RIP RAP

U.S. Army Corps of Engineers
Albuquerque District

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District Engineer,
Lt. Col. Jason Williams

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Deployments Pay Dividends at Home and Abroad

Overseas Contingency Operations give Corps personnel unique experiences

Whenever failure has not been an option, the nation has historically turned to the Army Corps of Engineers: from Bunker Hill to the Panama Canal to Normandy and today, the Middle East.

The Corps has, in turn, looked to the Albuquerque District for solutions, or to be a part of a very special and unique team that will chart a path for the future of America and the world. Today, that place is Afghanistan and, still to some degree, Iraq.

Your Corps team wants you to seriously consider becoming a part of the greatest mission the Corps of Engineers has been honored to undertake and the highest priority in our Corps today. Albuquerque has set a high mark for other commands to follow in participation, professionalism and performance in Overseas Contingency Operations, or OCO.

It is a common pattern among the many with whom I have shared experiences being deployed to hear comments like *"it was a real honor"* and *"it was an experience of a lifetime."*

Having been in their boots, I consider them to be the greatest generation the Corps has known. History will also recall their service.

Joining the OCO team will serve you well by enhancing your professional skills and future, helping us build a more capable, engineer-strong bench and forging an unforgettable American legacy.

It is a big decision to decide to volunteer for an OCO tour, but your Albuquerque team, including those who have already been, along with the Albuquerque Family Readiness Network and OCO support team, are ready to make it the most meaningful, fruitful experience in your professional career.

Lt. Col. Jason Williams, Commander and District Engineer

There is a place in this mission for everyone, though it may not be overseas. Those who take on the extra load for those serving abroad are inseparably critical to our success.

Serving abroad is a big decision. Discuss it with your family and your supervisor. Consensus on those fronts will pay a big role in your success as an OCO volunteer. To date, we've filled 97 task orders in support of OCO; this includes several employees who have deployed more than once.

We have paid dearly for the OCO successes we enjoy today. Success requires a committed military and civilian Army component all the way to mission's end. Our Army is answering the call in huge volunteer numbers. Our Corps must continue to do the same.

Today, for many, our mission overseas looks like just another overseas job; however, future generations will see this as the Corps' finest hour. And your country, your family and your team will see it as yours.

The RIP RAP supports our Operations Plan: Action 10 (Promote the Common Regional Picture and Strategic Communications)

This activity supports our Operations Plan: Action 7 (Execute the regional Military Program and capitalize on Interagency and International Services opportunities).

Corps Begins New Aviation Services Facility

Attending the ground breaking from the Albuquerque District was (left to right): Maj. Richard Collins, Brad Green, Connie Runyan, Kent Heyne, Lou Askew, Filemon Gallegos, Monique Chisholm and Kerry Horner. Kerry Horner will be the project manager and will work from a portable office on-site. The project is expected to be complete in December 2011.

The U.S. Army Corps of Engineers joined New Mexico National Guard Adjutant General Maj. Gen. Kenny C. Montoya and state and local officials at a ground breaking ceremony for a new Army aviation facility at the Santa Fe Airport August 10, 2010.

The planned 75,000 square foot facility will include a new flight operations center and will expand the Guard's current maintenance hangar.

The approximately $35 million federally-funded project will also include an aircraft indoor storage building, parking for military vehicles and an enlarged aircraft parking ramp and taxiway.

The New Mexico National Guard Medical Evacuation unit, which is responsible for providing the State of New Mexico with high altitude search and rescue, firefighting and general aviation support capabilities, will be housed at the new facility.

"The New Mexico National Guard is an important customer with a perilous mission, and it is a pleasure to provide them with new infrastructure that will make it easier for them to do their work," said U.S. Army Corps of Engineers Deputy Commander Maj. Richard Collins.

