resident offices – one near Gdansk, Poland, that will accommodate up to ten silo-based long-range missile defense interceptors; and one near Trokavec, Czech Republic, which will relocate and upgrade a midcourse tracking and discrimination radar from the Kwajalein Atoll in the Marshall Islands.

Although no agreements have yet been signed and negotiations are still underway, the District may also be asked to design and manage the construction of community support facilities such as barracks, dining facilities, and physical fitness centers, as well as upgrade basic infrastructure, including roads, electricity, and water and storm pipes.

But before all that work occurs, Gompers and Lehn have some work to do.

"I'm excited," said Gompers, geotechnical technical lead. "It's kind of fun for me because I know my decision makes a difference in this program."

Gompers started on the program in 2006, focusing on

preparing geotechnical studies that would be the first step in determining how and where to place buildings and infrastructure on the sites, or if pre-existing structures could be used.

"We did about 63 geotechnical borings in [the] Czech [Republic] to identify foundation design, road design, pavements, and utility based on construct-ability excavate-



The DoD's Missile Defense Agency has tasked the Corps' Europe District to oversee the construction of a U.S. ballistic missile defense system in Europe, which plans to have sites in Poland and the Czech Republic.

ability," said Gompers. "And we're now proceeding into Poland."

When the final reports from this data are generated, they will be analyzed to determine the most feasible footprints for these sites.

The biggest concern, Gompers said, will be in Poland, where the water table may be higher than what is needed to house the interceptors completely below ground. If that is the case, Gompers said, the team will need to perform dewatering activity, which has a reputation for being particularly difficult and costly.

"That's just one of many issues we're going to be dealing with there," Gompers said. "There are, in fact, a lot of other unknowns about these sites that can only be addressed with completion of an extensive geotechnical program."

Lehn, the environmental and unexploded ordinance project manager, has taken on one of the other unknowns – determining the environmental history of these

previously used military sites, which have changed hands from German to Russian to host nation in the span of 60 years.

This task, which involves drilling and analyzing for solvents, petroleum products, and potentially explosive substances likely to have come from military training or World War II bombing runs through

these regions, determines any existing pollutants, said Lehn, which is necessary for site characterization.

These site characterizations will be analyzed by both the Corps of Engineers and the U.S. Army Center for Health Promotion and Preventative Medicine, Lehn said, to add certainty to the findings.

The actual field work is similar to what's done anywhere,

Lehn said. "It involves helping [the contractors] prepare a scope and then overseeing the drilling and sampling in the soil and in the first groundwater zones to determine if the locations are acceptable for their intended activities."

"It's an eye-opener to see how complicated things are," said Gompers. "There are always things we can't anticipate."

But despite the political, historical, and cultural difficulties, Gompers and Lehn agree that breaking ground in Germany's neighbors to the east has been worth the effort.

"The location can be remote with no infrastructure or can be a former active facility," said Lehn. "You never know what to expect; but it's always been interesting and educational ... New languages. New people. New perspective of being an American working in another country. It's been rewarding."

Interview with:

Maj. Jon Hadley, project manager, environmental team

BIOGRAPHY: Maj. Jonathan Hadley, P.E., graduated from the U.S. Military Academy in 1997 with a degree in civil engineering. His experience with environmental engineering was at his first duty station at the National Training Center in Fort Irwin, Calif., where he worked on environmental compliance projects. He has since served in Honduras; Fort Hood, Texas; and Grand Junction, Colo. He joined the U.S. Army Corps of Engineers Reserve Unit in March 2007 and was brought onto active duty through the PFI (Partnership for Fiscal Integrity) program to work in the Environmental Section of Europe District.



Environmental Baseline Study: JOINT TASK FORCE - EAST

Spurred by their accession into the European Union only a year ago, Romania and Bulgaria have been billing their countries as hotspots for entrepreneurial ventures and intrepid travelers.

