

RECLAMATION  
*Managing Water in the West*

# Plains Talk

NEWS FROM THE GREAT PLAINS

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U. S. Department of the Interior  
Bureau of Reclamation

COVER: Matthew Warren, OTO, inspects the spillway at Cheney Dam, Kan. See full story, page 27.

# SHUTTERBUGS

## Be part of GP's 2011 Photo Contest

May 1 to Aug. 31

Get your images published! We're seeking spectacular images highlighting the people, places and landscapes of the Great Plains Region.

**Keep your camera handy - deadline Aug. 31!**



**First Place**

CONGRATULATIONS!

## 2010 Photo Contest WINNERS



**First Place:** Yellowstone River near the Northern Boundary of Yellowstone National Park, by **Chan Worley**.

**Second Place (tie):** (Top) Yellowtail spillway rope exam; (bottom) Brian Hollis rappels into Gibson Dam's spillway, both by **Joe Rohde**.

**Third Place:** Swift Current Creek enters Lake Sherburne Reservoir, by **Chuck Heinje**.



For more information or to submit entries for the 2011 Great Plains Region Photo Contest, contact Public Affairs at 406-247-7610, or email: [tbtaylor@usbr.gov](mailto:tbtaylor@usbr.gov). Winners chosen by region-wide vote.

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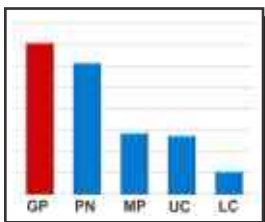
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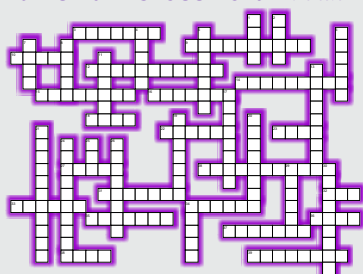
#### YOUTH WORKS AT FOSS RESERVOIR:

Oklahoma-Texas Area Office has partnered with American Youth Works of Austin, Texas, in a conservation effort to reduce invasive species while creating new fisheries habitat at Foss Reservoir in Oklahoma.



#### Plains Talk Crossword

find answers in this issue



Test your Knowledge with the NEW Plains Talk Crossword Puzzle!!

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## Plains Talk Issue

Vol. 01-2011:



#### Great Plains Region Vision:

*Be a Region where employees want to belong and customers want to do business.*

#### Reclamation's Mission:

*The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.*

Plains Talk is an employee publication devoted to the interests of Reclamation's Great Plains Region.

Plains Talk is published from the Great Plains Office of Public Affairs. To be added to the Plains Talk mailing list, submit your name and mailing address to:

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#### Submission Guidelines:

Articles and other materials for publication should be sent to the Great Plains Public Affairs Office, Attn: Plains Talk Editor, GP-1240, or email to [bfeist@usbr.gov](mailto:bfeist@usbr.gov).

Plains Talk encourages employee submissions, and assists with developing ideas. Questions about stories or photographic essays should be directed to the Plains Talk editor, at 406-247-7610.

# High Flows on the Platte



Pathfinder Dam spills, spring 2010.

By Tyler Johnson, GPRO

“When it rains, it pours,” is a common idiom used by folks living, working and playing along the banks of the Platte River Basin in Wyo.

But, when multiple rain squalls and snowmelt overfed the North Platte River in the summer of 2010, it rained, and Reclamation employees were tasked with the responsibility of managing the pour.

Wyoming Area Office manager John Lawson and his staff, along with

banks of the river.

The Corps simultaneously directed the release of water out of Glendo Reservoir, using the facility for one of its



Guernsey Dam, Wyo.



North Platte River, Casper, Wyo.



the Army Corps of Engineers and state and local officials, constantly evaluated the seven-facility system and its drastically rising volume.

The managers were attempting to manage the flow of water to limit the potential flood damage for various towns sprinkled along the

at full conservation capacity.

Because it takes days for water to flow from the headwaters to the confluence of both Platte Rivers, there was more water in the system than the combined conservation capacity of all seven facilities.

The challenge facing the group

intended purposes – flood control.

The problem was that each Reclamation structure along the North Platte string was

was the uncomfortable reality that storage space was exhausted, and with limited remaining flood control space in Glendo Reservoir, there was no longer anyplace to receive additional water into the upper reservoir system.

At the peak of the flooding threat, Lawson and his staff managed to put through more than 15,000 cubic feet per second (cfs) from Seminoe through the “Miracle Mile,” after receiving a record high of 19,376 cfs into Seminoe on June 15 (the previous record inflow at Seminoe was 17,099 cfs set in 1983).

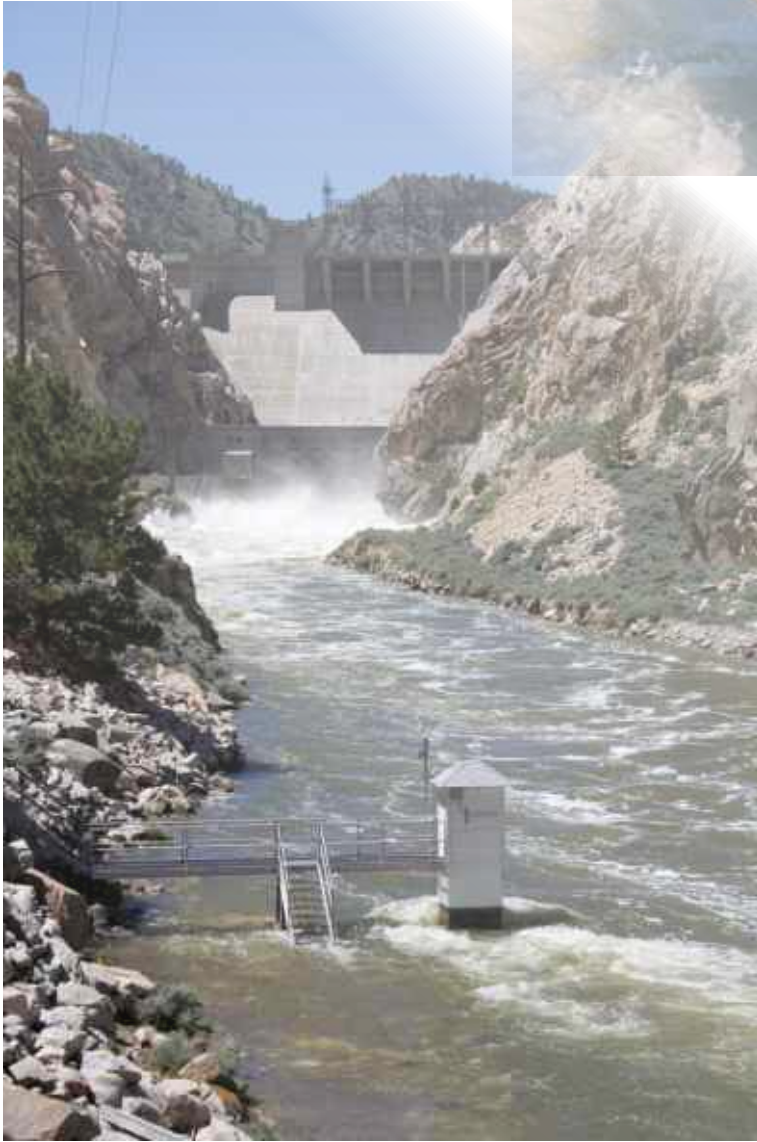
“We were looking at capacity numbers at our reservoirs not experienced since the early 80's, along with the coming weather forecast ... neither was looking

Flooding, cont. next page

good for us,” said Lawson.

“My concern at that point was to do everything I could to spare those who might be affected in low-lying areas along the North Platte River.”

Natrona County Emergency Management issued a flood warning to residents and established an Incident Command System



**Pathfinder Dam (above) and Kortes Dam (lower left) in Wyo. release water downstream during high flows experienced during the spring of 2010.**

spillway.

The threat was clear at that point – any abnormally high temperatures creating a surge of snowmelt, or another heavy rain squall, could spell major problems for Casper and many other small towns dotting the basin through Wyo. and Neb.

Low lying areas were impacted in Casper, and for days water lapped up on sandbags stacked at strategic locations.

A critical juncture was reached as water approached an elevation within three feet of the Glendo Dam spillway crest, which historically has never been used.

At that point, the inflows slowed, and the demand for diversion of irrigation water began, allowing for increased releases without further impacting the North Platte River downstream.

The difficulty of orchestrating the flow of water didn't go unnoticed by those who understood the potential negative impacts.

Mike Ryan, Great Plains Regional Director said, “I think they did a phenomenal job of reducing the threat to communities in Wyoming and Nebraska by making the right decisions on continuous and

(ICS) in the Natrona County Sheriff's office in Casper, Wyo.

The North Platte River, which flows through Casper, swelled to roughly three and a half times its normal size.

With the increased flows from Seminoe going into an already full Pathfinder Reservoir, water began to flow over the uncontrolled

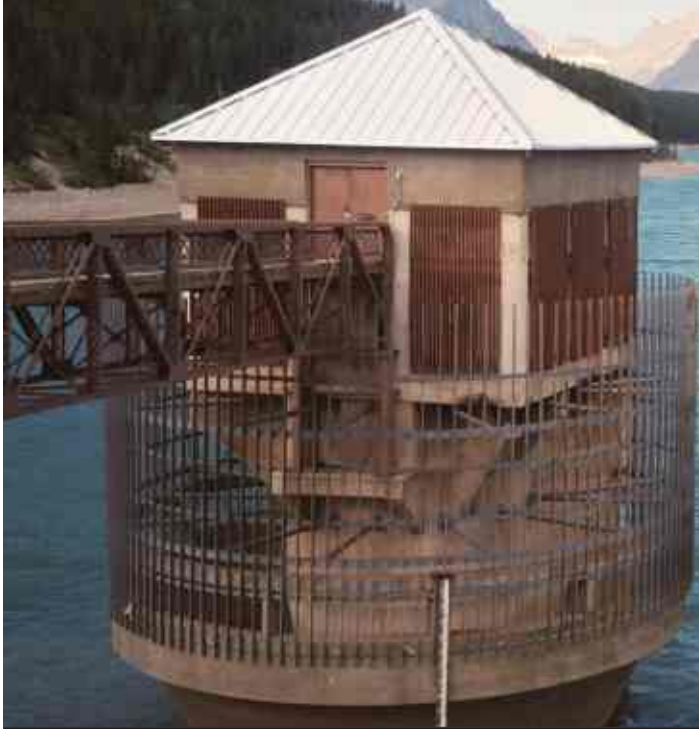
consistent basis.