The new Army Aviation Support Facility will incorporate the latest technologies to enable it to be Leadership in Energy and Environmental Design (LEED) certified at the Silver level by the U.S. Green Building Council. These environmentally friendly buildings will greatly reduce the cost of utilities throughout the expected life cycle of the structures.

An artist's rendering of the new facility.

Bike Trail Opening Marks Project Completion

Officials from the City of Albuquerque and U.S. Army Corps of Engineers District Commander Lt. Col. Jason Williams performed a ribbon cutting to celebrate the formal opening of the Paseo de la Mesa Bike Trail in Albuquerque August 12.

The opening of the trail marked the culmination of the City's Aviation Department's project to extend water and fiber-optic lines from the Volcano Heights reservoirs up to Double Eagle II airport in Albuquerque's West Mesa.

The Corps secured federal funding for the project and provided assistance and construction support in 2003 and 2004, as well as an environmental assessment.

Albuquerque Mayor Richard J. Berry and Jay Lee Evans, planner with the City's Open Space Division, as well as others, provided history about the project to a small crowd gathered to watch the opening.

They spoke about how officials asked for an asphalt cap to be added to a portion of the pipeline alignment for the express purpose of providing a trail for recreationists.

The City found separate funds to complete paving on missing segments of the trail, safety improvements and a parking lot.

"This project is an example of the long-standing and mutually beneficial relationship that the Corps and City of Albuquerque have enjoyed over the years on numerous projects," said Lt. Col. Williams. "The addition of the bike trail on the surface is a great idea, and it provides a practical and healthy secondary benefit for the project."

The 4.2 mile trail is located north and west of Unser and Montaño streets, on the top of the mesa, south of the Volcano Heights water reservoirs and pump-station.

Photos by Kristen Skopeck

Top: *Lt. Col. Jason Williams makes remarks about the opening of the bike trail, while (left to right) Dr. Joseph Sanchez, superintendant of Petroglyph National Monument; Jay Lee Evans, planner at the City's Open Space Division; Richard J. Berry, Albuquerque mayor; and Dan Lewis, city counselor for District 7 observe.* ***Center:*** *Director of Parks and Recreation Department Barbara Baca joins the others to cut the ribbon across the trail.*

This activity supports our Operations Plan: Action 4 (Execute the regional Civil Works Program and expand planning processes toward integrated and sustainable water resource projects).

This activity supports our Operations Plan: Action 9 (Establish an enriched culture of discipline and innovation to deliver resilient and sustainable infrastructure solutions).

Building Strong, Building Schools goes Hand in Hand

By Elizabeth Lockyear and Dave Harris, SPA Public Affairs

Photos by Ronnie Schelby

Fort Wingate's dedication ceremony was the culmination of several years of planning, design, collaboration and construction of buildings in support of the education of the school's students.

The Albuquerque District celebrated the completion of its largest school project in cooperation with the Bureau of Indian Affairs, or BIA, Aug. 23. The nearly $71 million high school and dormitory for 800 students located at Fort Wingate, N.M. was dedicated during a ceremony that day.

Overall, the District has been involved in building eight schools, six student dormitories and numerous smaller projects including fire protection upgrades, studies, surveys and designs. The total value of these projects is more than $300 million.

The Corps has an important role because, "we have the capacity to design and oversee contracting and execution of construction for these large school projects," said Tom Plummer, program manager for BIA projects in the District. Plummer explained that while each school is built on a specific tribe's land, any student enrolled in a federally recognized tribe can attend.

However, because the schools are on tribal land, they aren't like public schools elsewhere in the U.S. The schools on reservations fall under the Department of the Interior's Bureau of Indian Education and not under the U.S. Department of Education.

Even though the BIA takes the lead on most issues up front, any work on behalf of tribes requires that design and construction teams meticulously follow the Corps' Tribal Policy Principles. These principles require parties at all levels to recognize tribal sovereignty and the government-to-government relationship, involve tribes in pre-decision consultation, fulfill federal trust responsibilities and support self-reliance and economic-capacity building, according to Ron Kneebone, Albuquerque District's tribal liaison officer.