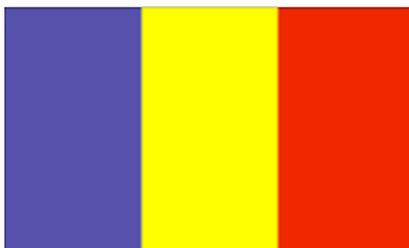
Ever the adventurous assembly, the U.S. military has been ahead of the crowd, busily investing in setting up forward operating camps in those countries, with the intent to provide basic life support to brigade-sized rotational units coming in from Germany and Italy.

As part of the Joint Task Force-East (JTF-E) initiative, those units will then train with military units of fellow NATO members – including Romania and Bulgaria – to build interoperability and military relationships with our partners in the War on Terror and test command and control capabilities required for future brigade-level deployments to JTF-E.

The military's first step in both Romania and Bulgaria, however, is conducting Environmental Baseline Surveys (EBSs), which document the past and present environmental impacts of all activities in the areas as well as the anticipated impacts of all proposed projects.

Maj. Jonathan Hadley, the District's project manager in charge of coordinating the EBSs in both Romania and Bulgaria, shares his thoughts on the progress of those surveys.

Hadley was interviewed by *Engineering in Europe* editor, Justin Ward.



Romania



Bulgaria

How did you get involved in the Environmental Baseline Study (EBS) projects in support of Joint Task Force - East (JTF-E)?

I am the third project manager in the environmental section to work on JTF-E. It gets passed along as project managers move in and out. I plan on being here for three years, so hopefully there will be no turnover for a while.

I had no previous experience in Eastern Europe, and as for EBSs, my experience has been in clean up and remediation after the EBS has been written. Fortunately the contractors wrote very concise reports explaining conditions of the soil, water, buildings, air quality, and surrounding ecological issues.

This made it easy for the decision makers at USAREUR (U.S. Army Europe) to understand the EBS and to make their decisions.

What were your expectations?

Actually I thought this was going to be a simple project: do the testing, get the results, and send the results to the customer.

Instead, there have been lots of discussions and meetings about the results and what should be done to clean up the site. So the work has progressed from my expectation of being boring to being interesting.

What are your primary roles as project manager for the EBS projects in support of JTF-East?

My primary role with the EBS

projects in JTF-E is managing a contract. I work with the client to determine their needs, then I determine which of my contractors can best handle the project, and then I work with that contractor to complete the project and meet the needs of the client.

In JTF-E the work wasn't simply "build a structure," but rather test for pollutants, then analyze the data, and then present the issues. The testing and analyzing was the easy part, because it's clearly definable; presenting the issues is the problem. This is where my secondary role as a technical expert comes into play. I took the data and explained it in such a

way so that non-engineers could understand the engineering terms and processes.

What have been the chief accomplishments so far in terms of the EBSs in Romania and Bulgaria?

The chief accomplishments of the EBS have been pointing out environmentally pristine areas on the bases that the U.S. Army is looking at. These pristine areas have been marked on drawings so that

they are disturbed as little as possible during construction so that a nature sanctuary remains.

In Romania there are 10 acres of natural prairie land that isn't found anywhere else in the area because of the farming and urbanization.

In Bulgaria there is about 50

acres of woods that is biologically diverse, which is in contrast to all the land around it which is farmland.

Protecting these areas shows good stewardship of the land and should show that, environmentally, the U.S.

government is not invading these countries to make a mess.



Specifically, what did the reports say about the conditions of the soil, water, buildings, air quality, and ecological issues?

Romania adopted the Dutch environmental laws and guidelines, and these laws are some of the strictest in the world.

The level of contaminants that were found would not be an issue in the United States, but here they are overly cautious.

Two of three contaminated soil sites will be cleaned up, but the third will be left in place because it is an old heating plant and is being abandoned on site so the Romanian government can deal with it at their leisure.

All buildings with contaminants except the old heating plant are being demolished. New buildings with modern conveniences are being built in their place. The water will have to be treated before consumption; this is being done by the local municipality already and is standard practice in the area.

As for the air, it is pretty clean, occasionally there will be herbicides or pesticides in the air from local farms, but there is no real air pollution.

