

PlainsTalk

News from the Missouri Basin & Arkansas-Rio Grande-Texas Gulf Region

Winter 2023-2024

core sampling at

SUN RIVER DIVERSION DAM

- Photo Contest results • Yellowtail tour • 2024 priorities •
- Canyon Ferry rehab • The legend of Hugh Glass • Commissioner visits WYAO •
- Ancestral remains repatriation at OTAO • ECAO tunnel comms •



— BUREAU OF —
RECLAMATION



Plains Talk
Winter 2023-2024

Publisher

Tyler Johnson

Editor

Darryl Asher

Designers

Darryl Asher
Brittany Jones
Elizabeth Smith
Sterling Rech

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U.S. Department of the Interior
Bureau of Reclamation Public Affairs
2021 4th Avenue North
Billings, MT 59101
Phone: (406) 247-7608
Email: dasher@usbr.gov

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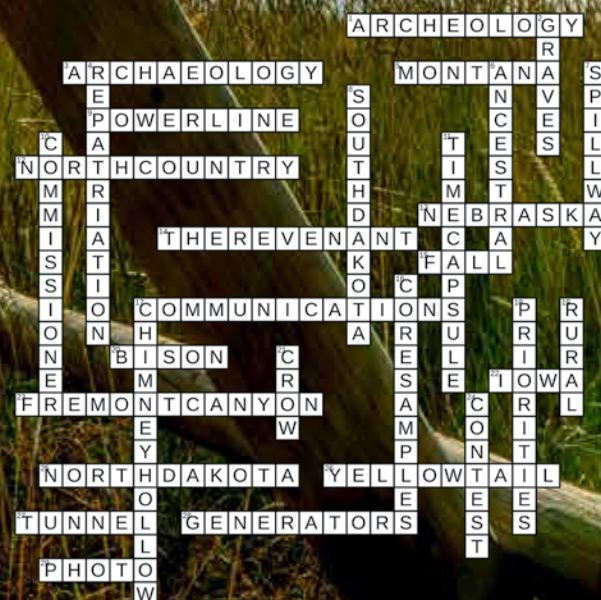
Plains Talk encourages employee submissions, and assists with developing ideas. Questions about stories or photographic essays should be directed to the Plains Talk editor at (406) 247-7608.

Cover:
Sun River Diversion Dam.
Photo by Steve Kroeker

This page:
Camping at Buffalo Bill State Park in Wyoming.
Photo by Hailey L. Glarrow

Missouri Basin Public Affairs Staff

Tyler Johnson
Sterling Rech
Darryl Asher
Brittany Jones
Elizabeth Smith



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Crossword

PHOTO CONTEST

2023 results

The results of the 2023 Photo Contest are in. Thank you to everyone who submitted an entry and voted for their favorite photo. Congratulations to this year's winners!

In 2023, there were 168 eligible entries, and 167 votes were cast.



Mist coming off the warm water of early fall on a clear night in South Dakota.

Photo by Laura Hertz

(Continued from previous page)

Missouri Basin employees never fail to display their keen photographic talents during the annual photo contest.

Whether capturing the natural beauty of our region, team members engaging in work, or the Reclamation's awe-inspiring facilities and infrastructure, your photographs are a unique window in your work and leisure.

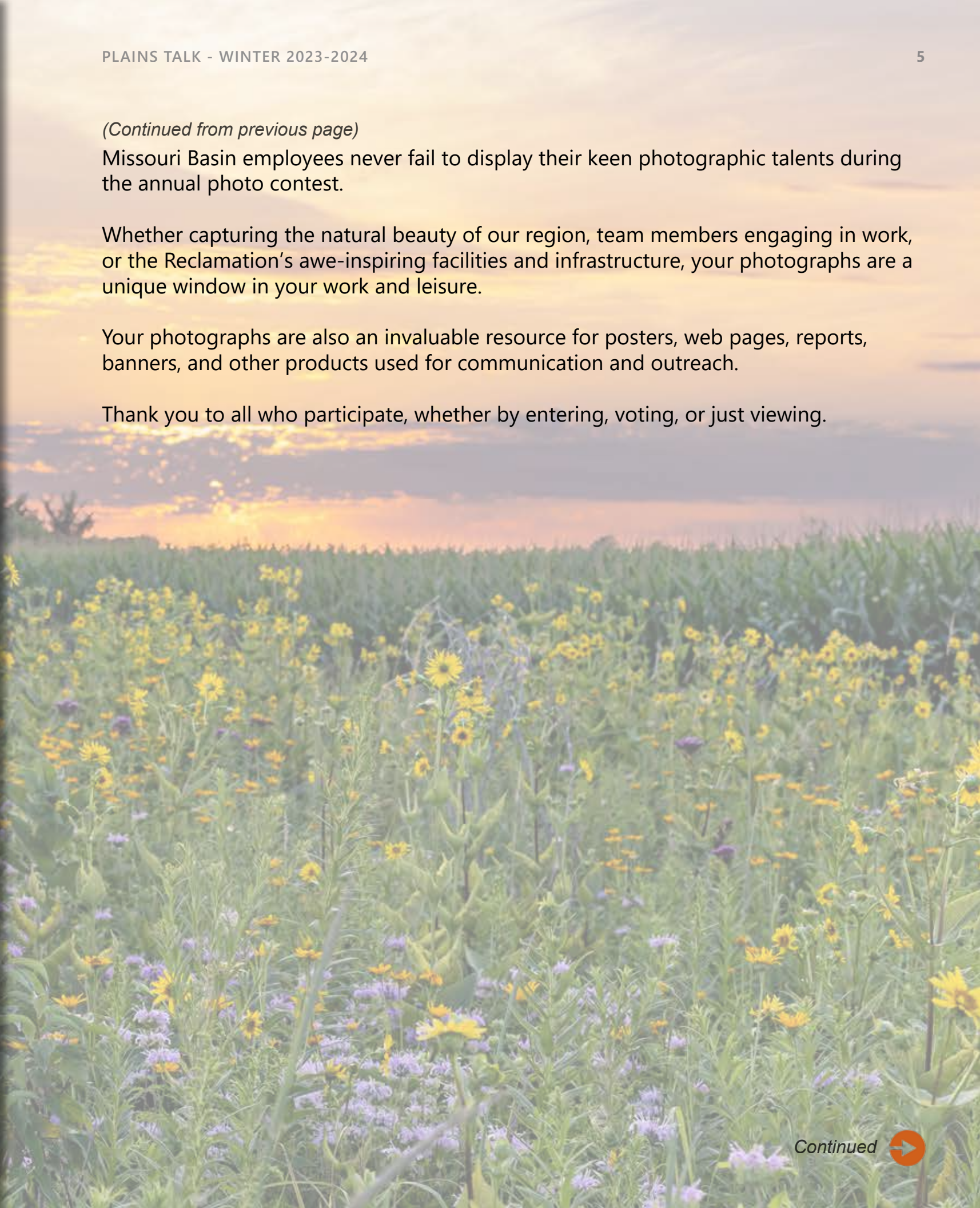
Your photographs are also an invaluable resource for posters, web pages, reports, banners, and other products used for communication and outreach.

Thank you to all who participate, whether by entering, voting, or just viewing.



A bison smells wildflowers.

Photo by Andrew Taylor





Yellowtail Dam spillway
and air slot, Montana.