"The tribes own the land," Kneebone said. "Instead of telling them what we're going to do, we ask them for their vision for the finished project."

"Tribes build on their history and think of the future as a continuation of the past," said Interagency Support Section Supervisor and Program Manager Blaine Kemsley. "One's dealings with the tribe in the past, depending on whether one's actions were wrong or right, can be devastating to the relationship or held to one's honor."

Kemsley told of one cultural breach when he held a review conference meeting with tribal members. Fifteen minutes into the meeting a tribal woman spoke up and said, "What about the prayer?" So, Kemsley suspended the agenda, and the woman led the audience in prayer.

"The work is challenging and very rewarding, working on projects that contribute to the education of children," Kemsley said. "There is always something new and different, very fulfilling."

Corps Plays Role in Movie-Making Magic at Abiquiu Lake

By Elizabeth Lockyear, SPA Public Affairs

Daniel Craig, best known for his "James Bond" films, is one of the main actors in "Cowboys and Aliens," due out in the summer of 2011.

When looking for locations to film a movie titled "Cowboys and Aliens," one obvious option is New Mexico, land of cowboys and home to the infamous 1940s Roswell incident.

Recently the Corps' staff at Abiquiu Reservoir played host to about 200 people over a two-week span, as part of the movie was filmed at the lake.

Abiquiu was chosen because one scene called for an alien spacecraft to crash into a river, and Abiquiu's reservoir had the perfect spot where, with waves created by special effects, it looks like a river on film.

Filming a major motion picture isn't just simply lights, camera, and action. The Corps of Engineers works closely with studios who want to film at Corps' locations. The studio submits an application (with a $300 processing fee) to the Corps with maps of where they want to film, to types of actions to be filmed (e.g., explosives, aircraft or stunts) and how long they will be filming.

After the Corps' Real Estate Office reviews the application and confirms there are no issues with the proposed plans or project site, the application is approved; however, the studio must have a two million dollar bond and is legally required to pay for the "exclusive use of public lands," said the office's Marvin Urban.

Urban said that in the past couple years, about eight films have used the District's property as set locations.

For "Cowboys and Aliens," the actual filming on Corps' property only took two days; the rest of the time was spent in prep-and-wrap time.

Positioned at the lake were five, 48-foot tractor trailers with grip, lighting and camera equipment, 12 cast trailers, several sun shelters for the crew, a tent for catering, plus miles of cables running every direction possible.

In the midst of the organized chaos, Supervisory Park Ranger Eric Garner said that what amazed him most about the filming was "the dedication to detail," by the crew. Garner said that what seemed like individual efforts by film crew, the production and logistics teams, cinematographers, stunt people, special effects teams and actors, turned into harmonious cooperation when director Jon Favreau yelled, "Quiet on the set."

New Mexico has been a backdrop for dozens of movies and television shows dating back to a documentary on Indian children produced by Thomas Edison in 1898. The state has actively promoted itself as a premier location for filming.

"It really dawned on me how important the film industry can be to the economy here in New Mexico," Garner said. "During a time when jobs are hard to find, I was glad to know locals are benefitting from the financial resources and employment opportunities flowing into rural communities like Abiquiu."

This activity supports our Operations Plan: Action 10 (Promote the Common Regional Picture and execute the strategic communication plan.

This activity supports our Operations Plan: Action 5 (Develop collaborative approaches to address watershed-based, multi-stakeholder and multi-benefit regional water resource challenges).

Acequia Finally Filled Again After Five-Year Struggle

By Kristen Skopeck, SPA Public Affairs

There are 53 families from West Puerto de Luna, near Santa Rosa, N.M., who really understand the process that governs how the Army Corps of Engineers build diversion dams that feed acequias, or irrigation ditches.