Having said all this, the Romanian government has been informed of the pollution that has been found, and at this time we are waiting for their response. The Corps of Engineers already has

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-Maj. Jonathan Hadley, project manager, environmental office

plans for disposing of the contaminants, so there should be no hold up on construction.

I hear we had to conduct another EBS in Romania. What was the concern? Is this abnormal?

The initial site in Romania was not owned by the Romanian government, but we conducted an initial study at Chubra before finding out that we couldn't use it. With the remaining money on the initial contract at Chubra, the effort was shifted to the 34th Cazarma.

Of course there was not enough initial sampling, so we went back a second time.

We will be going back a third time to do a pre-construction site survey and to characterize two small areas that have contaminates.

Why have there been multiple iterations?

Doing these negotiations is really interesting, though, because every other time we have gone into a country and set up a base, it was as part of

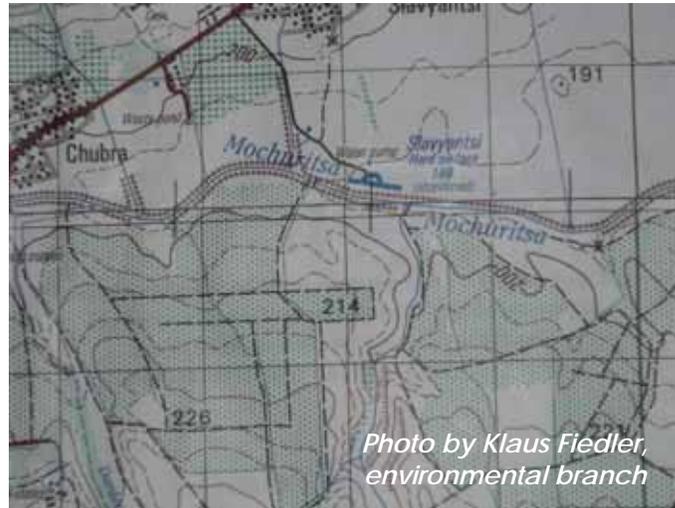
active military operations or the end of military operations. For example, Germany, Japan, and numerous other countries after WWII; Camp Bondsteel in Kosovo; Kuwait and Saudi Arabia after the gulf war; Afghanistan and Iraq for the global war on terrorism; South Korea after the Korean war.

This will be one of the first times that we have been invited into a country and have to set up all the legal framework and all the other protocols first. Therefore we have to follow the highest standard for environmental compliance, whether it's U.S., EU or host nation.

Part of these standards is to do an EBS, but the standard doesn't say

what all must be tested - for example, the number of soil, air, or water samples, the number of wells to be drilled, etc. - just what the study must look for.

Therefore, we do an environmental review first to get a general idea of the environment in the area. Then the EBS goes further and states



A close up look at a topographic map of the area near Chubra, Bulgaria, upper left, shows the general site area undergoing environmental tests in support of U.S. Army Europe's Joint Task Force - East.



Environmental tests conducted at and around this barren field near Chubra, Bulgaria, will determine the viability of erecting austere training facilities in support of U.S. Army Europe's Joint Task Force - East. The desired end result of the JTF-East program is to build interoperability and enhance military relationships with NATO members Romania and Bulgaria.

what contaminants are present and what impacts on the environment different construction will have and suggests how to mitigate the impacts.

The EBS for this size site isn't detailed enough to be used as the pre-construction site survey, therefore we do multiple iterations narrowing the scope of work to where construction will be conducted and where contaminants are found at.

People must understand that at a normal construction site you have one building going up and a few tests covers that building, in Romania, they are building more than 50 buildings. All the tests could be done at once at the beginning, but that would be expensive, where as we are doing three iterations of testing and will be able to do what is need for a much lower price.

What have been the challenges in Bulgaria so far?

The challenges in Bulgaria have been everyone's concern over the use of live chemical agents on this site five years ago.

Testing has been done for chemical weapons residue and no residue is present. But the bigger hazard would come from the aerosol spraying of pesticides, herbicides, and fungicides on the nearby fields.