Photo by Joel Finch



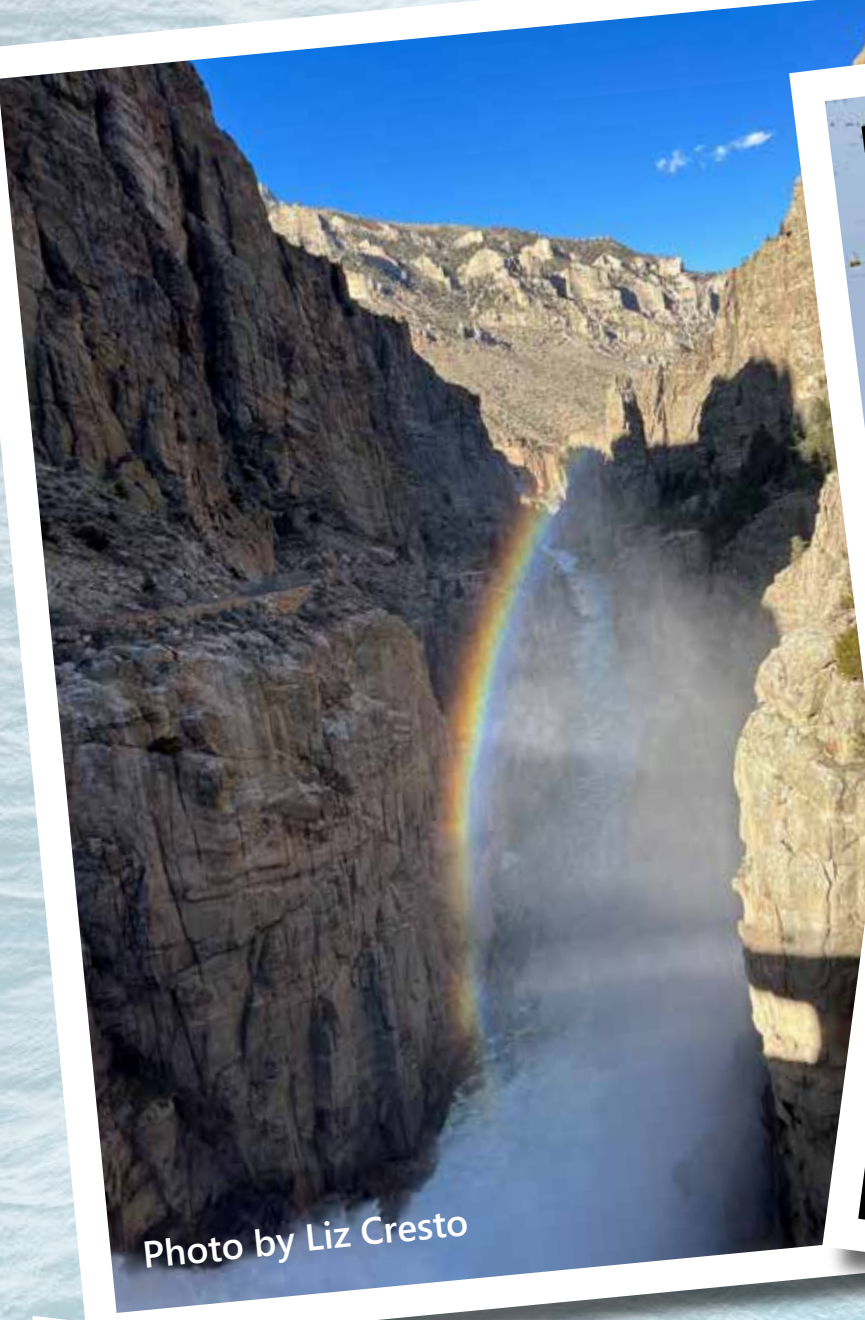


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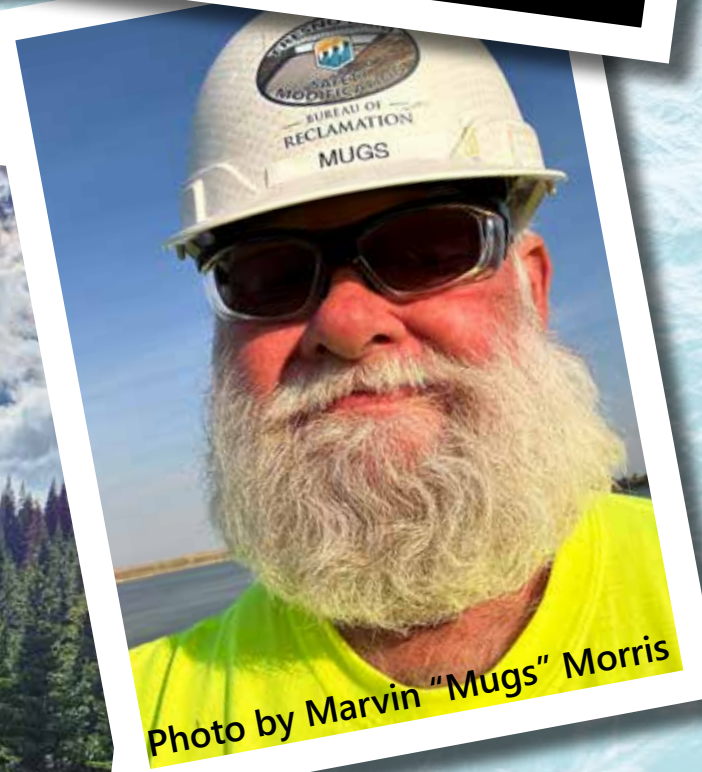


Photo by Marvin "Mugs" Morris



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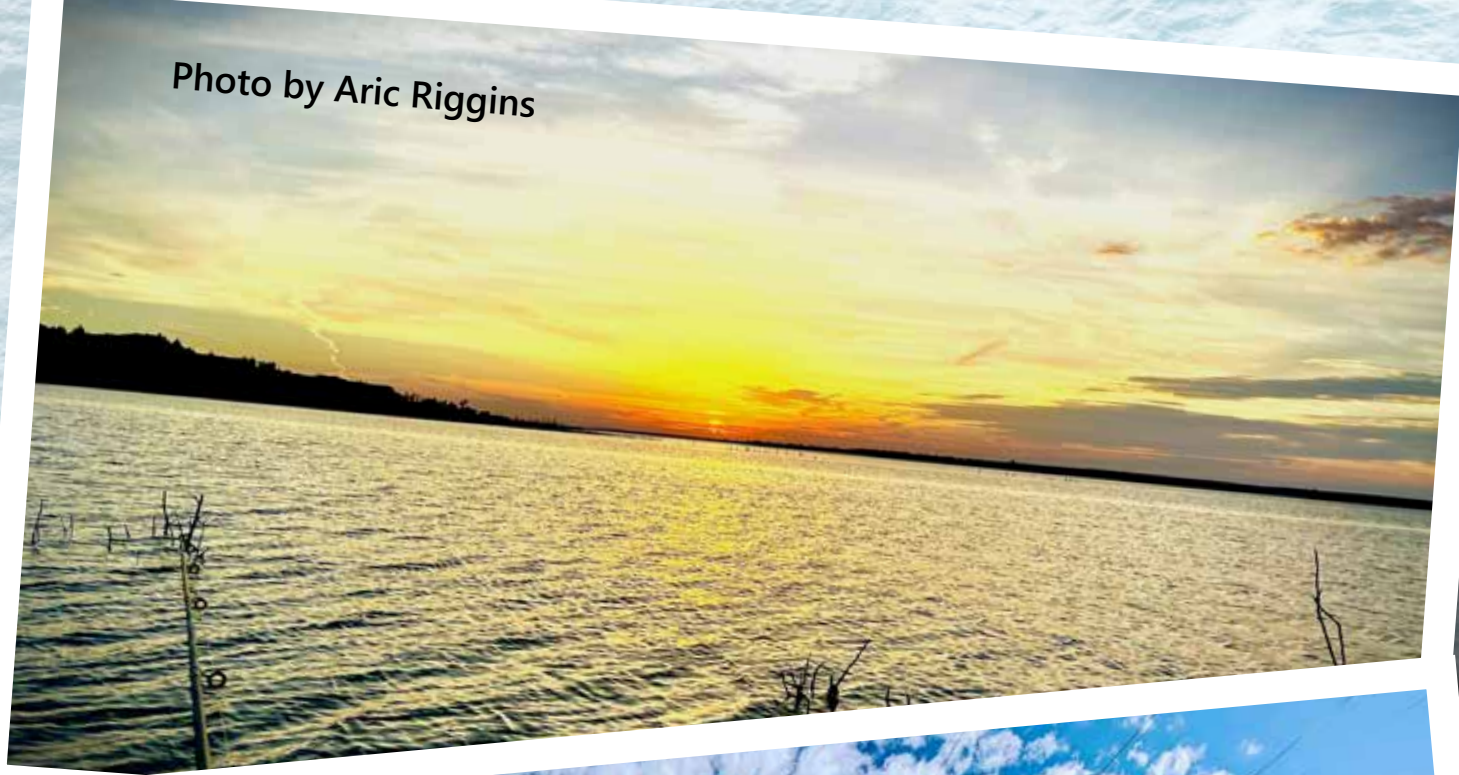