“Making the right decisions, at the right time, on so many issues for thirty days of unrelenting pressure was a remarkable feat that few people will ever hear about,” Ryan said.

Over time water volumes were reduced to more manageable levels and the immediate threat of significant flooding subsided.

The efforts of those working along the North Platte River successfully managed “the pour” and saved residents in Wyoming and Nebraska an estimated \$7.8 million in damages.

# Montana's Saint Mary



(Above) The outlet works at Lake Sherburne, part of the Milk River Project in northwestern Montana. Lake Sherburne Dam is a compacted earthfill structure 107 feet in height above its foundation with a crest length of 1,086 feet.

**By Paula Holwegner, MTAO**

“The St. Mary Diversion and Conveyance facilities are an integral part of the economy of northern Montana,” said Kelly Titensor, MTAO's Project Lead.

The St. Mary Unit's Diversion and Conveyance Works, which divert water from the St. Mary River to the Milk River, are the key water supply features for Reclamation's Milk River Project.

The apportionment of the St. Mary and Milk Rivers is formalized by Article VI of the Boundary Waters Treaty of 1909.

Project facilities are located entirely on the Blackfeet Indian Reservation near the Canadian border in north central Montana and were constructed between 1907 and 1923.

Diversions from the St. Mary River provide the majority of the water supply for 110,000 acres of irrigated land in the Milk River Valley.

Three municipalities, two rural water systems, and the Bowdoin National Wildlife Refuge also rely on the Milk River Project for all or part of their annual water supply.

“In addition to providing a critical water supply for the Milk River Valley, the facilities also play an important role in meeting the requirements of the Boundary Water Treaty with Canada, meeting Reclamation's trust

responsibilities to the tribes, and meeting the requirements of the Endangered Species Act,” Titensor said.

“We look forward to working with all of the stakeholders in meeting the needs of each one in a reasonable and prudent manner.”



(Above) View upstream from Lake Sherburne Dam, part of the St. Mary system.

# Yellowtail Operations

By Paula Holwegner, MTAO

## **Bighorn River System Issues Group**

The Bighorn River Basin experienced an unprecedented and persistent drought from 2000 to 2008 which strained Reclamation's ability to meet all of the demands on Yellowtail Dam and Reservoir.

In March 2007, Reclamation's Montana Area Office (MTAO) formed the Bighorn River System Issues Group as a means to collaboratively identify and investigate ways to optimize the benefits provided by the Yellowtail Unit.

Issue Group participants include Wyoming and Montana state agencies, National Park Service, Western Area Power Administration, representatives of the Crow and Northern Cheyenne tribes, county officials, and various local interest groups.

The Issues Group meets quarterly to discuss strategies and solutions to ongoing Yellowtail Dam/Bighorn River issues.

Initially, MTAO educated the Issues Group members on the enabling legislation and purpose for Yellowtail Dam, and other decisions that go into how the dam is managed.

Issues Group discussions eventually led to numerous studies being conducted, such as Lake Sedimentation, Side Channels, Moss Effects on River Stage, Yellowtail Reallocation Study, and River Geomorphic, all of which assist the group in making sound decisions.

"In order for the Issues Group to understand the impacts of changing releases from Yellowtail Dam, we built a computer simulator, allowing members to change releases," said Lenny Duberstein, MTAO's Planning and Project Development Division Manager.

"Most members were extremely surprised at the impacts of even the slightest change," Duberstein said.

Over the last couple of years, Reclamation developed the Draft Revised Operating Criteria for Yellowtail Dam, with input from members of the Issue Group.

Reclamation held informational meetings with members of the Issue Group and the interested public on Jan. 4 and 12, 2011, to answer questions about the Draft Revised Operating Criteria prior to the close of the comment period on Jan. 28, 2011.

"Both meetings, one in Lovell,

Wyo., and one in Billings, were well attended," said Dan Jewell, Montana Area Manager.

"We answered a lot of good questions and explained some concepts that weren't clear to some of the audience," Jewell said.

"I believe the meetings will lead to better input from those interested in the management of Yellowtail Dam and Bighorn Lake."

## **Yellowtail Afterbay Gate Recoating Project**

Reclamation issued a \$2.5 million contract for rehabilitation of the afterbay dam.

The contract includes surface preparation and coating of the spillway radial gates, sluice gates, and canal gates; radial gate seal replacement; installation of galvanic anode cathodic protection; radial gate hoist wire rope repair; concrete repair; and placement of riprap in the spillway stilling basin.

"We are working closely with interested parties to ensure they have accurate, up-to-date information," said Chris Gomer, Project Manager.

"Additionally, the project will have no effect on releases from Yellowtail Dam," he said.

# Lower Yellowstone Project



**BREAKING GROUND:** Officials from various state, local and federal agencies gathered on Aug. 13, 2010, to officially break ground on the modification of the Lower Yellowstone Project in eastern Mont.

Reclamation's Lower Yellowstone Project provides a dependable supply of irrigation water for approximately 53,400 acres of land along the Yellowstone River near Sidney, Mont. Intake Diversion Dam is a migration barrier to native fish, including pallid sturgeon, a listed species under the Endangered Species Act. Previous research indicates that an average of 500,000 fish are entrained annually into the Lower Yellowstone Project's main canal.

"The Fish and Wildlife Service and other fishery experts consider the Yellowstone River as some of the best remaining pallid sturgeon habitat for natural reproduction and recruitment," said Jeff Baumberger, Supervisory Natural Resource Specialist.

"Fish passage and entrainment protection modifications at Intake Diversion Dam would provide an additional 165 miles of Yellowstone River to assist with pallid sturgeon recovery," Baumberger said.

## All Work and No Play for MTAO Employees?



(Above) MTAO employees enjoy a skit about the importance of administrative staff during an all-employee meeting held in Billings.

MTAO has many irons in the fire but despite the heavy workload, they still make time to enjoy each other's company. In honor of Administrative Professionals week, employees put on a skit to honor the administrative staff.

The cast included: Dick Long as himself, Chris Nielson as Dan Jewell, and Justin Kucera as Tom Sawatzke.

The skit showed the importance of administrative staff within MTAO.

The skit was enjoyed by all, and was the talk of MTAO for the rest of the week.



(Above) Dick Long, Chris Nielson and Justin Kucera show off their acting chops during a skit for MTAO employees.



# Micro-Hydro

## Wave of the Future?

### Reclamation Explores Green Energy with Small Hydro

By Sterling Rech, GPRO

"Small-hydro is definitely an emerging trend for hydropower generation," said Great Plains Regional Director Mike Ryan. "It's an intriguing solution to harnessing energy that has been relatively underutilized in the past."

With the amount of national and global attention renewable energy currently receives, it's no question that any reasonable solutions, large or small, won't go unnoticed in the grand scheme of things.

"We can't drill our way out of this problem ... that's where hydro comes in," said President Barack Obama during a visit to a hydro-turbine generating facility in York, Pa.

In Mar. 2009, Reclamation signed a Memorandum of Understanding with the Department of Energy and U.S. Army Corps of Engineers pledging an ongoing commitment to the development of sustainable, low-impact, small hydropower projects at existing facilities.

"As we build our clean energy

economy here at home, we must explore and develop new technologies and new strategies for increasing hydropower generation," said Secretary of Interior Ken Salazar, commenting about the memorandum.

The agencies also agreed to seek opportunities to develop generation capacity in currently unpowered dams and conduits, and facilitate the permitting process for hydroelectric power generation by non-Federal interests at Federal facilities.

**Micro-Hydro, cont. next page**



(Above, left) St. Mary Drop 4 Chute on the Milk River Project, east of Glacier National Park, Mont., drops 66 feet in elevation. It is one of a series of five major drops within a distance of two miles. (Above, right) Woodston Diversion Dam weir, in north central Kansas, drops 13 feet in elevation depending on upstream and downstream water surface elevations.

“The Department [of the Interior] is committed to increasing the generation of environmentally sustainable, affordable hydropower for our electricity supplies,” said Commissioner Mike Connor, speaking before the Natural Resources Committee in 2010.

Reclamation currently owns and operates four plants that fall within the definition of low-head hydropower: Roza Diversion Dam in Wash., Minidoka Dam and Boise River Diversion Dam, in Idaho, and Nimbus Dam in Calif.

The primary benefit of small hydro projects for Reclamation will likely come in the form of increasing income through cost savings for irrigation applications.

“By cutting consumption, irrigation districts effectively increase their incomes,” Ryan said. “In agriculture, it's always a struggle against the bottom line – expenses vs. income, and every cent counts.

“Micro and small-hydro probably don't offer us a home run

### What is Small Hydro?

According to the Department of Energy, small, mini and micro hydro is defined by power production (see below\*). For Reclamation and its partners, small-hydro may offer a way of capturing the energy generating potential at low-head dams, defined as structures with a drop of less than 66 feet.

- **Small-Hydro - Less than 5 megawatts**
- **Mini-Hydro - Less than 1 megawatt**
- **Micro-Hydro - Less than 100 kilowatts**

\*Statistics on small-hydropower generating capacity from Federal Energy Regulatory Commission (FERC).

solution for renewable energy,” Ryan said. “But they definitely have a place in the larger solution for our nation's energy strategy.”

Although not technically considered a small-hydro project, construction began in May 2010 on two small hydroelectric projects on

the Sun River Project in Mont. The Upper and Lower Turnbull Hydro projects will have a combined energy output of about 13 megawatts.

This is a collaborative project for Reclamation, and includes representatives from the Sun River Watershed Group; Greenfield Irrigation District; Fort Shaw Irrigation District; U.S. Fish & Wildlife Service; Bureau of Land Management; Forest Service; Montana Department of Environmental Quality; Montana Department of Natural Resources and Conservation; Montana Fish, Wildlife and Parks; Montana State University's Extension Service and many individual land owners.

Small hydro has proven worthy of further research and may prove valuable in the future.

“The technology exists,” said Ryan. “It's a matter of seeing if the capital investment behind that technology is strong enough to support not only the capital, but also the delivery and sustainability side of things.”

# Great Plains Takes Action



## How GP Employees & Managers are Taking Steps to Improve Our Workplace, Our Region & Our Careers

By Buck Feist, GPRO

"I can be a stubborn guy," said Mike Ryan, Great Plains Regional Director. "You can ask anyone who knows me. When I get something stuck in my mind, I am relentless."