The community members conducted a heartfelt ceremony at the site of their new, $1.8 million diversion dam Aug. 29, where they praised local officials and members of the Corps for their renewed ability to irrigate their land after a five-year struggle.

For as long as anyone can remember, these people's livelihoods have depended on the small quantity of water that is diverted from a creek called Agua Negra for their use, and when their local dam failed and their ditches ran dry in 2006, their land did too and their hearts withered in the process.

The community's original, earthen diversion dam and irrigation system was built in the early 1860s. It was destroyed by a flood in the late-1930s and rebuilt in 1942. When continuous storms in 2006 pummeled the land across New Mexico several communities sustained damage, and the West Puerto de Luna dam failed once again.

Something fortunate for many New Mexicans was the president declaring the situation an emergency, and this declaration allowed West Puerto de Luna to apply for FEMA funding to design a new, tougher diversion dam.

Photos by Kristen Skopeck

The Giddings-Baca Diversion Dam Restoration now supplies water to the community's acequia.

Using disaster funds, a contract was awarded to an engineering firm to design a new dam, and the community members were hopeful the rest of the process to construct a new dam would be logical, systematic and expeditious, so they would be deprived of water only a short while.

Vincent Cordova, a staunch advocate for restoring the diversion dam, spoke of the value to his community.

For these persistent people, rolling up their sleeves and vying for meager Corps funding from a New Mexico-only program that has been as dry in recent years as their fields was a battle they took all the way to the United States Army Corps of Engineers headquarters.

Their spokesperson, a courageous and energetic man named Vincent Cordova, worked tirelessly to explain to outsiders how acequias are really veins that carry the lifeblood for rural, agriculture-

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based, New Mexican communities. He admitted that it took his community's dam to be washed away by the 2006 storm for him and his neighbors to champion the Corps' program that historically provided about $2 million a year to fund acequias.

"But when the need is greatest, people dig in their heels and try to find solutions," he said. "It is the American way."

With the design in hand, Cordova sought help and guidance from the Corps of Engineers and was introduced to Patty Phillips, Albuquerque District's acequia program manager. Phillips has the responsibility of balancing needs with available funding, while she provides oversight for the construction of acequia projects across the state. Phillips began educating Cordova on the Corps budgetary process and acequia program.

After understanding the process explained by Phillips, Cordova sought the help of Congressman Harry Teague and other New Mexico delegation members to obtain funding to get the dam built. These legislators were able to convince Congress to allocate a special earmark for the acequia program, which included West Puerto de Luna's project.

In February 2010, the Corps started the construction, and in May the citizens of the town were so excited that they invited Jo-Ellen Darcy, the Assistant Secretary for the Army (Civil Works), to attend a gathering to celebrate the construction activity. Secretary Darcy surprised everyone by landing her helicopter in the center of the middle school's football field.

In Aug., just six months later, the entire community met once again for a ribbon cutting and ceremony to celebrate the new and improved dam.

The West Puerto de Luna acequia runs for approximately nine miles and is mostly fortified with concrete. It serves 53 families who receive water on a rotating basis.

"It is a great day," Cordova said. "The dam is beautiful and incorporates some of the best engineering techniques available to withstand major storm events. More importantly, our community once again has access to the water we need to grow and prosper."

Did You Know….*Most irrigation water rights in New Mexico became established simply by historic irrigation of the land and continuous use to the present. Surface water rights originating prior to 1907 do not need a permit or paperwork to be considered valid today, provided that continued use has been established. The land does not need to be plowed or planted with crops to have a water right; land that is irrigated for pasture or for a lawn can have a valid water right. The only requirements are a man-made diversion from a stream and beneficial use associated with the irrigation. Obtaining surface water rights after 1907 requires a permit from the State Engineer and the requestor must demonstrate surplus water in the particular stream system.*

This activity supports our Operations Plan: Action 10 (Promote the Common Regional Picture and execute the strategic communication plan).