Photo by Robert Bolduc



Photo by Jack Conner

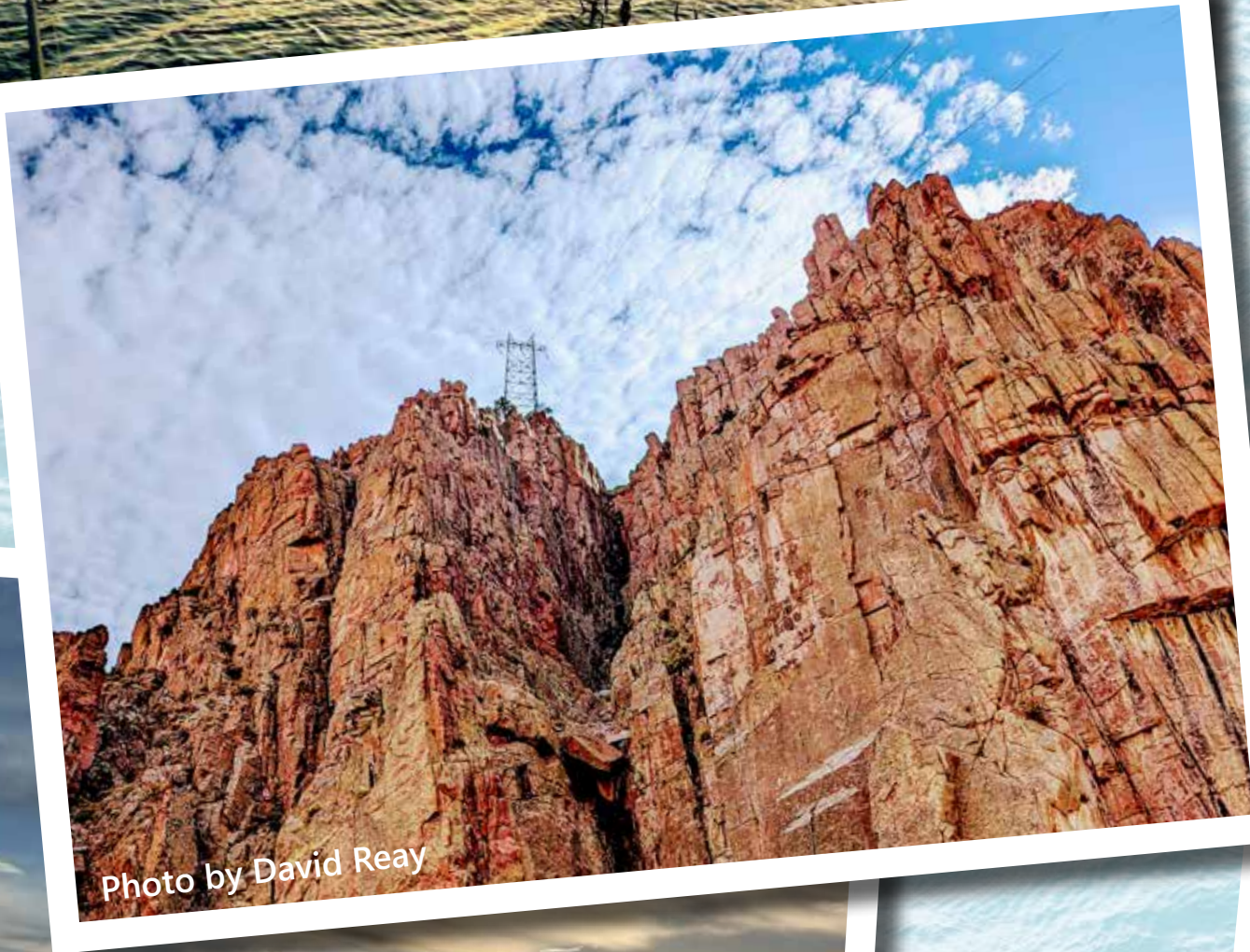


Photo by David Reay

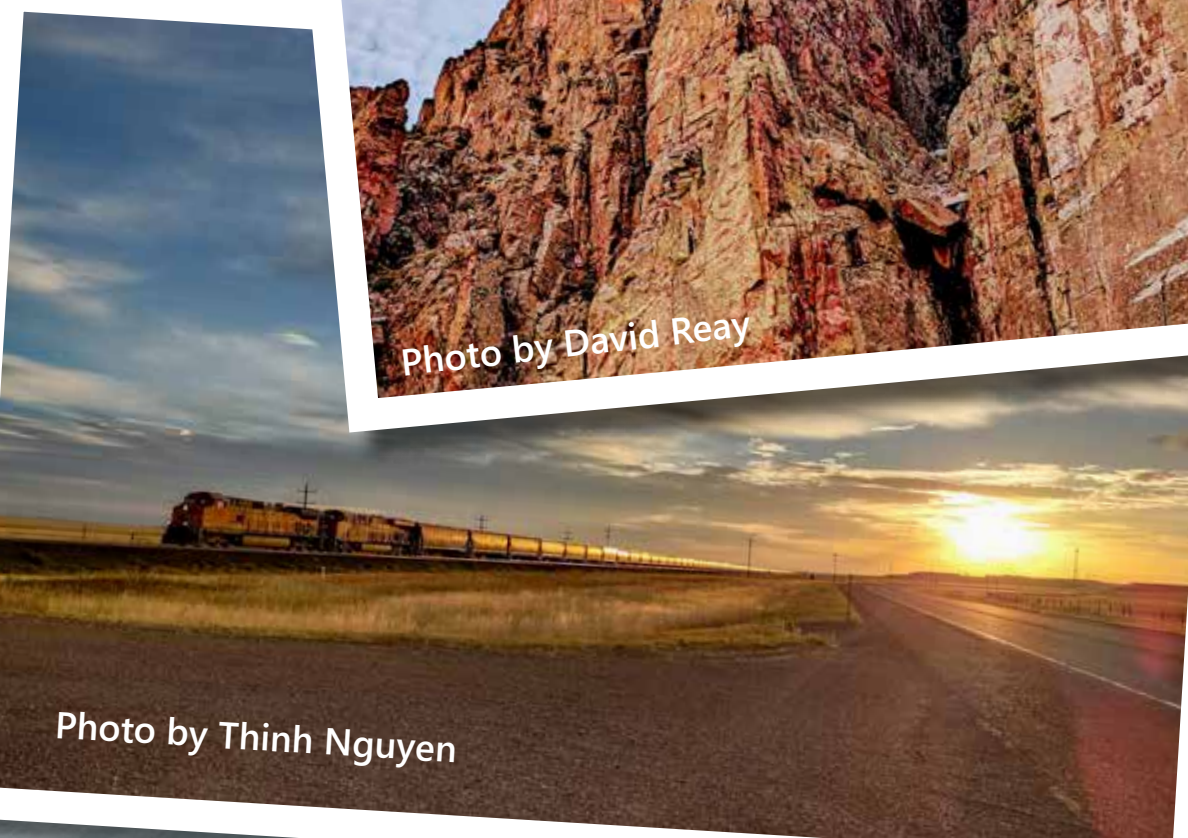


Photo by Thinh Nguyen



Photo by Wade Felker



Photo by Gary Barsness



SUN RIVER

one core sample at a time

DIVERSION DAM

by Brittany Jones

Photo by Steve Kroeker

More than 15 miles down a dirt road outside of a little town in the Sun River Valley in Montana lies a diversion dam built into an inlet of a deep and narrow gorge of limestone, surrounded by spectacular views of the Sawtooth Mountains.

Before Sun River Diversion Dam and Reclamation's Sun River Project existed, miners, freighters and adventurers traveled to the area after gold was discovered in Alder Gulch. By the 1870s, the Seventh U.S. Infantry arrived on site at Fort Shaw to perform garrison duties including providing protection to newcomers of the area. Infantrymen created the initial irrigation district when they surveyed and built the first irrigation ditch from the Sun River to provide water to the company gardens at Fort Shaw. At the time, it was considered to be the largest ditch in the country with a capacity of about 15 cubic feet per second. Early settlers began to develop the nearby lands for grazing and irrigation quickly became a high-priority interest.


The Sun River Diversion Dam was authorized by Secretary of the Interior Ethan A. Hitchcock in February 1906 and construction began in May 1907. Most of the work was completed by July 1908 and the first water was delivered to nearby lands in 1909.