"Don't get me wrong," Ryan said, "management is the art of compromise ... but it's also about knowing when to hold the line."

"And the one area where I absolutely refuse to compromise is ensuring that we create and maintain a satisfactory workplace for the employees of the Great Plains Region," he said.

Ryan was speaking at the Feb. 2011 meeting of the Take Action Initiative team, a region-wide group made up of representatives from the regional office and each of the six area offices.

The team's goal is to improve morale and workplace satisfaction in the GP Region by sharing approaches used among the various offices, and then identifying and reproducing processes that succeed.

The team meets by video or teleconference once a month to collaborate on ways to improve our

workplaces and highlight opportunities for employees.

During the process, representatives share ideas that have worked – as well as ideas that haven't worked – in order to bring a wide spectrum of viewpoints to the table.

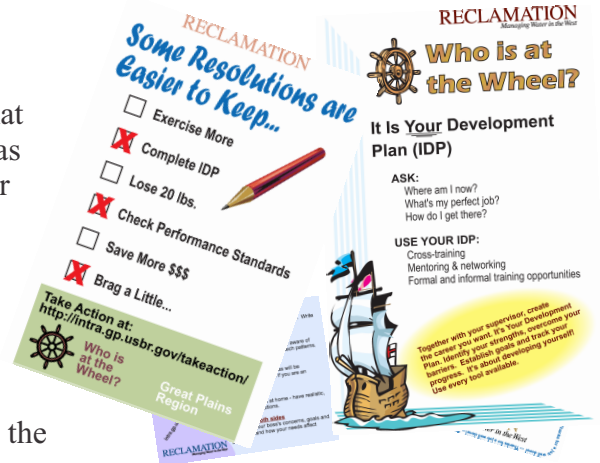
By design, the Take Action Initiative operates in the background. "We're not concerned with – in fact, we don't want – any focus on the team itself," said Delores Tanglen, GPRO Program Analyst and TAI team member.

"Like most employees in the region, we're busy!" Tanglen said. "No one is interested in serving as a cheerleader or generating a lot of feel-good fluff."

"What TAI does is look for areas where a regional or area office focus can result in real improvements to workplace satisfaction for the maximum number of employees," Tanglen said.

### Training, Performance & Communication

In this spirit, TAI directs its attention to topics that affect



(Above) The Take Action Initiative uses results from OPM's Employee Viewpoint Survey to improve workplace satisfaction in the Great Plains Region.

everyone, regardless of grade, position or location.

Topics like Individual Development Plans, which provide an opportunity for employees to direct their own careers, are highlighted and resources made available for employees.

Performance Appraisals are another area the team took interest in developing as a topic, and the results have been evident as performance scores across the GP Region have risen for the past three years in a row.

Take Action, cont. next page

**ALL IN THE FAMILY:** (Below) NKAO employees gather for an all hands meeting near Red Willow Dam in Neb. According to the results of the 2010 Employee Viewpoint Survey, employees feel the region is making improvements on issues like communication, recognition and awards.





## Who's at the Wheel? Take Action to Improve your Workplace and your Career!

The team has developed a number of performance-related products, such as an informal form designed to track individual performance throughout the year known as a "brag sheet."

Brag sheets were distributed throughout the region in 2009 and 2010, via email, web, word of mouth and through the interoffice mail system.

DKAO's Take Action coordinator, Alicia Waters, reports that numerous staff used the brag sheet, or a simplified version of it, to prepare for their 2010 performance evaluations.

Kelly McPhillips, environmental specialist with DKAO, said, "The bragsheet definitely helped me prepare for my review, and being prepared is essential to being effective."

Working in conjunction with other offices and replicating ideas that work is key to TAI's success.

### Grassroots Change

The bulk of the work for creating positive change occurs on the ground.

Carmen Boggs, ECAO's Take Action coordinator, said that her office has found both successes and challenges as they strive to increase workplace satisfaction.

"ECAO's Leveraging Core Strength Team worked hard in 2010 to improve the new employee orientation with enhanced processes and new products," Boggs said.

"Among the many improvements was the creation of a CD to replace the bulky employee handbook, so people don't have to search for info in a big binder," she said. "Even

current employees have requested the new CD."

According to Mike Bennett, ECAO's new IT Specialist, "The orientation was great!"

Awards and recognition are another important component to employee satisfaction.

For example, last year, one of the areas OTAO focused on was peer-to-peer awards. By highlighting peer-to-peer awards in office-wide emails and all-employee meetings, OTAO achieved a participation rate of 83 percent in 2010.

Kevin Ishino, OTAO Computer Specialist, said, "Receiving an award from a co-worker serves as a boost to my self-confidence in my own work, and acknowledges that my contributions to the team are appreciated and do not go unnoticed."

### 2011-2012 Take Action Initiative Team Members:

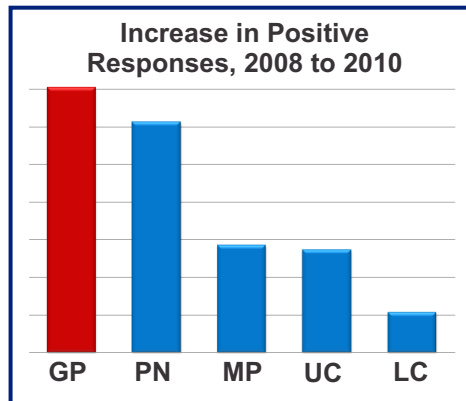
- Carmen Boggs, ECAO
- Gary Brownlee, OTAO
- Paula Holwegner, MTAO
- Fred Koziol, NKAO
- Darryl Asher, GPRO
- Alicia Waters, DKAO
- Nancy Martin, WYAO
- Delores Tanglen, GPRO
- Jerry Leggate, GPRO
- Sterling Rech, GPRO
- Buck Feist, GPRO

### Employee Survey Used to Target Improvements

"As someone fairly new to the government, it's been a great learning experience to see all of the different perspectives on workplace satisfaction come together into an overall plan," said Sterling Rech, logistics coordinator for the

TAI team.

"I think a lot of employees underestimate the amount of attention tools like the Employee Viewpoint Survey receive, but those results are critical in determining both our team's and management's focus for the coming year," Rech said.



(Above) In 2010, GP had the top improvement rate among Reclamation's regions, with a more than 7 percent increase in positive responses on the 2010 Employee Viewpoint Survey.

"We may not always come up with the perfect answer to the concerns raised on the survey," he said, "but it's clear to me that the results are taken very seriously by managers when considering how to address the challenges we face in our region."

One of the key indicators for the effectiveness of TAI is OPM's biennial *Employee Viewpoint Survey*, which the region took in Mar. 2010.

The GP region made significant improvements between the 2008 and 2010 EVS, with an overall improvement of more than 7 percent in positive responses.

"I'm pleased with the progress we've made," said Ryan, "although it's no surprise to me that our region has some of the most engaged employees in Reclamation."

"GP is a unique and amazing organization, whether you're talking about our diverse geography or our mission," Ryan said.

"Together we've tackled some tough obstacles, and shared a lot of successes. But no matter what challenges remain ahead us in the future, I couldn't ask for a better team of folks to face them with than the men and women of the Great Plains Region."

# ECAO Puts Stimulus Dollars to Work

By Kara Lamb, ECAO

The Eastern Colorado Area Office kept busy in 2010 moving projects forward using funding provided by the American Recovery and Reinvestment Act.

“ECAO was fortunate to receive about \$21 million in ARRA funding for vital water infrastructure maintenance,” said Area Manager, Mike Collins.

Work administered with ARRA assistance included the installation of new equipment and rebuilding both electrical generators at the Flatiron Power Plant, known as a “rewind.”

“Our efforts on the Flatiron penstock recoating project have gained media attention, but it's just one of numerous activities ARRA enabled us to implement,” Collins said.

In all, ARRA funding expedited work on about 12 projects in the water delivery systems managed by ECAO.

“It's been a couple of very busy years,” said Collins. “All of us in Reclamation have a significant responsibility in water infrastructure maintenance. ARRA provided a good step forward in our continuing path of water delivery and power production success.”

## Leadville Treatment Plant Sludge Press

Unlike other ARRA projects at ECAO, the sludge press contract is not associated with Colorado-Big Thompson project.

A more specialized contract, the sludge press was built specifically for the water treatment plant adjacent to the Leadville Mine Drainage Tunnel.

In 2008, the Environmental Protection Agency drilled a well in the upper reaches of the drainage tunnel and constructed a pump and pipeline connecting the well to Reclamation's treatment plant.



LMDT supervisor, Jenelle Ortiz, briefs Colorado Senator Mark Udall on the new sludge filter press.



(Above) Reclamation's Leadville Water Treatment Plant uses this new sludge filter press to compact waste into "cakes" for transportation to a special environmental disposal site. The sludge filter press is self-contained in its own trailer on site (lower left).

“We treat a lot of water here,” said plant supervisor, Jenelle Ortiz. “Before EPA built the well, our historical average was around 46 million gallons a month. The new well and pipeline put us near our max capacity. We currently treat about 67 million gallons of water a month.”

The additional water being treated increases the amount of sludge. “Our sludge production tripled and exceeded the capabilities of our original press,” said Ortiz.

“The heavy metals we clean from the water comes out in the form of sludge. This machine literally presses the excess water out of the sludge, yielding a 'cake' of metal hydroxide that is about 45 percent solid. That's firm enough to be hauled away and disposed of in a specialized landfill,” she said.

The ARRA dollars enabled purchase of the new press instead of renting one, saving taxpayers about \$17,000 a month.

ECAO, cont. next page

## Pole Hill Box Culverts

“For over seven years Reclamation has been considering how to rehabilitate the Pole Hill Canal,” said Jeff Ticknor, a civil engineer in design for GP’s Regional Office.

“In 2009, we made the decision to pursue the box culvert option to replace the open canal with an enclosed concrete conduit,” Ticknor said.

The Pole Hill Canal carries water from Olympus Tunnel out of Estes Park, Colo. to the Pole Hill Power Plant, which is the first of three off-stream power plants making up the southern power arm of the Colorado-Big Thompson project.

“There are many benefits to this replacement work,” said Chuck Pedersen, ECAO’s Chief of Operations and Maintenance.

“The culverts, placed end-to-end along the canal route, will help reduce evaporation and seepage, algal growth and animal incidents,” Pedersen said.

With an expedited process under ARRA, the supply contract (construction and delivery) was completed in the fall 2010, going to a local company in Henderson, Colo. just north of Denver.