Corps Ranger Rappels During Rescue of Young Boy

By Eric Garner, supervisory park ranger, and Dave Dutton, Abiquiu operations manager

On August 18, at about 12:30 p.m., 8-year-old Tristan Wann went missing at Abiquiu Lake Project's overlook after his family stopped there for lunch.

A quick search of the area, which sits atop towering sandstone bluffs overlooking Abiquiu Lake and bordered by a chain link fence, revealed that Tristan had scaled the fence and managed to work his way approximately thirty feet down the cliff face. He was precariously perched on a small ledge of loose ground approximately 120 feet above the dam and could not move in any direction.

Supervisory Park Ranger Eric Garner radioed for assistance, and Ranger Austin Kuhlman and Operations Manager David Dutton arrived on the scene.

Garner climbed down approximately 50 feet below the observation area to a stable ledge and began talking with the boy, while Dutton called 911 and drove half-way across Abiquiu Dam to get a better visual assessment of the situation.

Kuhlman was on standby with a rope and harness in case the situation worsened.

As it began to rain, the first responder arrived around 1:00 p.m. Garner kept talking to Tristan as the rain became heavier and water began to flow down the face of the cliff, but the boy was becoming upset and impatient and the rangers feared that he would fall, very likely to his death, according to Dutton.

The situation deteriorated quickly, as the rain increased. Because the first responder had a previous back injury, he was unsure if he could repel down to Tristan, who was losing patience and his footing.

U.S. Army Corps of Engineers Ranger Austin Kuhlman put his own life in jeopardy during the recent rescue of a young boy at Abiquiu Lake. His actions not only saved the boy from a life-threatening situation, but they brought credit upon himself and the Corps.

An experienced rock climber with rappelling experience, Kuhlman ventured over the ledge to rescue the boy, who was becoming increasingly frantic, despite calming pleas from Garner.

As the weather continued to worsen, Ranger Kuhlman secured the child and was pulled back up to safety by family members and other park staff, where Tristan was reunited with his mother. After examination by local paramedics, the boy was allowed to leave with his family.

Hall of Heros Highlights Those who Have Deployed

By Matt Bourgeois, Readiness and Contingency Operations

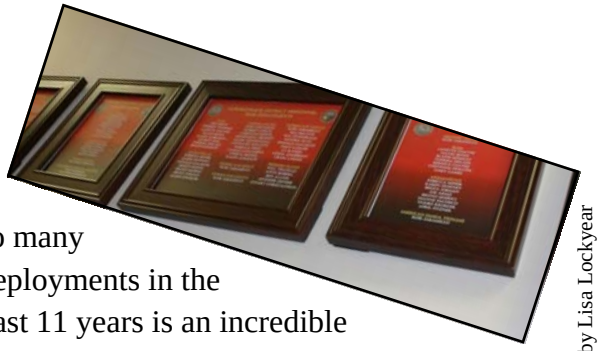


Photo by Lisa Lockyear

The next time you are on the ground floor near the break room, please take a moment to visit the hall leading to the Readiness and Contingency Operations, or RCO. The RCO staff refers to this hall as the "Hall of Heroes."

As you enter the hall, you will see a blue plaque that lists the 88 volunteers who deployed to the Albuquerque District representing 22 Corps' offices around the country to assist us with our Cerro Grande Fire response missions.

In response to the Cerro Grande fire, we were tasked with executing 23 design and construction projects that doubled the District's workload for four months. The District could not have completed these projects in a timely manner without the efforts of these 88 "heroes."

As you move down the hall, you will see 10 red plaques that list Albuquerque District personnel who have deployed in this century. Most of these deployments were to help other districts execute their overwhelming emergency response missions. These volunteers deployed in support of Overseas Contingency Operations, or OCO, and various natural disaster response and recovery operations.

The District has deployed volunteers in 10 of the past 11 years. Nineteen District employees have already served on deployments this year. During the 11 year period, Albuquerque District has made nearly one hundred deployments of personnel on OCO taskings to Iraq and Afghanistan and an additional 150 deployments in support of Corps' natural disaster missions across the country.