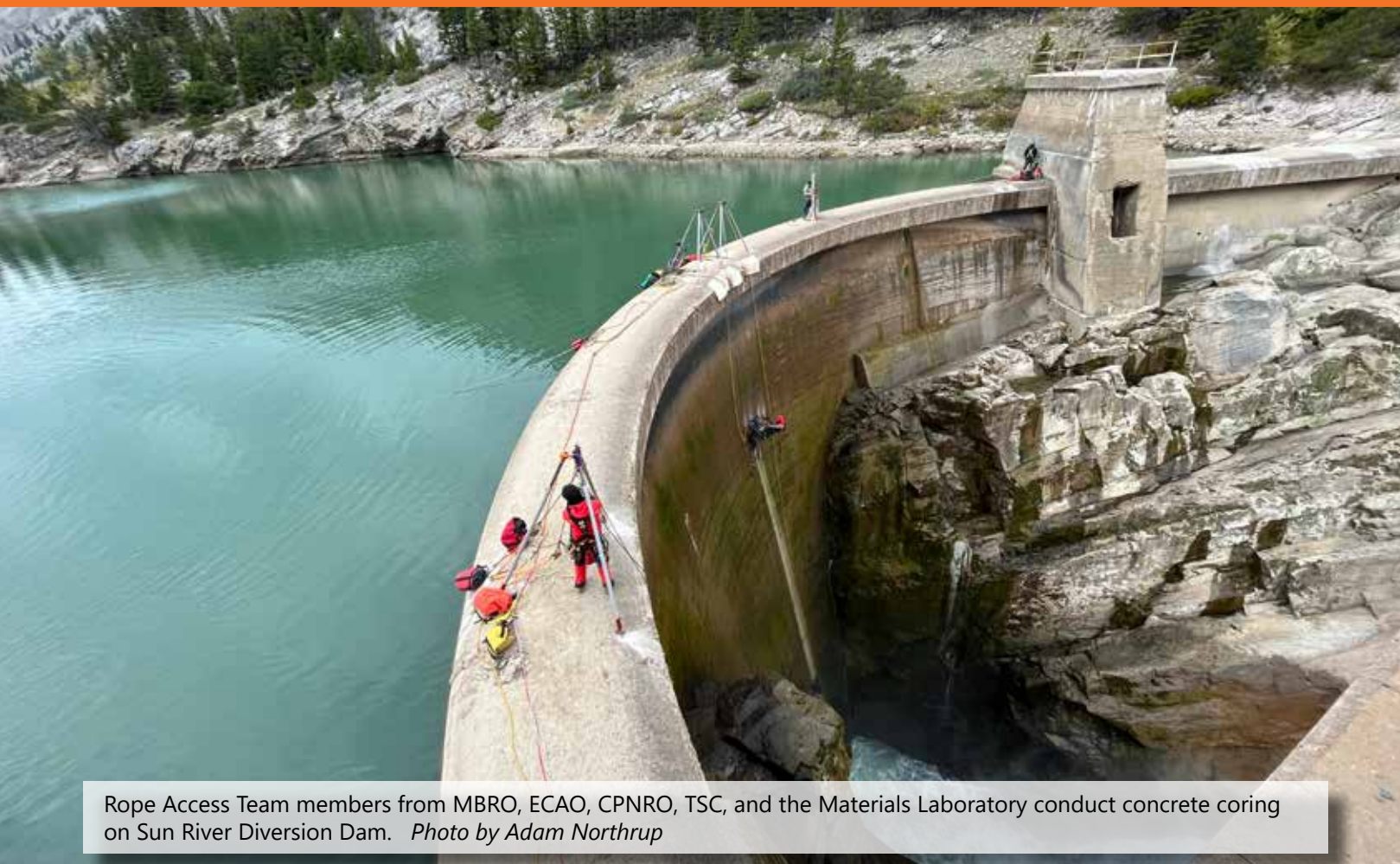
More than 100 years later, in September 2023, this normally quiet corner of northwestern Montana was again abuzz with activity at the Sun River Diversion Dam. This time, with a team consisting of Reclamation civil and mechanical engineers, geologists, drill crew, Unmanned Aircraft Systems pilots, and rope access team members from multiple regions.

The team worked in cold, wet, and windy conditions to identify potential geological hazards that could adversely affect the stability of the dam. This is the first time that geological samples have been taken at the site since the original construction.

"The material strength of the concrete dam is critical to understanding its ability to manage variable loading conditions now and into the future," said Seth Joramo, Missouri Basin project geologist. "The material strengths were assumed in the past for comparing potential loading conditions, however, there is high uncertainty related to the material strengths of the dam considering the era the dam was constructed."

The multi-disciplinary team had to wait until fall drawdown operations to be able to access areas of interest that are typically inaccessible or under water during normal operations. Even then, these hard-to-reach areas on the 132-foot-high dam can only be reached by qualified personnel using rope access methods. The team set up on site and began to develop base maps, complete vertical and horizontal concrete core drilling, perform aerial location surveying, and prepare concrete core samples to be sent for laboratory testing at Reclamation's Technical Service Center in Denver, Colorado.

Continued 



Rope Access Team members from MBRO, ECAO, CPNRO, TSC, and the Materials Laboratory conduct concrete coring on Sun River Diversion Dam. *Photo by Adam Northrup*

(Continued from previous page)

"Because Gibson Dam, the main storage reservoir for the Sun River Project, is classified as a high hazard potential dam, we are collecting 13 concrete core samples for lab analysis during phase one of this project," said Joramo.

Collecting concrete core samples by drilling vertically into the dam crest and outlet conduit is an arduous task requiring multiple trailer-loads full of specialized equipment to successfully complete. Just one core sample is the result of hours of planning, hazardous working conditions, and the teamwork of numerous trained and certified ropes access members.

The start of each day on the project site began with a Job Hazard Analysis outlining potential risks the team may encounter at the job site while

emphasizing safety in every step of the process.

To move the large drill to the hard-to-access areas of the dam, the team constructed an elaborate rope set up and even utilized a small boat to transport equipment from the nearby shore to the crest of the dam.

Each of the 13 concrete core samples acquired during the job took about 3-4 hours to obtain. After a core sample is successfully drilled, it is then hauled back to the shore, examined, logged, labeled, photographed and packaged for transport to the TSC's Concrete Laboratory.

"The core samples will go to the Technical Service Center in Denver for testing that will include compression, unconfined compressive strength, hydraulic, petrography, sheer strength, tensile

strength, makeup of the rock, and other testing," said John Archibald, TSC civil engineer.