The contract came in under budget and ahead of schedule thanks to the hard work of George Gliko, Dan Foltz, Arlene Dawson, Chan Worley, Brian Hollis, Wes Myers, Brian Little and many others.

“My one sentence description of this project would be, ‘We came, we designed; they built, and they delivered!’” said George Gliko, civil engineer with the regional office’s design section. “And that is true. Also true, is that there were some complicated details involved with this delivery contract.”

Because the canal’s path curves around the foothills of the Rocky



**(Above) Hauling of the Pole Hill box culverts was done in multiple delivery trips of four trucks at a time, with each flatbed truck carrying a single, 20 ton box culvert.**

Mountains, the individual concrete “boxes” are not all the same shape. Multiples of six differently shaped culverts, 347 in total, had to be delivered.

“And these aren’t small things, by any means,” said Dan Foltz, a civil engineer at ECAO who detailed delivery of the culverts.

“Each one of these culverts averages about 18 feet wide, 12 feet tall and six feet long. They weigh just over 20 tons, each.”

Hauling was scheduled to begin right after Labor Day 2010, but was postponed due to the Reservoir Road fire, eventually starting in mid-October.

A series of four flatbed truck convoys carried the culverts to myriad storage

locations around the ECAO main office in Loveland. Deliveries were made a minimum of four times a day, carefully calculated to squeeze in between school bus runs.

“We still have a lot of work to do,” Ticknor concluded, “The next phase of this project is the installation scheduled to begin this fall.”

**ECAO, cont. next page**



**(Above) Delivered box culverts await installation alongside the open Pole Hill Canal.**

### Green Mountain Dam Spillway

ARRA funding enabled another local contract for the work at Green Mountain Dam, in Colo.

Since 2009, Moltz Construction out of Salida, Colo. has been working on the spillway repairs.

“The concrete in the spillway is the original concrete from construction,” said Jeff Cross, supervisor at Green Mountain. “Repair work along the concrete spillway has been performed several times in the past. The

facility was built between 1938 and 1943 and they didn't use entrained air. So it's been susceptible to freezing and thawing damage ever since,” he explained.

As a result, the scope of the contract includes repair of the deteriorated walls and floors in the open channel spillway and the filling of all voids with properly prepared concrete.

The spillway is a central feature of the Green Mountain facility, used

throughout the year to deliver water to Colorado's western slope, often in conjunction with power production.

A portion of the deliveries from Green Mountain make up for water diversions further upstream on the Colorado River that go east via the Colorado-Big Thompson project.

The ARRA contract created about 15 jobs. The project is expected to be substantially completed in 2011.

***In April 2009, Interior Secretary Ken Salazar announced that the Bureau of Reclamation would invest \$1 billion under the American Recovery and Reinvestment Act to repair water infrastructure and address long term water supply challenges across the country. The Eastern Colorado Area Office received a portion of those dollars and put them to work addressing infrastructure maintenance.***



(Left) Work on the spillway at Green Mountain Dam included painting the spillway gates. (Above) Concrete replacement on the Green Mountain spillway included rebuilding whole sections of spillway walls. (Right) Moltz Construction also patched voids up and down the spillway.



# ARRA



# ECAO

# SHOVEL READY

By: Sterling Rech, GPRO

AUG, 2010: Great Plains Regional Director Mike Ryan (right) and Reclamation Commissioner Mike Connor (middle) tour South Dakota's Standing Rock Water Treatment Plant with Doug Mund (left) of Bartlett and West Engineering.

According to *Global Water*, the lack of safe drinking water is the primary cause of disease in the world today.

Imagine, turning on your faucet and seeing murky, coffee-colored liquid drizzle out. Fourteen percent of the world, or nearly a billion people, rely on untreated water to meet their consumption needs.

There are still populations – even in the U.S. – who cope with low-quality water on a daily basis.

Reclamation's rural water projects are part of the solution.

By partnering with local communities and tribes, Great Plains projects help to deliver potable water throughout the West.

## ARRA's Purpose at GP

Thanks to congressionally-sanctioned American Recovery and Reinvestment Act (ARRA) funds, part of the 2009 economic stimulus package, many tribes and rural communities across the Great Plains Region have enhanced their water supply, delivery and treatment systems.

Out of the nearly \$250 million in ARRA funding the region received in 2009 and 2010, about \$200 million – 80 percent – was targeted specifically for rural water projects.

The Great Plains's FY10 budget doubled as a result of ARRA, increasing from approximately \$250 million to \$500 million.

"I never imagined I'd be

administering that kind of money," said GP Regional Director Mike Ryan.

"It's not very often that our problem is too much money. But the important thing was our region's ability to get the money obligated quickly and prudently, which we did," Ryan said.

"And you better believe that GP seized the opportunity to put that money to work."

## Hitting the Ground Running

"It wasn't altogether smooth sailing getting from point A to point B with ARRA funds," said Ryan.

**Shovel Ready, cont. next page**



# GP Under Construction



**LEWIS AND CLARK PROJECT**



**GARRISON DIVERSION PROJECT**



**ROCKY BOYS PROJECT**



**FORT PECK/DRY PRAIRIE PROJECT**



**LOWER BRULE PROJECT**



**PERKINS COUNTY PROJECT**

**SHOVEL READY:** Projects served by ARRA in the GP Region help provide safe, reliable drinking water to thousands of people who previously relied on undependable water from untreated sources.

“Although GP was highly efficient when it came to obligating ARRA funds, there were challenges every step of the way that tested our drive and determination as an agency,” he said.

ARRA-funded projects were broken up into phases that ranged from as few as three, to as many as 18, depending on the development stage of the project.

“Although the construction process was slung forward because of the funds, at times it still seemed like trying to carve out a canyon using toothpicks,” said Ryan.

“The bidding process, vetting, procurement, contractual agreements and awarding all took time, which tended to slow

momentum. Not to mention ARRA dollars are money with an expiration date. Use it or lose it!” Ryan said.

Faced with pressing timelines and potentially significant impacts to normal operations because of ARRA funding, the region managed the task as an unusual or extraordinary event and established an Incident Command System (ICS), on day one.

***“The day ARRA was signed was the day we started working on it.”*** – John Soucy, GP Deputy Regional Director

John Soucy, GP’s Deputy Regional Director, volunteered to serve as Incident Commander (IC) and lead the command, control and

coordination of GP’s ARRA program.

“The day ARRA was signed was the day we started working on it,” said Soucy.

“Reclamation’s organizational efficiency benefitted by having an IC located at the regional office, due to the fact that the process required a significant draw on area and regional office resources,” said Soucy. “ARRA was a top priority.”

Soucy put together a team of subject matter experts whose task was to get ARRA dollars working on the ground as soon as possible, while maintaining strict adherence to applicable laws and guidelines.

The region’s ARRA team included managers for power O&M projects, contracting, financial assistance, grants and



**Deputy Regional Director John Soucy tours the water treatment plant near Sioux Falls, S.D.**

agreements, public affairs and Native American affairs.

“My role was to keep us all rowing in the same direction,” Soucy said.

#### **Going the Distance**

“People subjected themselves to extraordinarily difficult working conditions and crushing workloads for months because they saw the light at end of the tunnel,” said Soucy.

Efficient and timely paperwork was key in the ARRA process.

“It was a nesting of capabilities that became more specific as you got deeper into the organization,” Soucy said. “People knew their positions and worked diligently to get the job done.”

On the other hand, one hurdle that wasn't as easy for the region to overcome was finding a pool of well-qualified workers with right mix of skills and equipment to handle the job opportunities created by ARRA.

“We weren't going to just hire people off the street to come work,” said Soucy. “We needed skilled workers with the right expertise because we didn't have six months to train people before they started working,” he said.

Despite the challenges, Great Plain's ARRA projects created more than 1,000 jobs.

#### **If It's Not One Thing ...**

Construction is ultimately at the mercy of Mother Nature, and the region's ARRA projects were no exception.

In the late summer of 2010, severe weather hit the Lewis and Clark Rural Water Project in the form of a “microburst” storm.

A microburst is a brief weather incident with dangerously high winds that often have tornado-like effects on housing, commercial buildings and infrastructure. The storms are highly unpredictable and last anywhere from a few seconds to a few minutes.

The before and after photos to the right show the devastating impact the microburst had on the water treatment plant tower for the Lewis and Clark Rural Water Project.

The storm created a set-back for for contractors and construction workers and the program had to be reconfigured to account for the delay.

“Anytime you're managing an effort on this scale you expect a few curveballs,” said Soucy. “But it can

create a real sense of urgency when an 18 month timeline suddenly becomes 15.”

#### **Moving Forward**

“The satisfaction of delivering critical water supplies to rural municipalities and irrigators is fulfilling to say the least,” said Soucy.

As the dust settles, ARRA will continue to work for Reclamation for years to come as tribal and rural communities experience the benefits of these rural water systems well into the future.

“The real reward is seeing the work that's been done with ARRA dollars,” said Soucy. “People now either have, or will soon have, the ability to get clean water out of their faucets because of our work.

“You just can't ask for more than that,” he said.

To read more about ARRA projects in Great Plains Region, visit: [www.usbr.gov/gp/](http://www.usbr.gov/gp/).



**BEFORE AND AFTER: The partially completed main water treatment plant tower on the Lewis and Clark Rural Water Project in South Dakota, before and after a “microburst” storm pounded the area with hail and high winds.**

# A Day in the Life of a Dam Tender ...

By Terri Salter, NKAO

Many may think that life as a dam tender is quite laid back and relaxing – however, there are many duties that go unseen by the majority of the public and employees.

Jerry Nelson has been Superintendent at Red Willow Reservoir since 1994. Red Willow is one of 15 dams operated by the Nebraska-Kansas Area Office and is located near McCook, Neb.

Nelson has seen a lot during his time here, and shared a few highlights from the scope of his responsibilities.

One of the things taking up much of his time recently has been dealing with an aging facility.

In Oct. 2009, cracks in the embankment were discovered at Red Willow Dam. This means that Red Willow remains in an EAP

Response Level 1 as the reservoir has been drawn down to reduce risks related to the embankment cracking.

This requires Nelson to take various measurements and readings to ensure the dam remains safe for the public until repair work can be completed.

In addition, since there is a Class A National Weather

Station located at Red Willow Dam, Nelson does a daily operations report to start his day. This includes gathering necessary information to send to the National Weather Service.

Many of the other duties that may come up throughout the day are part of the regular maintenance of the facility, including outside maintenance like snow removal during the winter and mowing and spraying during the spring, summer

and fall.