The fact that our District has accomplished so many deployments in the past 11 years is an incredible feat, but that is just part of the story. We still met our other obligations, and each time one of our colleagues deploys a greater number of District members remain behind and shoulder the extra workload.

The plaques recognize deployments, but the number of volunteers is actually considerably higher. Many volunteers are not selected for deployments, because the Corps frequently has more volunteers than are needed. Time and again, disaster after disaster, employees come down to the RCO to place their names on a "volunteer white board." So far this year, 14 people have volunteered to assist in the Haiti earthquake response, five more have volunteered for the Hurricane Alex response in Texas and Mexico, and 17 more volunteered for the Gulf Oil Spill recovery and response activities. While Albuquerque District deployed only one of these 36 volunteers, our personnel were ready and willing to help if called upon.

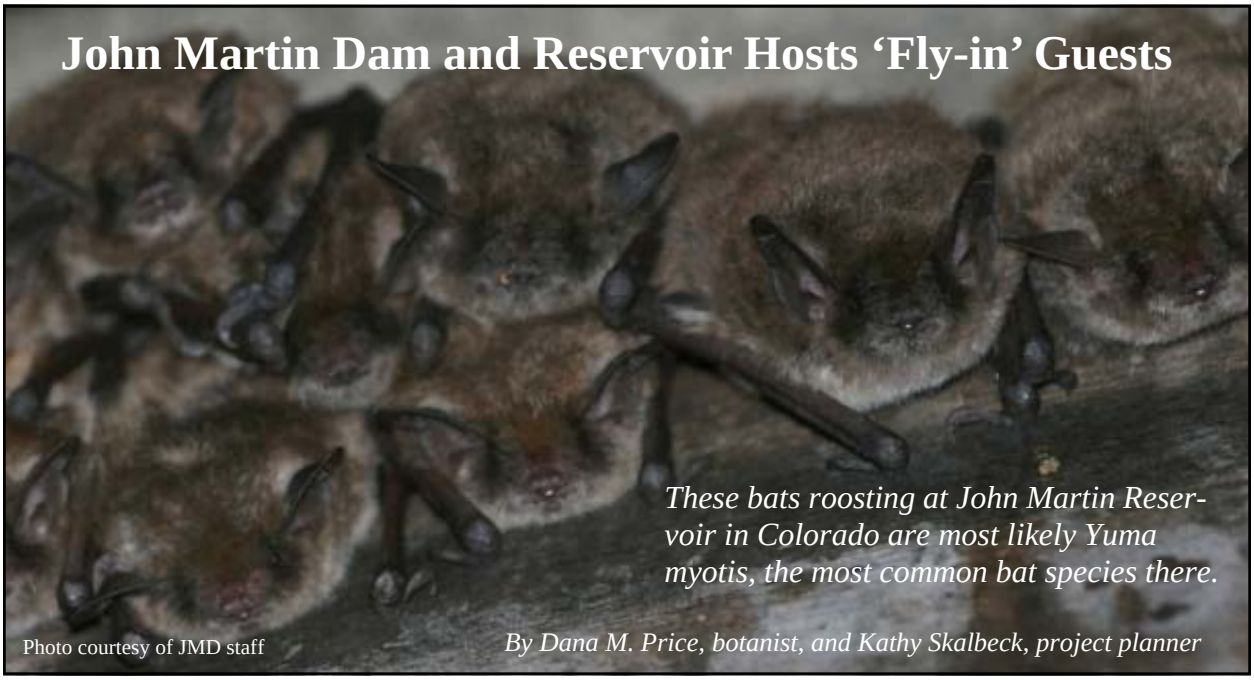
As we move into the peak of this year's hurricane season, it is time for us to reflect on our past contributions and remember that when people's lives are disrupted by these storm events, the Albuquerque District employee often plays a role in the path to recovery or is willing to do so.