How long do you think the EBS process in Bulgaria will go on?

There should be the initial EBS and then a pre-construction site survey in Bulgaria. Right now I don't foresee any challenges, but tests results may come back with unexpected data.

How confident are you that rotating troops to Romania or Bulgaria will have an environmentally safe home for the duration of their stay?

I am very confident that at the end of the construction process, Soldiers will have an

“People must understand that at a normal construction site you have one building going up and a few tests covers that building. In Romania, they are building more than 50 buildings. All the tests could be done at once at the beginning, but that would be expensive ... we are doing three iterations of testing and will be able to do what is need for a much lower price.”

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environmentally safe place to live in Romania and Bulgaria.

The Corps of Engineers builds to the highest standard, whether adhering to host nation or U.S. laws. Therefore these locations will be as safe as being in the U.S. Or even safer.

This is a USAREUR project that you are executing. From your perspective, how do you view the partnership?

Yes, USAREUR's DCSENG (Deputy Chief of Staff for Engineering) controls the money for the projects for their

commander. They have been fair and easy to work with.

However, because everybody want to see demolition and construction, it's sometimes hard to bear test results that require further testing.

But this is the way the process should work.

The EBS process is an iterative process where problems are identified, defined, and characterized so that the commander can decide to use the property or not and also

tell the construction personnel where to conduct cleanup operations. Part of explaining the process involves keeping our District commander informed so that she can clearly articulate the facts and solutions to the USAREUR commander.



Photo by Klaus Fiedler, environmental branch

Clues such as this discarded fungicide packaging, shed light on the to the environmental history of the fields near Chubra, Bulgaria, currently being considered as potential U.S. and NATO training grounds in support of U.S. Army Europe's Joint Task Force - East initiative.

ESPC • Raising standards, lowering costs

Energy Savings Performance Contracts allow for risk-free cost and energy savings, low up-front costs, and easy implementation at any military installation in Europe. Do you know enough about them?

*Story and graphics
by Justin Ward*

Here's the challenge. The Energy Policy Act of 2005 requires all federal facilities – including all military bases in Europe – to cut energy consumption 20 percent from 2003 usage by 2015.

Here's the problem. Energy prices are increasing. In fact, so are the energy consumption levels of federal facilities, making energy one of the largest (and growing) operational expenses, especially considering that budgets at most facilities haven't kept pace

with rising costs. To make matters worse, these increasing financial constraints often cause facilities to cut back on new infrastructure – such as heating and ventilation systems – which usually means decreased efficiency and increased energy expenses.

But through a tool called the Energy Savings Performance Contracts (ESPCs) – offered through the U.S. Army Corps of Engineers – federal facilities can save energy and money at the same time.

“It's called a performance contract,” said James ‘Dusty’ Stehr, the U.S. Army Corps of Engineers ESPC manager for Europe District. “It's much different that the other contracts we do; but it's a really great tool.”

Here's how it works. Federal facilities in Europe can sign an agreement with one of three chosen Energy Services Companies (ESCOs) that will swap energy-efficient infrastructure for an agreed-upon monthly amount of guaranteed cost savings. Any additional cost savings resulting from the new infrastructure can be added to the installation's bankroll, free of charge.

“It's a really smart way to do business,” said Hunter Dandridge, the District's previous contract manager. “It's like a mortgage. But you pay it off with your savings.”

Other than a small supervision and administrative cost, all initial costs for the new infrastructure are funded by the ESCO. This could include upgrading the existing heating, ventilation, electricity, or water systems, using renewable energy technology, installing better insulated windows and doors, or a combination.