There is also equipment to be repaired and maintained which can vary in nature from mechanical, electrical, hydraulic and welding work, depending on the day.

Nelson is also responsible for both the inside and outside maintenance of the buildings. He is part of a work crew that goes to any of the other 14 dam sites and works on major repairs necessary at those locations.

Nelson willingly drops what he can to help fellow employees in order to make sure that all the dams are maintained in a safe manner and can be enjoyed by all.

In addition, Nelson also participates in the technical surveys that have to be done at each dam site throughout the year to spot potential problems and prevent them from becoming even bigger issues in the future.

As you can see, life as a dam tender is not as laid back and relaxing as one may have thought. There is much to be done in repairing and maintaining a dam.

Nelson sums it up nicely when he says, “this job includes anything and everything – just what I like!”



**(Above) Jerry Nelson delivers a presentation at an all-employee meeting held at Red Willow Reservoir, April 2010.**

## NKAO Hosts All-Employee Meeting

NKAO hosted an all-employee meeting at Red Willow Dam last spring to brief employees on major projects and emerging issues.

Mike Delvaux discussed the aerial seeding of native grass species that was done at Red Willow during the spring of 2010. The reservoir had been drawn down to reduce risks related to embankment cracking, exposing an area of land that could be overcome by invasive plants and noxious weeds.

Seeding the area with native grasses provides natural competitors to the invasive plants and noxious weeds that typically colonize previously flooded soil areas.

The Nebraska Game and Parks Commission accomplished the seeding through a contract with a local aviation agency. Approximately 650 acres of the 850 acre drawdown zone was aurally reseeded.

Other topics were discussed such as the Republican River Compact and accessibility updates to the NKAO office.



**Mike Delvaux explains the Red Willow reseeding project in detail at NKAO's all-employees meeting held at Red Willow Dam in Neb.**

# Nebraska Children's Groundwater Festival

The Nebraska-Kansas Area Office supported the Nebraska Children's Groundwater Festival in 2010 by providing an entertaining and educational presentation aimed at a grade-school audience.

"Those Darn Dams," proved a tried and true hit once again among the 3rd, 4th and 5th grade students.

The hands-on activities allowed the kids to build three different types of dams: rolled earth, concrete arch and even a beaver dam!

Guided by helpful tips from Reclamation staff, the kids competed for dam supremacy through a series of tests such as the "monstrous earthquake," and "typhoon flood."

NKAO STEP student Autumn Carlson summed up the day by saying, "Participating in the Children's Groundwater Festival was a wonderful experience. It was nice to be able to teach the next generation of water users about Reclamation's mission and how it affects them!"



(Above) Autumn Carlson, STEP student at NKAO, offers tips to help this group of Nebraska students construct a model dam. The Nebraska Children's Groundwater Festival is an annual event that focuses on educating Nebraska's youth about water issues.

## Husker Harvest Days Hosts 50,000 in Neb.



(Above) Brent Esplin (right), Deputy Area Manager, engages with visitors to Husker Harvest Days about irrigation at NKAO's booth.

Husker Harvest Days is the nation's largest working irrigated farm show, and once again NKAO staff was there to welcome visitors.

Attendance was up in 2010, with

a record 50,000 people attending the show.

NKAO's booth focused on irrigation flow measurement this year, and was staffed by personnel from Reclamation's local offices.

In order to visually demonstrate a variety of measurement techniques, a model was constructed demonstrating measurement with a flume, a propeller meter, a venture meter and a weir.

Clinton Powell, NKAO's Water Conservationist, said, "By showing agricultural producers a variety of ways to measure flows, and things that cause those measurements to break down, we are hoping that farmers come



(Above) NKAO staff member Lois Conway (middle), secretary at the McCook Field Office, educates visitors about Reclamation's mission during the 2010 Husker Harvest Days.

away with a better understanding of the amount of water they are applying to their fields.

"This should help them better utilize their resources," said Powell.

# Raising Pathfinder



(Above) Crews prepare a site for drilling anchor bar holes as part of the work to raise Pathfinder spillway by 2.4 feet. The state of Wyo. is managing the project, which will reclaim precious storage space lost to sedimentation over time. Pathfinder Dam was among Reclamation's first projects, authorized in 1902. The dam is located about 47 miles southwest of Casper, in east central Wyo.

## By Jay Dallman, WYAO

Wyoming Area Office is managing a project to modify the uncontrolled spillway at Pathfinder Dam to recapture 54,000 acre-feet (AF) of storage space lost due to sedimentation since the dam was completed in 1909.

According to Lyle Myler, WYAO Deputy Manager, "The Pathfinder Modification Project is truly a unique situation. The project is being 100 percent funded by the State of Wyoming, including the cost for review and oversight of the project by Reclamation."

Pathfinder Dam was authorized in 1902 as part of the North Platte Project, one of the first five projects authorized for construction by the United States Reclamation Service.

The concept of raising the spillway was suggested nearly 20

years ago as a means to address Endangered Species Act requirements and serves as a key component of the Platte River Recovery Implementation Program.

Rather than construct an entirely new project, Pathfinder spillway could be raised 2.4 feet and the reservoir would again be able to store its originally permitted content of 1,070,000 AF.

A number of possible designs were considered before the decision was made to construct a new concrete ogee weir just upstream of the existing spillway crest.

The existing spillway has a flat crested concrete weir which supports an overhead pedestrian walkway. The new weir is longer and curved to swing upstream of the fixed wheel gate house which controls the water supply to

Fremont Powerplant, three miles downstream.

The cross section of the new weir will be more hydro-dynamic allowing for smoother, more efficient flow over the top of the crest, similar to the flow of air over

**Pathfinder, cont. next page**



(Above) Workers mix grout for anchor bars as part of the Pathfinder Modification project, which will raise the spillway by 2.4 feet and extend it by 70 feet, requiring extension of the pedestrian walkway.

## Pathfinder, cont.

an airplane wing.

The crest shape and longer crest alignment will give the new spillway a greater discharge capacity than the original spillway.

Reclamation assisted with the design and environmental evaluation. The Wyoming Water Development Office is funding the design and construction, including the cost of Reclamation's oversight, as part of their commitment under the Platte River Recovery Implementation Program (PRRIP).

The PRRIP is a collaborative effort by the States of Nebraska, Wyoming and Colorado, the Department of the Interior, water users and environmental entities to manage water and land resources for habitat improvement for the benefit of threatened and endangered species such as the Whooping Crane, Interior Least Tern, Piping Plover, and the Pallid Sturgeon.

The 54,000 AF of restored water storage resulting from the spillway modification will be allocated in two accounts: an Environmental Account and a State of Wyoming Account.

The Environmental Account consists of 34,000 AF of storage space and can be used to provide Wyoming's share of the water needed for habitat improvement in the Platte River Basin in Nebraska in accordance with the PRRIP.

The Wyoming account, with a storage space of 20,000 AF, can be used for future municipal needs and replacement water under the Final Settlement Stipulation or for endangered species's use.

The Pathfinder modification is beneficial for all parties. The environmental impact of raising Pathfinder spillway is far less than the impact of building an entirely new dam on Deer Creek.

Because of the senior water right



**PREPARING FOR THUNDER:**  
(Above) Crews drill holes for anchor bars to raise Pathfinder spillway. (Right) To increase reservoir storage, crews used heavy equipment and explosives to smooth and enlarge the natural granite spillway.



assigned to Pathfinder Reservoir, the 20,000 AF of storage space in the Wyoming account is expected to provide an annual yield of about 9,600 AF of water for beneficial use by the state.

The yield is comparable to the amount of water Wyoming could have expected from a much greater storage space in the proposed Deer Creek Reservoir.

### Construction Phase

Design and specifications for the spillway modification were prepared by URS Corporation out of Denver and construction began in the fall of 2010. Wyoming awarded the construction contract to ASI Constructors of Pueblo, Colo.

The natural granite spillway was enlarged and smoothed to allow it to pass more water. The enlargement required blasting of

rock protrusions on the left margin of the spillway. Because the spillway crest was lengthened, the pedestrian walkway also needed to be extended approximately 70 feet.

Careful consideration was given to developing a blasting plan that would protect Pathfinder Dam and other Reclamation structures in the area. Three concrete and masonry gatehouses and a historic granite block dam tender's house are all located near the dam.

After holes were drilled and explosives placed, specially designed heavy fiber mats were placed on the surface to contain airborne rock fragments when blasting was done near the existing walkway.

Monitors were set up to keep tabs on seismic forces created by the blasts. Inspections were made before and after the blasting to

**Pathfinder, cont. next page**

## Pathfinder, cont.

document any adverse effects to Reclamation's structures.

Myler has served as the point of contact for the WYAO and has coordinated activities between Reclamation offices, Wyoming and the contractors.

Progress has been very satisfactory but the project has not been without its challenges.

Because the construction contract is being managed directly by the state of Wyoming, a significant amount of coordination by the WYAO with the Great Plains Region and Denver Technical Services Center (TSC) has been required for timely review of individual blasting shot plans and monitoring results, as well as oversight of key construction activities such as the spillway crest foundation preparation.

Such coordination was needed to complete the blasting downstream from the extended spillway to widen the channel.

The blasting was initiated on Nov. 17, 2010, with the final blast occurring on Jan. 11, 2011.

The work consisted of fourteen separate blasting events. Each event had its own blasting plan and each plan had to be reviewed by Reclamation.

Monitoring results from each blast event also had to be reviewed by Reclamation personnel. During this time, Myler worked closely with Larry Schoessler of the Regional Office in Billings, and Dan Mares of the TSC to complete the blasting reviews.

By mid-January, all of the blasting had been successfully completed and the loose waste material had been hauled away.

The state's contractor has completed the installation of the extended walkway and widening of the spillway channel. The foundation for the new weir has



**AFTER THE BLAST:** (Above) Heavy equipment moves debris after crews blasted downstream from the extended spillway to widen the channel. Blasting work for the Pathfinder Dam modification consisted of fourteen different events between Nov. 17, 2010 and Jan. 11, 2011.

been excavated down to the native granite and steel reinforcing bars have been drilled and grouted in preparation for pouring the new concrete.

The contractor has demobilized for the remainder of this season, leaving the existing spillway fully

functional for use during the spring runoff season.

When the contractor returns this summer, the final spillway foundation preparation and installation will continue.

The project is scheduled to be completed by April 2012.