This activity supports our Operations Plan: Actions 1 & 2 (Prepare and deploy civil response teams in support of domestic incidents and all-hazard contingencies and Deploy Field Force Engineer and personnel in support of full-spectrum Overseas Contingency Operations.

This activity supports our Operations Plan: Action 6 (Execute the regional Regulatory Program to protect aquatic resources).

Features

John Martin Dam and Reservoir Hosts 'Fly-in' Guests



These bats roosting at John Martin Reservoir in Colorado are most likely Yuma myotis, the most common bat species there.

Photo courtesy of JMD staff

By Dana M. Price, botanist, and Kathy Skalbeck, project planner

What eats 500 mosquito-sized insects per hour and has a heart rate of more than 1,000 beats per minute when flying, but only 10 beats per minute in hibernation? Bats!

The amazing bat can make a right-angle turn in slightly more than the length of its body when flying at 40 mph. This creature lives longer and reproduces more slowly than any other small mammal and can navigate using either sight or sophisticated sonar.

The only group of mammals capable of powered flight, bats belong to the order Chiroptera, meaning "hand-wing." This name reflects their wing structure, which is different from a bird's. Bats' wings are skin-like membranes supported by four fingers, giving them the largest surface area to body weight ratio of any mammal. This makes it very important for them to eat a lot, which significantly benefits humans, and to keep warm, which is why many bats roost in structures. Bats' legs are rotated to enable them to hang upside down, and their feet have specialized tendons that cling to roosts without expending energy.

Despite their small size, bats are not related to rodents. Evolutionary theory proposes that bats arose from ancestors in the order Insectivora, the group that includes modern shrews.

Many people don't notice bats because they are active when we head indoors for the night. Visitors camping at Corps' lakes have an opportunity to observe bats, which come to feed on the insects that are attracted to the water or to the artificial lights in the campgrounds.

Gregory Everhart, district archaeologist and a former park ranger at John Martin Dam and Reservoir, or JMD, notes that for many urban visitors, it is the first time they are able to observe bats' aerial acrobatics.

"People would be amazed," he said.

The presence of bats at JMD has been known for many years. Everhart recalls giving dam tours to groups of school children.

"We would go up on the catwalk in the dam, underneath the roadway, and show the kids the bats in the crevices overhead. I would tell

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the kids to be quiet, and you could hear the bats making little noises."

In those days, the identity of the bats species at JMD was unknown. Now, thanks to modern acoustical detection techniques, we have learned that at least eight species of bats are using the dam, ponds and riparian, or river, habitats at JMD.

An acoustical survey, performed for three nights in August 2008, revealed that the most common bat at JMD is the Yuma myotis. Other species at JMD include the big brown bat, big free-tailed bat, hoary bat, pallid bat, red bat, canyon bat (formerly known as the Western pipistrelle), and Mexican free-tailed bat. The silver-haired bat, little brown myotis, and Western small-footed myotis may also be present.

All bats found so far at JMD are insectivores and belong to the Microchiroptera, a group whose species are capable of echolocation. Using complex sonar, a bat emits ultrasonic pulses that bounce off objects in the environment and return as echoes to the bat's ears, where they are interpreted by its brain. Using sound alone, bats can see everything but color and can detect obstacles as fine as a human hair.

To help protect and conserve these remarkable and valuable creatures, we encourage our SPA teammates to learn more about bats and educate others.

All 18 species of bats in Colorado are classified by the Division of Wildlife as nongame mammals and are thus protected by law. Only bats creating a nuisance in dwellings can be legally killed. If it is necessary to remove or exclude bats from a structure, please do so in winter after they have left to avoid entrapping bats, including their young, leading to starvation and death.

Animal control companies that specialize in humane bat exclusion should be used. Bat Conservation International provides information about creating artificial roosts. And, potential or known roosting sites can be modified to make them more bat-friendly.