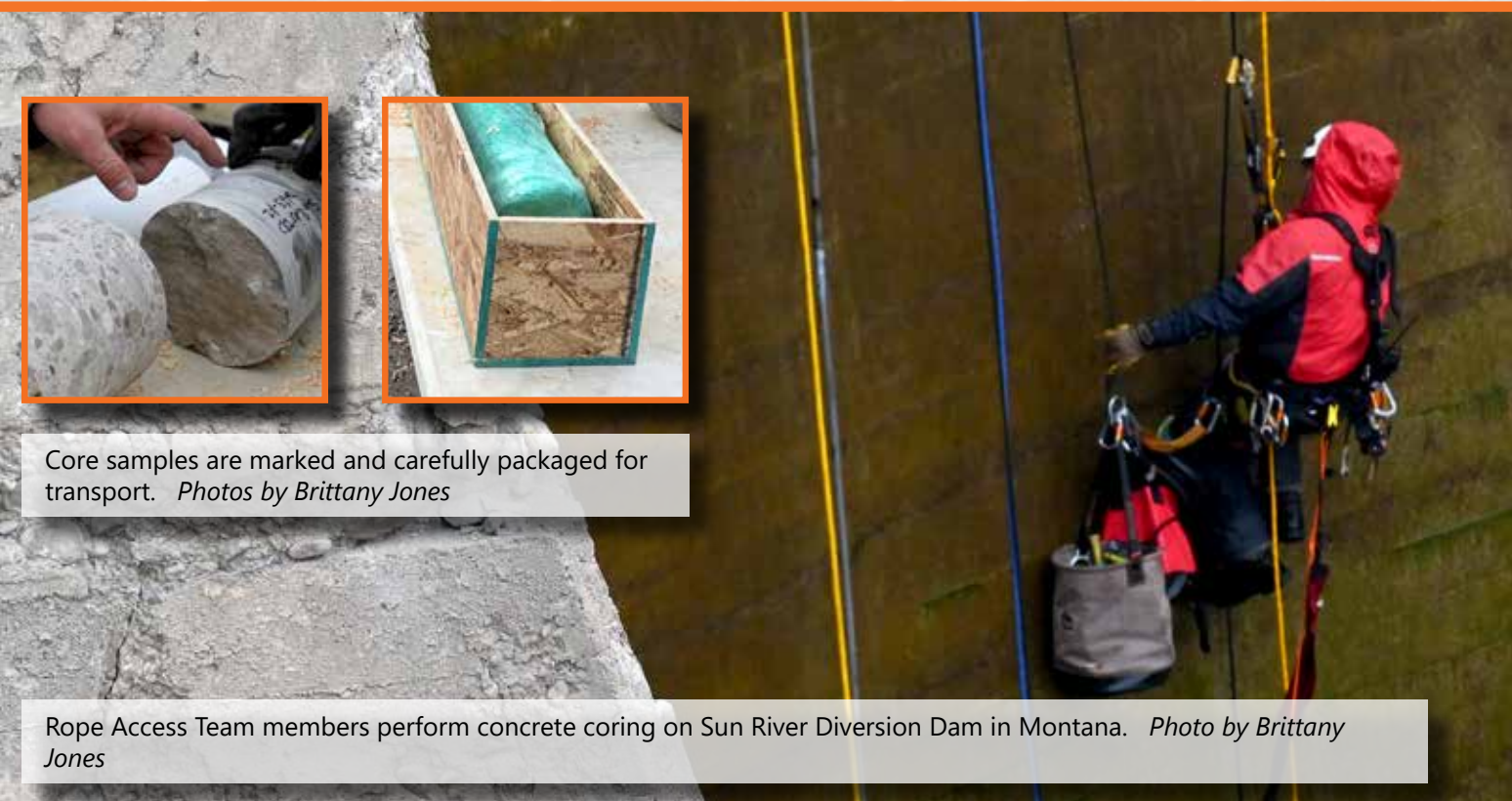
After the completion of the coring, the team's job isn't quite finished. While continuing to operate with safety as the first priority, they must refill the holes left by the drill using a dry pack mortar, a mixture that is one part cement, 2 ½ parts sand, and enough water to produce a loose hand-rolled ball. This mortar is ideal for refilling coring voids because it is usually used to repair smaller areas that are deeper than they are wide.

"The success of the project was dependent on compiling a highly technical team with experience in rope access techniques, concrete coring, engineering, and geology," said Joramo. "Without the multiple disciplines on the project team the project would have required more time or possibly been delayed."

According to the concrete lab, the results from phase one of this project should be completed sometime in calendar year 2024.

The multi-region team will once again converge on this site in rural Montana in September 2024 for phase two of the project to complete the geologic mapping of the foundation and both abutments. The field data collected in the secondary phase will be used to perform a kinematic analysis of joint sets in the foundation and abutments and identify potential geologic hazards.

While the century-old diversion dam is operating as designed, Reclamation consistently evaluates and implements actions to resolve safety concerns at all of their dams across the 17 western states by completing studies and identifying risks and liabilities. This project will ensure Sun River Diversion Dam doesn't pose any unnecessary risks to the public while continuing to provide benefits to Americans for years to come.



Core samples are marked and carefully packaged for transport. *Photos by Brittany Jones*

Rope Access Team members perform concrete coring on Sun River Diversion Dam in Montana. *Photo by Brittany Jones*



Longtime Reclamation employee hosts **Yellowtail tour,** *mentors young Apsáalooke women*

Article and photos by Brittany Jones

Rona Driftwood had a bright future ahead of her when she received a full-ride scholarship to pursue her dreams. But life had other plans for her. She became a mother at a young age and decided to put her education on hold to provide for her daughter. She faced many challenges and hardships as she worked multiple jobs on the Crow Reservation, where she grew up. She found a new opportunity to learn and grow when she enrolled in an apprenticeship program at the Little Big Horn College. She embarked on a journey that would span decades and touch countless lives, becoming a role model and a leader for her people.



Nearly 40 years ago, Dennis Christensen, a manager at Yellowtail Dam and Powerplant had a problem on his hands. The Bureau of Reclamation needed reliable electricians, mechanics, and other trade workers to keep Yellowtail up and running. But the dam is located in a remote area in southeast Montana with harsh winters, and Christensen couldn't keep new hires on for more than a few years. He had an idea to partner with the local tribal college, Little Big Horn Community College, to solve the colossal turnover problem. If people in the community could learn the needed trades, it could be a win-win situation for Reclamation and the Crow Tribe, providing good government jobs for locals, while bringing in people that were born and raised in the area, solving the longevity problem.

In 1987, Driftwood, a member of the Crow Tribe, saw an opportunity to learn a valuable skill that would enable her to stay in her tribal hometown while providing a stable income for her young family. After her apprenticeship, she was hired as a full time electrician at the powerplant.

"When I first started at Yellowtail, I was intimidated by all the water behind the wall," said Driftwood. "But now, I don't really think about it like that at all."

Yellowtail Dam, which impounds the Bighorn River, is an impressive feat of engineering that often inspires awe from the visitors who see it with their own eyes. The concrete arch stands at 525 feet tall with a crest length of 1,480 feet. At maximum storage elevation, more than 1.3-million acre feet of water lie behind the massive wall that dwarfs the power plant below.

The dam was constructed between 1963-1966, after more than 20 years of negotiations with the Crow Tribe and Chairman Robert Yellowtail who was opposed to the project. The dam is located entirely on the Crow Reservation, and the Bighorn Canyon is considered sacred to the Tribe. The U.S. government acquired about 12,000 acres of Crow land to dam the Bighorn River and flood the canyon and named the project in honor of Chairman Yellowtail.

Continued





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According to Driftwood, the construction of the dam divided the Crow Tribe, with the Mountain Crow opposed to the construction, and the River Crow in favor of the dam, because it would bring economic opportunities to their area and people.

The dam's benefits include flood control, hydropower generation, irrigation and recreation. More than 485,000 af of the reservoir are dedicated to flood control functions. From 1950-2022, Bighorn Lake has prevented \$224,142,900 on flood damages. Four generating units are operated independently to provide power for homes and businesses. Yellowtail provides peaking power for a part of each day and the Afterbay Dam continuously regulates the flows.

The dam transformed the Bighorn River between Fort Smith and the Yellowstone River into an internationally recognized blue-ribbon trout fishery, and the Bighorn Canyon National Recreation provides ample recreation opportunities around the reservoir like boating,

camping, fishing, hiking, and more.

As she stood on top of the dam looking out at the reservoir on a warm September afternoon, Driftwood recalled memories of swimming near the dam as a child before the heightened restrictions put in place after 9/11. Little did she know then that she would be an integral part of keeping the dam and powerplant up and running later in her life.

The Crow is the only plains Tribe with a clan system. Even more unique is that the clans follow matriarchal lineages, meaning Tribal members receive their clan designation from their mother. The Crow Tribe has 10 clans, and members within each clan are considered part of an extended family. Women continue to play an important role in Crow culture and in their community.

Because she is a trusted member in the Tribe, Driftwood hosted a tour for the Biawaatchaache (Good Woman) Collective – a group dedicated to strengthening the voices of young Apsáalooke



women and reconnecting them with the land. The group learned more about water and hydropower resources from a reliable mentor, and about job opportunities available within the federal government.

Driftwood is passionate about mentoring the Tribe's next generation of women, like JoRee LaFrance and Tillie Stewart, who both attended the tour. LaFrance and Stewart are both recipients of grants from the non-profit Running Strong for American Indian Youth's Dreamstarter Program. Dreamstarter helps the next generation of Native youth make their dreams come true through a combination of financial support, hands-on mentorship, networking, and communications training.

"The tour was all women learning from another Crow woman on Crow land with Crow water," said LaFrance. "It is awesome seeing Rona putting in the work and sticking it out in a man's world."

More than 36 years later, Driftwood, a Communication & Instrumentation Mechanic

at the Yellowtail Unit, is looking forward to retirement. She said the first group of apprentices from Reclamation's partnership with the Tribal college in the late 1980s are all nearing retirement, and she is worried about the gap in information and capabilities their absence may create.

"We have a wealth of knowledge about Yellowtail's mission and operations that I hope can be passed down to the next generation of Yellowtail Dam and Powerplant's new employees before we leave," Driftwood said.