# Over-reaching

# Ladder Safety

**In Great Plains Region,  
10 of 25 injuries in 2010  
involved over-reaching  
or falling off ladders.**

## **Remember:**

- ➡ Adjust your stride for conditions
- ➡ Pay attention to your surroundings
- ➡ Keep walkways clear
- ➡ Don't over-reach from a ladder

**Work safe  
so you can  
play safe!**

# New Manager at DKAO



**On May 8, Dick Long will take over duties as Dakotas Area Manager.**

Reclamation welcomes Dick Long as the new Dakotas Area Office Manager in Bismarck, ND. Long replaces Denny Breitzman, who is retiring after 15 years as DKAO Area Manager.

“Dick brings a wealth of operations and management experience to the position from his 36-year Reclamation career,” said Mike Ryan, Regional Director.

“His depth of on the ground experience, his ability to communicate and collaborate, along with his vision, will guide the Dakotas Area Office into the future,” Ryan said.

Long began his Reclamation career as an Agricultural Engineer in McCook, Neb. in 1974. Later, he worked at the Great Plains Regional Office in Billings, Mont., for ten years, administering the Rehabilitation and Betterment Program, along with facility operations and maintenance programs.

From 1987 to 1990 he was the Water and Land Division Chief at the Grand Junction Projects Office in western Colo.

In 1990, he joined the Montana Area Office in Billings, as Chief, Water & Land Division, and has had various supervisory responsibilities for water and land

resource management, facility operation and maintenance and dam safety.

Before coming to Reclamation, Long worked for two years as a contract-surveyor during the construction of McClusky Canal in North Dakota. He received a BS in Agricultural Engineering from North Dakota State University in 1972.

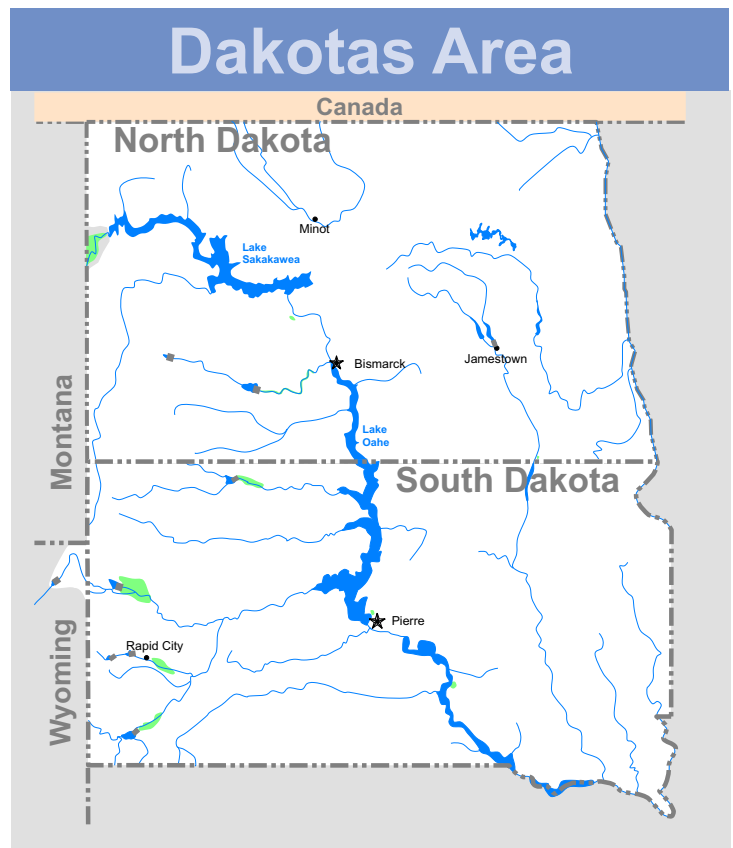
“I look forward to working with the staff of the Dakotas Area Office to address the challenges and opportunities we've got before us as we manage and develop water resource projects,” said Long, who is scheduled start in the position on May 8.

DKAO is responsible for administering Reclamation programs in North and South Dakota.

The office provides technical assistance and leadership in the responsible development and management of water resources to enhance the quality of life in both states.

DKAO is headquartered in Bismarck, ND, with two field offices in South Dakota. The office manages nine dams and reservoirs and a diverse array of programs and projects, including the planning, construction, and operation and maintenance of rural water systems.

Other activities include contract renewals, irrigation development, water management studies and water conservation.



# South Dakota's Newell Museum Offers Glimpse of USRS History

By Cyndy Larom, DKAO

Reclamation's history is fascinating and found in a number of places we visit during our daily work.

In preparation for a meeting on the Belle Fourche Project, George Finnegan and I visited the Newell Museum located in downtown Newell, SD.

The museum is a member of the Association of South Dakota Museums and dedicated to preserving and interpreting local history.

Linda Velder, wife of retired Reclamation employee Gary Velder,

is the curator and manager of the museum, and receives items donated by area residents.

Photographs in the museum collection give us a look at the early times of the Belle Fourche project.

James Dolphin, former Reclamation Clerk in 1904, kept a photobook from his service in Reclamation.

The Newell Museum is a wonderful resource and open to the public.

Belle Fourche Dam is listed in the



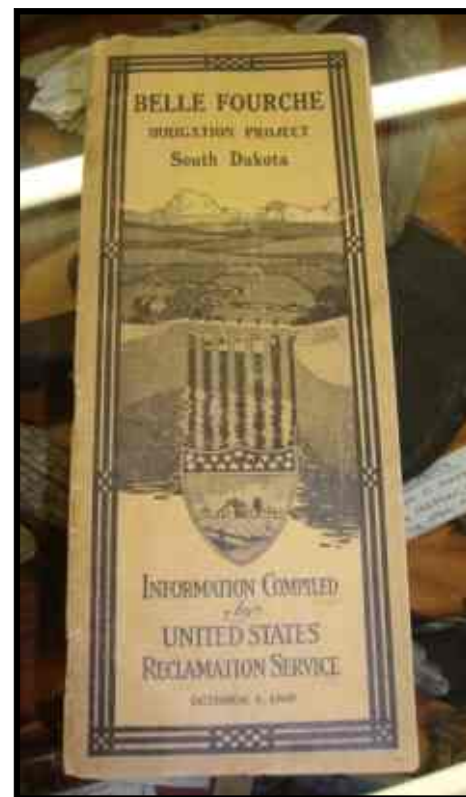
(Above) Did you know that the U.S. Reclamation Service used to have its own hockey team? This picture from James Dolphin's collection at the Newell Museum shows the Reclamation hockey team posing next to Belle Fourche River Diversion Dam.

National Register of Historic Places. The reservoir has approximately 8,040 water surface acres, 6,694 land acres and 58 miles of shoreline.

More information about the Belle Fourche Project is available online at [www.usbr.gov/projects/](http://www.usbr.gov/projects/).



(Above) George Finnegan browses historic photos with Gary Velder amidst a wealth of historical artifacts. The Newell Museum is located in South Dakota and has information about early Reclamation activities.



(Above) This 1909 Belle Fourche Irrigation Project pamphlet advertises that unskilled laborers earned \$2 to \$2.20 a day.

# OTAO American Youthworks Partnership Off to a Great Start



(Above, left to right): Earl Goodson, Buffalo, NY (Env. Studies); Erica Baker, Pittsboro, NC (Biology); Jacob McLean, Ashville, NC (Biology/Psychology); Laura Andersen, Spring Mills, Pa. (Psychology); Megan Helton, Louisville, KY (Anthropology); Emily Frenzel, Durham, NC (Sociology/Anthropology); Chris Keller, Lincoln, Neb. (Film/Philosophy); John Stahl, Byron, Okla., Fisheries Biologist, Oklahoma Department of Wildlife Conservation; Not Pictured: Erick Hetzel, Mass. (Political Science).

Reclamation's Oklahoma-Texas Area Office has partnered with American Youth Works of Austin, Texas, in a conservation effort to reduce invasive species while creating new fisheries habitat at Foss Reservoir in Oklahoma.

The project was accomplished through a cooperative agreement with the Corps Network.

Reclamation provided project oversight and 75 percent of the required funding, and the Corps Network provided 25 percent of the funding and completed the work through their arrangement with American YouthWorks.

The eight member crew of American YouthWork's Environmental Corps have been working tirelessly cutting invasive eastern red cedar and salt cedar

from designated areas surrounding the lake.

Members of the Foss Lake Association and other local volunteers assisted the crew in hauling, loading and sinking trees in the lake to establish fish habitat at locations selected by the Oklahoma Department of Wildlife Conservation.

Megan Helton, crew leader, stated that she first learned of the program through a friend.

The team as a whole agreed that the program has allowed them to gain hands on experience in field conservation work, taught them lessons in problem solving and the value of working as a team.

The crew will provide their services and stay together over the course of a year at various projects throughout Texas and Okla.

Erica Baker of Pittsboro, NC said, "It's really hard work but we do get to have a lot of fun."

This project has received overwhelming support from everyone involved including Oklahoma Tourism and Recreation Department, Oklahoma Department of Wildlife Conservation, the Foss Lake Association, and local volunteers.

"It's great to see the local people so involved in the project," Helton said. "We don't usually get to see the

effect we have on the community."

Positive results are expected for the park and lake with reduced wildfire potential, improvement in scenic views and enhancement of fish and wildlife habitat.

American YouthWorks Environmental Corps is a green jobs training and service program that allows young adults to build and restore the natural environment through parks and trails projects, forestry and habitat restoration throughout Texas.


American YouthWorks has been watching for opportunities to expand their service area into Okla., and plans to use this project to highlight their capabilities to other agencies in the state.

For more information visit, [www.americanyouthworks.org](http://www.americanyouthworks.org).




(Above, top) Youth crew members and volunteers from the Foss Lake Association move trees to designated habitat buoys. (Bottom) Jacob McLean, Ashville, NC, removes Red Cedar from the Mouse Creek Public Use Area.


# Rope Access Team



Brian Hollis, GPRO, inspects unused power penstocks on Gibson Dam, Mont.




Joe Rohde, GPRO, at Pueblo Dam, Colo.



**FROM THE COVER:**  
Matthew Warren, OTAO, inspects the spillway at Cheney Dam, Kan.

Reclamation's Rope Access Team is a dedicated group of skilled individuals whose primary objective is the safety of personnel and resources. The team is committed to maintaining vital infrastructure that keeps the lights on and water running for millions of water users across the West. As members of a network spanning all five regions in Reclamation, their jobs are about more than routine dam inspections, it's a conscious effort to maintain the integrity of our infrastructure and the reputation of our agency.