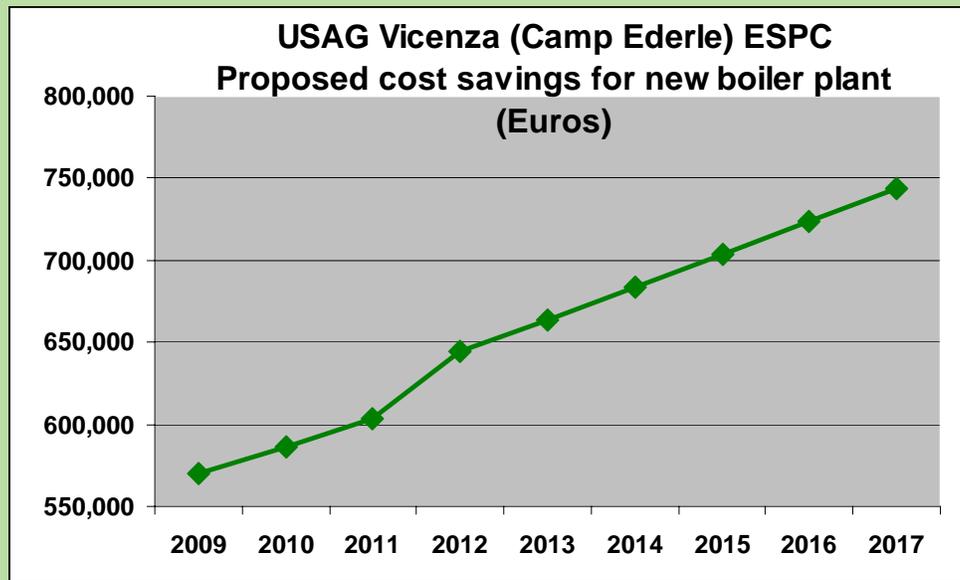
“Sometimes an automatic thermostat could mean big savings,” said Stehr. “Or sometimes you have to gut the whole thing. It just depends on the age of the building, what’s currently there, and how efficient it is.”

The ESPC program, managed in Europe by Installation Management Command-Europe (IMCOM-E), has been helping federal facilities finance prohibitively expensive large-scale energy savings projects for over 10 years. According to David Yacoub, IMCOM-E’s ESPC manager, the program’s strength lies in its ability to use private investment for public gain.

“The president has encouraged federal agencies to use the program extensively to achieve mandated energy and water reduction goals,” said Yacoub. “Garrisons decide what they want to implement, provided that the measure generates savings. The only criteria to qualify for an ESPC project is that the project generate savings to amortize within the life expectancy of the system.”

Most contracts, said Stehr, last five years with optional three-year and then two-year extensions. “We’re actually developing a new contract now that will allow for more competitive bidding. So it’ll be a little different in the future.”

Expectations for the program, implemented through the U.S. Environmental Protection Agency, are that each facility undergoing a comprehensive upgrade financed through an



According to a February 2007-dated ESPC proposal, Siemens AG identified energy and demand reduction opportunities at U.S. Army Garrison-Vicenza’s Camp Ederle that would improve functionality, reduce maintenance, increase infrastructure power capability, and save almost 6 million euros over nine years, before annual maintenance and repair costs.

ESPC achieves a greater than 50 percent reduction from current energy consumption levels.

Maintenance on the new infrastructure is normally conducted by the ESCO, Yacoub said, but could instead be done by each facility’s Directorate of Public Works to cut costs even further.

Currently, the largest executed contract is at the U.S. Army Garrison-Vicenza, where ESCO Siemens AG is installing a new boiler plant, which includes a cogeneration unit that will simultaneously produce heat and power by using the escaping “waste heat” from electricity production to produce steam that could help heat the installation.

“The ESPC is absolutely a win-win,” said Stehr. “In fact, every organization involved wins.”

Yacoub agreed, adding that Europe District’s project managers, contracting officers, and legal team have been a “tremendous help in making the program run easy and smooth.”



“It’s a really smart way to do business. ... It’s like a mortgage. But you pay it off with your savings.”

-Hunter Dandridge, former Europe District ESPC manager,



A new home for training

A squad of Bulgarian and Romanian troops, and Soldiers from U.S. Army, Europe, assault a suspected guerilla hideout during Exercise Immediate Response 06 in Novo Selo, Bulgaria. The U.S. Army Corps of Engineers is currently planning the construction of a permanent training site nearby in support of Joint Task Force-East.