Rona Driftwood's story is one of courage, resilience, and dedication. She overcame many obstacles and made many sacrifices to achieve her goals and help others along the way. She is an inspiration to her family, her community, and anyone who knows her. She proves that with hard work, perseverance, and passion, anything is possible.





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RECLAMATION

MB&ARTFY 2024 Regional Priorities

Missouri Basin & Arkansas-Rio Grande-Texas Gulf Region

Partnership with Regional Stakeholders

Northwest Area Water Supply (NAWS)

By the end of Q3, FY2024, enter into a Cooperative Agreement for the Operation and Maintenance of the NAWS Biota Treatment Plant (DKAO).

Contracts

Renew or amend the following 10 contracts prior to expiration: Mirage Flats Irrigation District, West Divide Conservancy District, Basalt Water Conservancy District, William and Gritt Fleischer, Town of Silt, Bradley Heinrich, YMCA of the Rockies, Debbie Axtell, Hillcrest Colony Inc., Pueblo West Metropolitan District (Resource Services).

WaterSMART

Develop plan to elevate GOTR (grants officer technical representative) from a collateral duty to a primary duty for both area office and regional staff, and distribute plan by end of Q3, 2024 (Resource Services, HR).

Recreation

Initiate a pilot study to analyze relationships between managing partners and concessionaires to develop strategies and suggestions that will prevent recreation facilities from being turned back to Reclamation (Resource Services, OTAO).

Regional Tribes

Conduct three (3) new in-person information sessions for Regional Tribes to share and explain availability and access to Reclamation's technical assistance and financial services programs (Native American Affairs, OTAO).

Indian Youth Services Corps

Obligate Secretary's Indian Youth Services Corps funds to Tribal/Reclamation Projects (Native American Affairs).

Public Affairs

Host two (2) major BIL events coordinated with DOI (Public Affairs).

Infrastructure Investment

Aging Infrastructure

By the end of the Q4, FY2024, finalize XM Justification Report for the Mini Wiconi Core pipeline, submit funding request, and begin implementing plan for permanent repair or replacement (DKAO).

Aging Infrastructure

By the end of Q4, FY2024, obligate and coordinate the 33, previously approved, Tribal Aging Infrastructure Projects with new PL 93-635 Agreements, modification to existing agreements, or repayment contracts (DKAO).

Aging Infrastructure

Submit at least fifteen (15) BIL applications for modernizing aging infrastructure or improving safety by Dec 31, 2023 (Area Offices).

Water Development

Execute contracts for Arkansas Valley Conduit, Injection Site Phase 1 by end of Q2, FY2024; Leadville plant replacement by end of FY2024; St Mary Diversion Dam by May 31, 2024; and Altus spillway gates by end of FY2024 (OTAO, MTAO, ECAO, and IESG).

Information Technology

Develop Service Level Agreements between Information Technology, Cybersecurity and Operational Technology to clearly define roles and responsibilities of each group for MB's mission IT systems (IT).

Construction

Complete construction services work at Bull Lake Dam and transition staff to other projects by end of fiscal year 2024 (IESG).

Administration of BIL Funds

Work with Project sponsors to obligate BIL funding by submitting funding packages to the Regional office for signature within six (6) months of receiving project approval (DKAO, NKAO, MTAO, OTAO, ECAO).

Employee Hiring & Retention

Recruiting

Recruiting: Engage EEO, HR, Public Affairs, and the hiring manager to enhance the Outreach program with the goal of having 635 employees by the end of FY2024 (Human Resources).

Merit Awards

Merit Awards: Recognize employee performance by submitting a minimum of seven (7) awards in FY2024, including Distinguished Service Awards, Meritorious Service Awards, Conservation, Superior Service Awards, Engineer of the Year, Project Manager of the Year, and other DOI Awards (Human Resources).

Safety

Near-Miss & Hazard Reporting Program

Increase awareness of the Region's Near Miss reporting program and Reclamation's Lessons Learned program. Track near miss reports and Lessons Learned documents generated in the Region (Safety).

Safety Training

Roll out and provide the Reclamation Employee Safety Training version 2 for all employees and continue to provide the training for new hires to the Region (Safety).

Safety Program Assessment

Area offices will complete self-assessments of current written safety programs by end of the Q2 and identify opportunities to share program information throughout the Region (Safety).

Safety Action Plan

Follow-up on Assessment of Region Safety Culture and Region SAFE Evaluation. Before the end of Q2, form employee teams to address Region wide safety improvement initiative. Using employee teams, communicate action plans and regular status updates to employees (Safety).

Management Safety Commitment

Front Office will attend safety training events in each Area Office (Safety).

Strategic Planning

Power Work Plan

Improved alignment of Power Workplan and Appropriated Budget formulation to ensure consistency in base budget/A4 requests and reporting, as well as resource availability and distribute by April 2024 (Power O&M, Finance, ECAO, WYAO, MTAO, OTAO).

Project Management Business Plan

Publish region's project management business plan and provide training to each area office. To support this effort, project management will ensure all relevant personnel have access to the Project Management Virtual Resource Center, including the lessons learned database (Project Management, WYAO, NKAO).

Procurement

Develop IDIQ contract lists for future procurement by June 30, 2024 (Acquisitions, WYAO, PM).

Technical Assistance

Award at least three (3) new Tribal NAA Technical Assistance projects (Native American Affairs).

Acquisition and Financial Assistance

In order to maintain and increase water resiliency, improve timeliness in execution of funds by utilizing LeNS and ACTS for 100% of planned actions by January 31, 2024, & creation of P.L. 93-638 lead times by December 31, 2023, identify roles and responsibilities by Feb 1, 2024.

Nuisance Species

The Regional Office will work with each area office to create a rapid response template and draft a reservoir-specific plan for nuisance species by end of FY2024 (Resource Services, OTAO, NKAO, MTAO, ECAO, DKAO).

RAX Work Plan

The Regional Power Office will complete the 2026 RAX Work Plan by March 31, 2024 (Power).

Water Resilience

Rural Water

Complete the Dry-Redwater Rural Water Project draft feasibility study by the end of Q3, FY2024, and submit the EA and Draft Feasibility Report to region by the end of Q4, FY2024 (MTAO).

Lake Thunderbird

Complete all technical analyses in support of Reclamation's Applied Science project with the Central Oklahoma Master Conservancy District titled, "Evaluation of Risk Exposure and Drought Response Thresholds to Improve Water Supply Reliability: A Case Study at Reclamation's Lake Thunderbird, Oklahoma (OTAO).

Canadian River

Complete Firm Yield models for Twin Buttes Reservoir (San Angelo Project, TX) and Lake Meredith (Canadian River Project, TX) in support of Reclamation's Applied Science project with the Texas Water Development Board and Texas operating partners, titled "Quantifying Risk Exposure and Tolerance of Conjunctively-Managed Water Supplies to Enhance Drought Preparedness and Response" (OTAO).

Conservation Plans

Complete water conservation plan updates for Tom Green Water Control and Improvement District No. 1, Arbuckle Master Conservancy District, and Foss Reservoir Master Conservancy District by end of FY2024 (OTAO).

SCADA

Develop a SCADA plan, consisting of a hardware inventory and schedule for maintenance or upgrades. Submit plan to region by second quarter 2024 (MTAO).

MISSION: Manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

STATE-OF-THE-ART TUNNEL COMMUNICATIONS IMPROVE AND EXPAND SAFETY



By Anna Perea, ECAO
Photos by Michael Aspiazu
and Adam Northrup

With 20 tunnels totaling over 55 miles in length across two transbasin diversion projects, ECAO personnel spend a lot of time in tunnels. But with ECAO's recent adoption of a wireless mesh node system, field crews have greatly improved communications abilities through long tunnels and confined spaces.

"There are a lot of tunnel comms systems out there and this is the most modern," said Adam Northrup, dam safety lead and ECAO project coordinator. "Now we can have comms in all the tunnels where we've never had comms before."

The wireless mesh node system consists of a deployable network that provides interconnectivity between a wireless, digital mesh network to internet protocol based system. Each portable gateway, or node, acts as a router and protocol converter for wireless communications, text messaging, personnel and vehicle tracking, and atmospheric gas monitoring.