Joe Rohde, GPRO, working at Sun River Diversion Dam, Mont.

## Rope Access Team

The Great Plains Rope Access Team performs work activities where ropes provide the primary means of access, support, positioning and fall protection, but only when less hazardous means of access are not feasible or methods other than rope-access work would expose employees or contractor personnel to greater potential danger.

Each person participating in rope-access work has the right and responsibility to refuse to participate in work which he/she deems unsafe.

Everyone involved has a responsibility for the safe administration of rope-access work. The local office that employs a Rope Access Team for the purpose of conducting an inspection of an inaccessible structure has the ultimate responsibility for the safe administration work.



Joe Rohde, GPRO, rappels down Yellowtail Dam, Mont.

## Geared-Up for Safety:


Pictured, Brian Hollis, GPRO



### Basics for Rope Access Personnel

- ✓ Advanced First Aid & CPR training
- ✓ Confined space training
- ✓ Hazard Energy Control Program and Lock-out/Tag-out Training
- ✓ Electrical Safety Awareness Training
- ✓ Tool specific training for equipment utilized by Rope Access Team members

# Engineers and the Rise of Civilization



A welder repairs a unit at the Mount Elbert Powerplant in Colo. Technical work such as dam maintenance, construction and welding is referred to as *hard skills* while things like drafting and gathering data are referred to as *soft skills*.

By: Sterling Rech, GPRO

Reclamation is an engineering agency.

It's not a stretch to say that engineers are directly responsible for the rise of human civilization. One could start with something as simple – and ingenious – as the wheel.

*The term “engineer derives from the Latin root “ingenium,” meaning “cleverness.”*

What could we move without the wheel? Where would people be now had the wheel not been invented, and eventually modified?

Although we don't exactly know who made the first wheel, one thing we can probably assume is that it was made by an engineer, which begs the question, where would we be without engineers?

At their core, engineers of all disciplines are viewed as problem solvers.

“They're the men and women that were boys and girls who would take things apart just to see how it worked and then try and put it back together, even though you wouldn't always get it back,” said GP Regional Director Mike Ryan.

Reclamation employs engineers of various disciplines, including: civil, electrical, mechanical, environmental and geotechnical. Most are involved in the planning, design, construction, inspection and operation and maintenance of Reclamation's infrastructure.

The process starts by identifying a problem, either from routine inspection, equipment malfunction or by investigative data analysis, followed by the development, planning and design of a solution. Each stage of the process involves expertise from appropriate engineering disciplines.

Reclamation engineers also work with technical information from drawings, specifications and reports, gathering technical data from instrument readings to assess dam performance and execute multiple levels of analysis to ensure our facilities are operating properly.

Working with others, often in teams, to solve problems is often referred to as “soft skills,” whereas the technical work is referred to as “hard skills,” and

Engineers, cont. next page



**A worker conducts an inspection at Pueblo Dam, Colo. Engineers perform a vital role maintaining the nation's infrastructure.**

both are critical to the effective and efficient operation of Reclamation projects and facilities.

The engineer's role also involves replacements, additions, or extraordinary maintenance (RAX) projects which involve large, infrequent, non-recurring expenditures for maintaining infrastructure.

Most of these dollars go towards *reserved works*, or project features that are reserved for the U.S. to operate and maintain.

A simple real-life analogy is to compare RAX to an automobile. A car owner expects and accounts for routine maintenance such as oil changes, tune-ups, tire rotations and air filters.



**Workers insert keys with strongbacks using hydraulic rams at Mount Elbert Powerplant, Colo.**

But what happens when you're driving down the road and the engine blows, or the transmission goes out?

Having to incur this cost is roughly equivalent to Reclamation incurring the cost for a replacement, addition or extraordinary maintenance on one of its projects.

Examples of RAX include: penstock recoating at Flatiron Powerplant in Loveland, Colo., the Buffalo Bill Dam elevator upgrade or the Green Mountain Dam concrete spillway repair.

### **Safety of Dams**

At Red Willow Dam in Neb., the earth embankment recently presented a serious issue. While performing a routine inspection, NKAO staffers discovered what was thought to be a gopher hole, but what was actually a sinkhole indicating that thin vertical cracks that had formed throughout the dam.

The cracks could have potentially filled with water and eroded the

interior of the dam, resulting in the failure of the dam, loss of irrigation resources and in the very worst case scenario, a potential loss of lives.

In this instance, engineers were called upon to assess the magnitude of the cracks, perform tests and analysis to determine the cause of the cracks and steps to mitigate the risk.

The solution at Red Willow Dam was to immediately lower the water

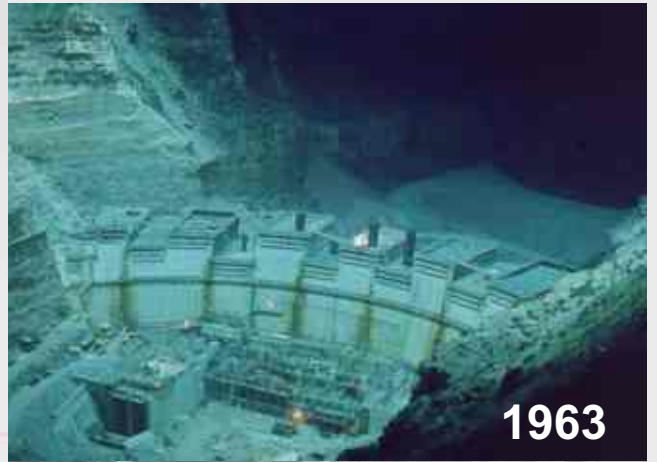
**Engineers, cont. next page**



**Workers insulate the rotor at Mount Elbert Powerplant in Colo. for heating in order to remove the spring keys.**



1961



1963



1965



1967

The above photos show the stages of development in the construction of Yellowtail Dam on the Bighorn River in south central Mont. Yellowtail Dam is part of the Pick-Sloan Missouri Basin program, initially authorized under the Flood Control Act of 1944, and is a multi-purpose unit which provides irrigation water, flood control, recreation and power generation.

level at the dam to alleviate pressure and allow time to evaluate solutions for fixing the dam.

There are also Safety of Dams modifications being planned for the Guernsey Dam and Glendo Dam in Wyo.

These modifications involve major construction, as opposed to maintenance or repair.

#### Analyze and Improve

Engineers also deal with dam modifications to improve operations, such as at Pathfinder Dam in Wyo., where the spillway is being enlarged to reclaim storage space that has been lost due to sedimentation (see story, page 20).

Engineers play a large role in developing and reviewing designs to mitigate environmental issues and improve existing project

operations. They also review the design work of private sector engineering firms for work such as the region's rural water projects.

Of the region's workforce, approximately one-fifth, or just over 140 employees, are engineers, engineering technicians or work in management/supervisory engineering positions. This total includes employees at the regional office, area offices, field offices and facilities throughout the nine-state region.

#### Looking Ahead

In the future, the population in the West is likely to continue to expand. The challenge is that our water supply hasn't grown with the population, and in some areas supplies are becoming diminished due to growing cities and towns,

expanded industrial operations and changing climate trends.

"Just because more people move to Phoenix doesn't mean it will rain more," said Ryan.

These growing demands and competing interests can easily create a setting for conflict.

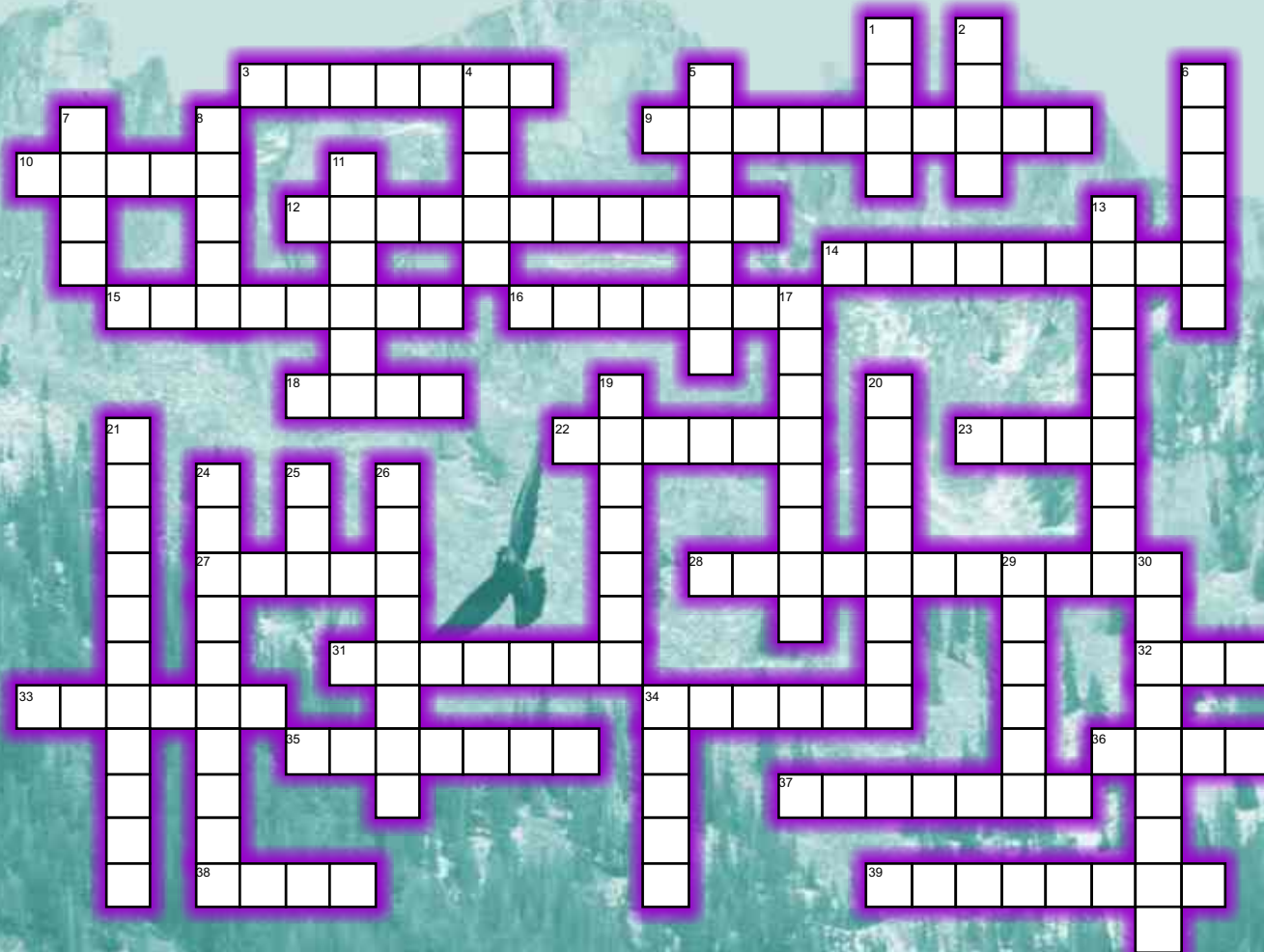
"Even assuming that water supplies stay the same, the demand is still growing and eventually you'll reach a point where there just isn't enough to go around," said Craig Peterson, manager of Infrastructure and Engineering.