For More Information:

Bat World Home (lots of bat pictures) http://www.batworld.org/main/main.html
Bat Conservation International: http://www.batcon.org/index.php/all-about-bats.html
Colorado Division of Wildlife bat pages: (species information, natural history and more) http://wildlife.state.co.us/WildlifeSpecies/Profiles/Mammals/BatsofColorado/
New Mexico Energy, Minerals and Natural Resources Department Wildlife in Abandoned Mines Program: (species profiles for N.M. bats; bats in mines) http://www.emnrd.state.nm.us/Mmd/AML/AMLwildlife.htm
Colorado Bat Society: http://www.coloradobats.org/index.html
Colorado Bat Working Group: (conservation, Colorado Bat Plan) http://www.cnhp.colostate.edu/RASwebpage/cbwg_website/cbwg_index.htm
Western Bat Working Group (species information, conservation, news and more) http://www.wbwg.org/
Mammals of Texas Online (species information and technical keys to Texas bats) http://www.nsrl.ttu.edu/tmot1/ordchiro.htm
Texas Parks and Wildlife Department media (types of bats in Texas) http://www.tpwd.state.tx.us/learning/webcasts/caves/battypes.phtml

NOTE: The U.S. Army Corps does not endorse any outside websites; these sites are for informational purposes only.

This activity supports our Operations Plan: Action 4 (Execute the regional Civil Works Program and expand planning processes towards integrated and sustainable water resource projects).

Corps Automates to Improve Dam Safety at Abiquiu

By Elizabeth Lockyear, SPA Public Affairs

Most people will draw a blank when asked what a piezometer does, but they have an important role in monitoring the safety of the U.S. Army Corps of Engineers' dams.

There are several types and functions of piezometers. According to *The American Heritage® Science Dictionary,* a piezometer is an instrument for measuring fluid pressure, such as the pressure of water or gas in a pipe. Some piezometers monitor groundwater levels while others monitor groundwater in contaminated areas.

The piezometers used at dams in the District are open pipes with the bottom screened to let in groundwater. They are used to monitor seepage flow through and around a dam. Piezometers are one method used to alert the Corps' Dam Safety team of potential problems.

"I refer to piezometers and other dam safety equipment as smoke detectors," said District Dam Safety Program Manager Suzi Hess-Brittelle.

Dam safety has evolved over the years. Prior to the mid 1960s, safety instruments weren't added to dams during construction. For example, Conchas Dam doesn't have piezometers, according to Hess-Brittelle. Most of the instrumentation there monitors the movement and settlement of the actual concrete dam and embankments, but, beginning in the 1970s, instrumentation such as piezometers was added during construction.

The automation process for Abiquiu Dam began six years ago. The design and implementation of the automated system cost about $360,000. Currently, the process is two-thirds complete, and the goal is to be finished by the end of the fiscal year.

Photo by Abiquiu Staff

Greg Dutson, a contractor with Engineered Monitoring Solutions, installs an automated piezometer at Abiquiu Lake.

Before undergoing automation, it took two full days for maintenance staff to manually read the piezometers at Abiquiu with groundwater level meters. They then faxed the data to the District office where it was analyzed and compared with previous measurements.

"The maintenance crew has done a fantastic job reading the approximately 54 piezometers at Abiquiu every month, said Hess-Brittelle. However, automation will make the job a little easier and provide the Dam Safety team with real-time data monitoring. With automated piezometers, readings can be taken weekly, daily or even hourly.

To automate a piezometer, a pressure transducer is placed in the pipe. A pressure transducer has a set of vibrating wires with a signal cable attached. It is hard wired into a data logger, so data can be radioed to the project office and dropped into Corps secured servers for the Dam Safety team to access.

Abiquiu was chosen as the first District dam to automate because it has the most seepage-related issues. According to Hess-Brittelle, the staff at the other District dams are excited about what's happening at Abiquiu and would like to automate too.