Each Battery Mesh Node setup, or simply a node, consists of a tripod, antenna, antenna cable and the node box, which is powered by internal batteries. Other system components consist of radio handsets, wireless gas monitors, laptops and chargers. Thankfully, the

nodes are light and compact enough that they can be carried easily through the tunnels, if needed. Additionally, since ECAO purchased the network with the 13.1-mile-long Alva B. Adams Tunnel in mind, ECAO has enough nodes and laptops to support two smaller deployments at once.

In December 2023, six staff from ECAO, including Flatiron and Estes Powerplants, spent one day deploying and using the system at the East Portal of the Pole Hill-Olympus Tunnel. Crews tested the system by setting up each node at various distances throughout the 7.8-mile-long tunnel and practiced sending and receiving different types of messages while a tunnel inspection occurred.

ECAO's Confined Space Rescue Trailer provides a dry, wind-free respite from the elements for crew members monitoring tunnel activity. The communications dashboard displays

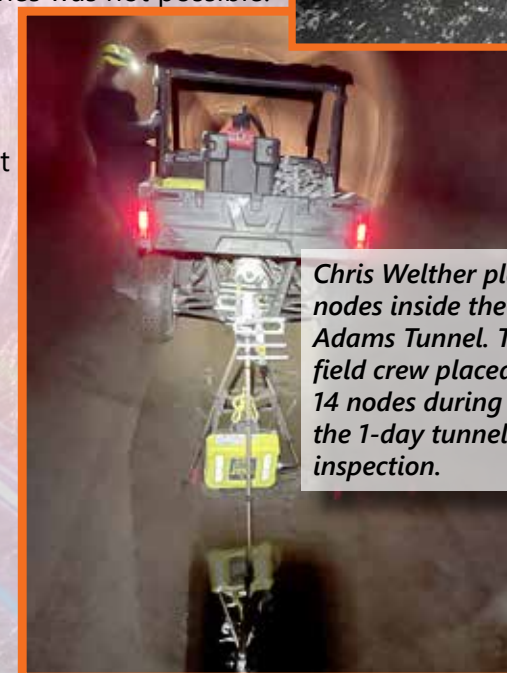
real-time locations of the field crew in the tunnel and vital information about air quality. Crews that were previously used to entering a tunnel with limited knowledge about what lay ahead can appreciate the improved safety oversight provided by the new system.

ECAO's Safety Manager, Michael Aspiazu notes that remote locations coupled with the length and configuration of the tunnels made communication difficult for field crews. Previously they communicated with low-tech solutions, such as flashing headlights and blasting horns, because tunnel communication with radios or satellite phones was not possible.

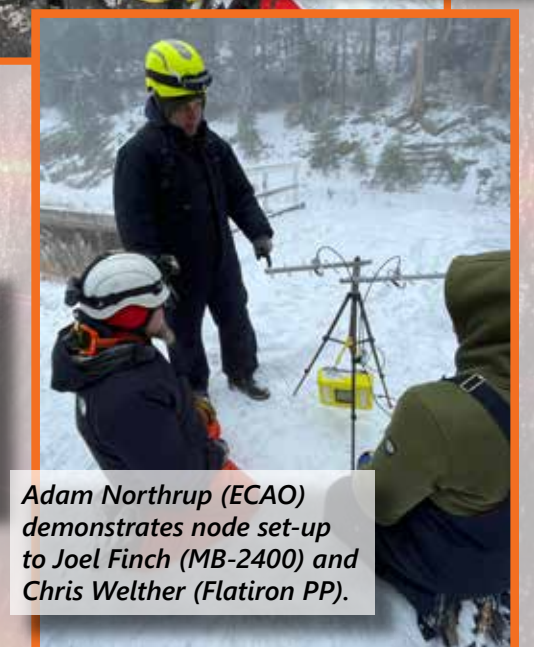
"Investing in this technology allows for clear and consistent voice communication throughout our tunnels and allows our workers to focus on the important task at hand, knowing that there is an extra set of eyes and ears supporting their safe return," said Aspiazu.



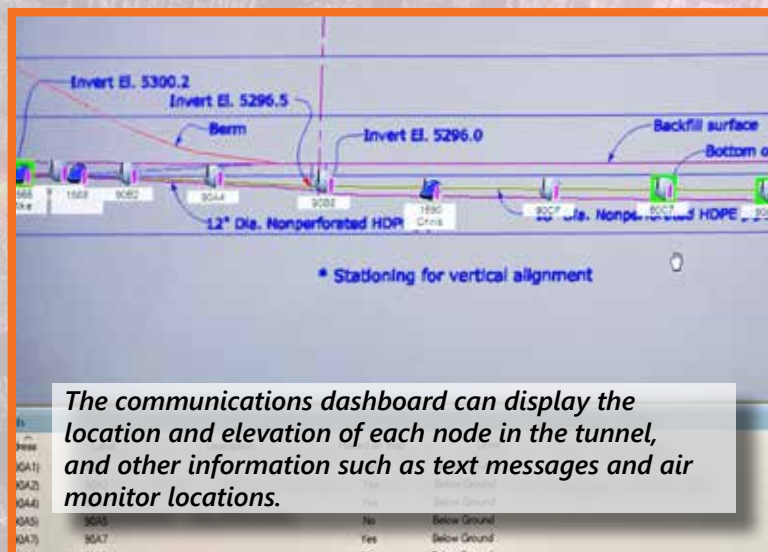
The Confined Space Rescue Trailer houses equipment and provides a convenient workspace for the Portal Attendant.



Chris Welther places nodes inside the Adams Tunnel. The field crew placed 14 nodes during the 1-day tunnel inspection.



Adam Northrup (ECAO) demonstrates node set-up to Joel Finch (MB-2400) and Chris Welther (Flatiron PP).



Tribal consultation for the repatriation of ancestral remains



By Kate Ellison, Archeologist, OTAO

Numerous artifacts have been collected at Bureau of Reclamation projects over the decades. Some of these were collected during project planning and construction and some were inadvertent discoveries, such as ancestral remains and cultural items exposed due to reservoir construction, shoreline erosion, or drought. These cultural items and ancestral remains were housed in repositories, museums, and at times illegally stored in private collections. Oftentimes, private collections include ancestral remains and cultural items sacred to Native Americans, such as objects associated with funerary and ceremonial practices.

The Native American Graves Protection and Repatriation Act was enacted in 1990. NAGPRA required Federal agencies prepare and publish an inventory of ancestral remains and associated funerary objects by 1995, as well as consult with appropriate Federally recognized Tribes to repatriate the ancestral remains and associated funerary objects (AFOs) to their descendants or a culturally affiliated Tribe. Included in the inventory of ancestral remains and AFOs published by the Great Plains Region of Reclamation in 1996, the Oklahoma-Texas Area Office identified remains believed to be from 92 individuals as well as 32 associated funerary objects.

The imposed deadline for all federal agencies to comply with NAGPRA overwhelmed Tribal Nations in 1995 and 1996. This resulted in many Tribal Nations unable to process and respond to all inquiries. The ancestral remains and AFOs recovered within OTAO remained housed in repositories and museums until 2015. At this time, OTAO revisited the NAGPRA inventory and began consultation with affiliated Tribes. From 2015 to 2017, all ancestral remains recovered from Reclamation projects in Oklahoma were consolidated at the Museum of the Great Plains in Lawton, Oklahoma.

During the same time frame, OTAO was working to obtain a collection of ancestral remains and artifacts illegally obtained over an approximately 50-year time-period by a private collector. The affiliated Tribes were aware of the collection and that ancestral remains, AFOs, and sacred objects were included as noted in the above mentioned 1996 report.

Prior to Tribal consultation, OTAO staff conducted research at the Oklahoma Archeological Survey at the University of Oklahoma, and with former employees of the Oklahoma Archeological Survey and Reclamation. No permits were found that would have allowed collectors to keep artifacts and ancestral remains removed from Reclamation



Grant Sherwood (Brockington & Associates), Kate Ellison (Reclamation), Jeff Sherard (Brockington & Associates), and Robin Williams (Wichita and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie), Oklahoma) discussing artifacts found at the W.C. Austin Project.

property. Before the Oklahoma Archeological Survey was established in 1970, people who discovered archeological sites and artifacts would often notify the Oklahoma Anthropological Society and/or the Anthropology Department when archeological sites and ancestral remains were discovered.