For the engineer of now, and of the future, one of the primary challenges ahead is balancing wise resource management with an increasing demand.

"The biggest challenges we face as an agency lie ahead of us," said Ryan.

# Plains Talk Crossword

find answers  
in this issue



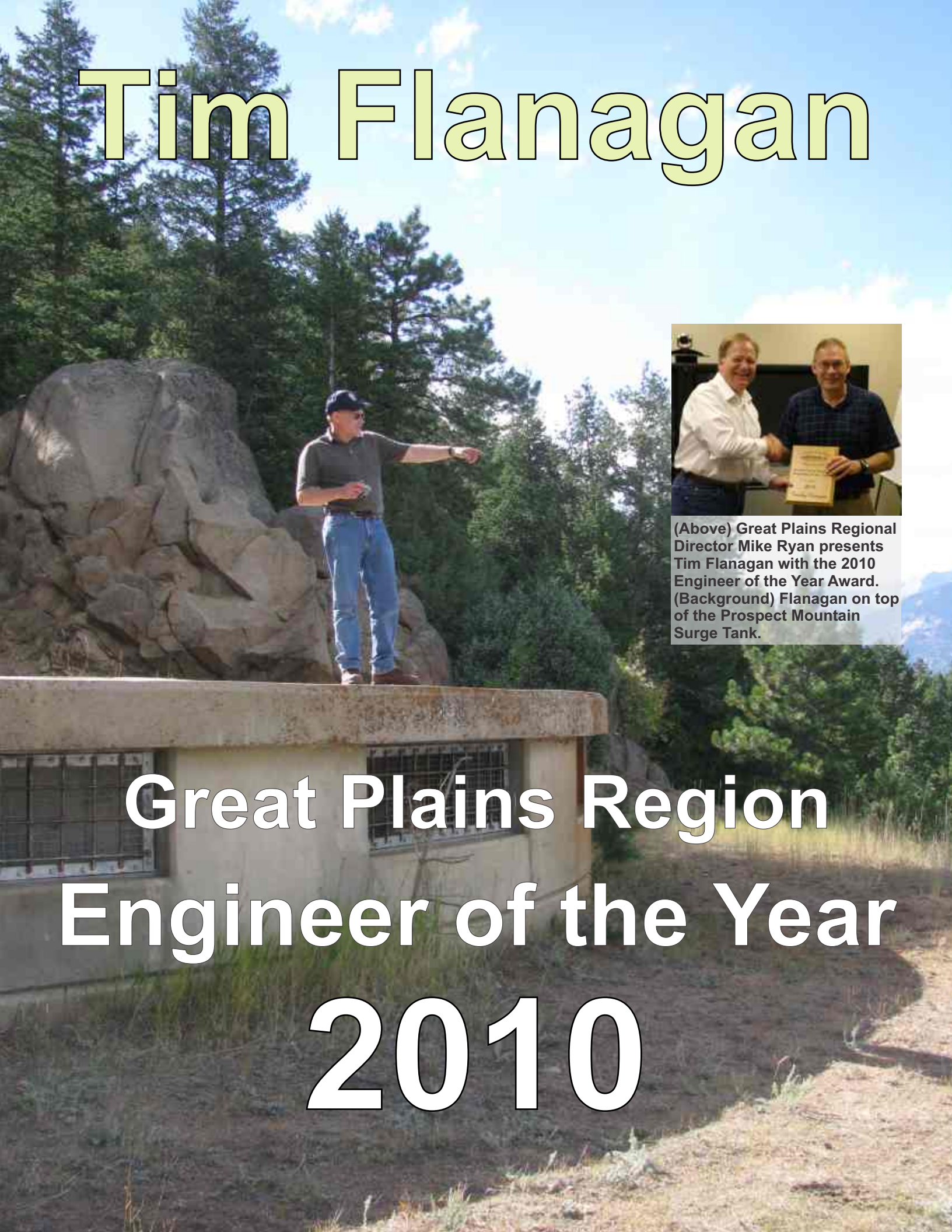
## ACROSS

- 3 Husker \_\_\_\_ Days
- 9 group working at Foss Reservoir
- 10 component of Reclamation's mission
- 12 Wyoming Water \_\_\_\_ Office (state entity)
- 14 Tribe on the Milk River Project
- 15 a Texas river project or a country
- 16 GP state in three regions
- 18 frozen water supply
- 22 item is a safety risk - use carefully
- 23 \_\_\_\_-hydro is less than 1 Mw
- 27 Title XVI state
- 28 \_\_\_\_ Festival in Nebraska
- 31 GP has a photo \_\_\_\_
- 32 Reclamation structure
- 33 Reclamation Texas office
- 34 Newell \_\_\_\_
- 35 \_\_\_\_ Mile on the North Platte River
- 36 a dam that is not
- 37 essential gear for a climber
- 38 precipitation
- 39 endangered fish

## DOWN

- 1 State to be served by Lewis and Clark Rural Water System
- 2 recovery act abbreviation
- 4 \_\_\_\_-hydro is less than 5 Mw
- 5 Regional administrative support organization
- 6 \_\_\_\_ River Recovery Program
- 7 \_\_\_\_ Hill Powerplant
- 8 environmentally friendly power
- 11 Great Plains is a \_\_\_\_
- 13 Reclamation water treatment plant
- 17 North Dakota Unit
- 19 common safety item
- 20 root word for engineer
- 21 \_\_\_\_ River in Montana
- 24 one of GP's oldest dams
- 25 number of GP areas
- 26 largest river basin in GP
- 29 rope \_\_\_\_
- 30 SOD challenge in Nebraska (2 words)
- 34 \_\_\_\_-hydro is less than 100 Kw

# Tim Flanagan



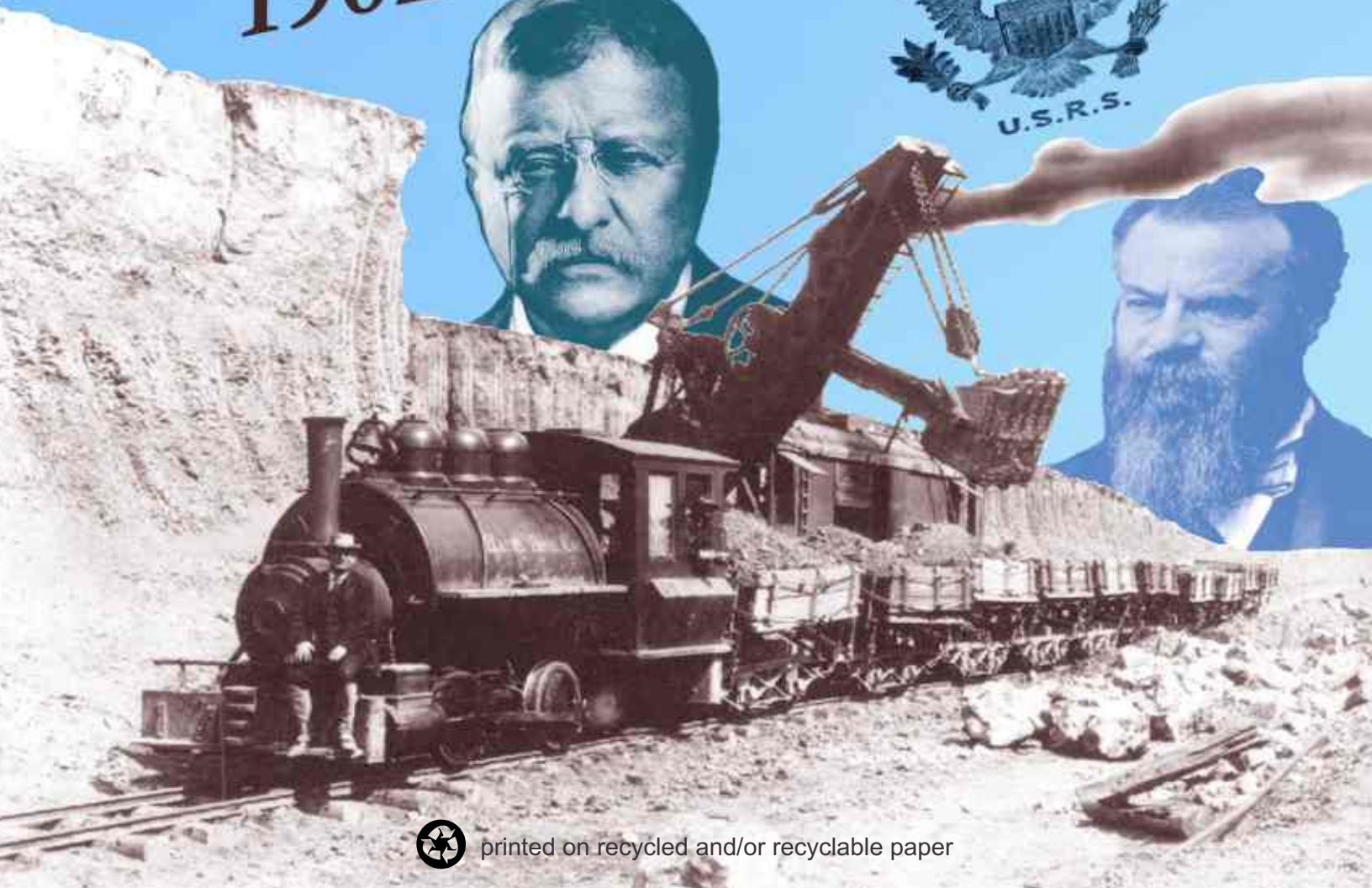
(Above) Great Plains Regional Director Mike Ryan presents Tim Flanagan with the 2010 Engineer of the Year Award. (Background) Flanagan on top of the Prospect Mountain Surge Tank.

Great Plains Region  
Engineer of the Year  
2010

# 109 Years and Counting



1902 to 2011



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