In 1985, a memo from Reclamation stated that only certain individuals had permission to monitor shoreline erosion of archeological sites and salvage limited numbers of surface materials at imminent risk of destruction or displacement on Reclamation lands at Quartz Mountain State Park at the W.C. Austin Project. Reclamation staff were to be notified if any ancestral remains were discovered. Permission was not granted to the collectors to be able to retain ancestral remains or artifacts from the W.C. Austin Project.

“Reclamation transferred control of 164 ancestral remains and 1,363 AFOs to the Wichita and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie), Oklahoma.”



(Continued from previous page)

OTAO staff met with the private collector in September 2016 to visit about the ancestral remains, AFOs, and artifacts that were collected from the W.C. Austin Project. After explaining that the permission granted did not allow for possession of any ancestral remains, AFOs, or sacred or ceremonial objects, the private collector agreed to return all items collected on Reclamation property to Reclamation. In November 2016, OTAO staff coordinated with the collectors to bring the ancestral remains, AFOs, and artifacts collected from Reclamation property to the Museum of the Great Plains.

Reclamation contracted with Brockington and Associates in September 2020 to complete NAGPRA requirements for all ancestral remains. OTAO staff met with Brockington and Associates in January 2021 to start the on-site work at the Museum of the Great Plains. A bioarcheologist documented 167 sets of ancestral remains, while an archeologist worked on the description of 1,363 AFOs. The contract was complete in September 2021. OTAO staff continued consultation with the appropriate Tribes subsequently listed on the Federal Register Notices and the Notices of Intended Disposition in local newspapers.

Due to the Covid-19 pandemic, staff were teleworking with no in-person meetings to minimize virus transmission. OTAO staff consulted with Tribal representatives from the Wichita and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie), Oklahoma; The Osage Nation; the Cheyenne and Arapaho Tribes, Oklahoma; and the Absentee-Shawnee Tribe of Indians of Oklahoma.

During Tribal consultation regarding repatriation with the Absentee-Shawnee Tribe of Indians of Oklahoma, OTAO learned that the Tribe had not previously participated in repatriation and did not have an approved process agreed

to by its elders. OTAO provided a process for repatriation and worked with the Absentee-Shawnee Tribe of Indians of Oklahoma NAGPRA coordinators. These efforts led to an approved process to allow for repatriation of ancestral remains. Two individuals were repatriated to the Absentee-Shawnee Tribe of Indians of Oklahoma in April 2022. The transfer of control was the first time that OTAO staff and the Tribal representative were able to meet in person, and the representative was very appreciative that the ancestral remains were finally returned to the Tribe after many years.

Consultation for repatriation with the NAGPRA representative from the Wichita and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie), Oklahoma began in 2020 and continued through 2023 over the phone, on the Microsoft Teams software platform, and in person. Challenges included repeated Covid-19 infections and delays associated with this, and the discovery of additional ancestral remains at the Sam Noble Oklahoma Museum of Natural History. In September 2022, Reclamation transferred control of 164 ancestral remains and 1,363 AFOs to the Wichita and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie), Oklahoma. Additionally, one individual recovered from the Fort Cobb Reservoir was listed in the Federal Register in May 2023 and the transfer of control for this one individual to the Wichita and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie), Oklahoma was completed in June 2023.

NAGPRA repatriation efforts continue. OTAO staff may find additional ancestral remains in the future. In this event, OTAO will follow the same process to further strengthen the relationships developed with the Tribes, while working through the NAGPRA process.



A breath of air

By Anna Perea, ECAO

Adam Northrup demonstrates the use of an emergency escape rebreather. In emergency situations where air quality or quantity may be compromised, the rebreather absorbs carbon dioxide from a user's exhaled breath. This allows the user to rebreathe the remaining unused oxygen.

In addition, the device supplements the recycled air with added oxygen. Reclamation personnel wear these portable devices as a safety precaution when entering confined spaces, such as tunnels. The units can last for up to 60 minutes.



Photo by Mike Aspiazu

INDIGENOUS STONE FORTIFICATIONS

identified and preserved near Flatiron Powerplant and transmission lines

By Anna Perea, ECAO

Recent construction on Chimney Hollow Reservoir by the Northern Colorado Water Conservancy District has led to a number of side projects near the Eastern Colorado Area Office headquarters and Flatiron Powerplant. One such project required Western Area Power Administration powerline relocation.

Before beginning the powerline relocation, Reclamation took an inventory of the area, knowing that constructed stone features had been identified previously by a local archaeologist as being tied to past ranching in the area. However, these stone features were not eligible for the National Register of Historic Places as associated

with historic (meaning post-European settlement) ranching infrastructure.

Subsequent joint investigation by former ECAO archaeologist, Melissa Baier, and members of the Southern Ute Indian Tribe led to identifying these features as human-built stone fortifications used during skirmishes between Ute and Arapaho Tribes. As a result, these stone structures were then re-recorded as such and determined to be eligible for the NRHP. While ECAO currently doesn't have plans to nominate the site for official designation, just the status of being eligible gives the site the protection that it needs.

ECAO's current archaeologist, Elizabeth Rush, wrote a Memorandum of Agreement to ensure that during the powerline relocation project, the stone structures would be completely avoided and that only hand tools could be used within 200 feet of the structures.

"This site is a perfect example of how important it is to work with sovereign tribal nations. Their exceptional insight into their ancestral land is extremely valuable in understanding the landscape and its resources."

After successfully completing the work in 2021, the stone structures remain intact, providing us a glimpse into the long, ancient history of the landscape of which Reclamation is fortunate enough to be stewards. An important part of the prehistory of the area will now be preserved in perpetuity thanks to the collaboration between the Southern Ute Indian Tribe, Reclamation, Northern and WAPA.



Elizabeth Rush, ECAO Archaeologist







"This site is a perfect example of how important it is to work with sovereign tribal nations."



Photos by Melissa Baier

National Register of Historic Places Eligibility Criteria

-  Associated with events that have made a significant contribution to the broad pattern of our history
-  Associated with the lives of persons significant in our past
-  Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
-  Has yielded, or may be likely to yield, information important in history or prehistory

For more information, see [How to Apply the National Register Criteria for Evaluation at nps.gov](#)

CANYON FERRY REHAB



By Brandon Hilliard

The Canyon Ferry Powerplant rehabilitation project provided a comprehensive approach to replacing and refurbishing much of the degraded generating equipment at the facility.

The project included rehabilitating plant components and systems, including station service air compressors, DC battery system, and the 125 ton bridge crane. It was initiated when Unit 1 experienced a winding failure in December 2016. Extensive planning and scoping went into the project with the focus of restoring the equipment to new and original operating parameters, tolerances, and conditions of the original equipment that dates to the mid-1950s.

The generators, which have an original nameplate rating of 16.667MVA, will see an increase to 19.200MVA after completion of the work. The runner and wicket gates have been optimized through the new design to increase efficiency over the entire operating range and provide about a 3% increase in efficiency at the design head.

Additionally, the new design prevents the unit from operating in damaging cavitation zones at part load. This reduces machine vibration and component wear over the equipment life. Three main contracts were secured to accomplish the unit work including, one to supply the turbine, one for construction of the core, winding, and rotor, and an interagency agreement with Tennessee Valley Authority for the disassembly, reassembly, and major component refurbishment.

Engineering and facility staff have taken an extreme amount of ownership and shown dedication to ensure the project's success and reliable operation for years to come.



The Legend of Hugh Glass

By Elizabeth Smith

Hugh Glass, an American frontiersman, fur trapper, trader, hunter, and explorer, is renowned for his survival story in South Dakota. After being severely injured by a grizzly bear and abandoned by his fellow explorers and fur traders during General Ashley's 1823 expedition, Glass was left for dead. Despite his grave injuries, he managed to crawl 200 miles back to a camp.

Glass explored the watershed of the Upper Missouri River, which spans present-day Montana, the Dakotas, and the Platte River area of Nebraska. His survival story was portrayed in the Oscar-winning film "The Revenant," starring Leonardo DiCaprio, in 2015. In 1923, a memorial to Glass was erected on privately owned land, which was later acquired by the government for the Shadehill Dam.

The Shadehill Unit of the Pick-Sloan Missouri Basin Program, including the Shadehill Dam and Reservoir on the Grand River, is located in the northwestern part of South Dakota. The Pick-Sloan Missouri Basin Program, authorized by the Flood Control Act of 1944, was established for the conservation, control, and use of water resources in the Missouri River Basin. The program is named after its authors, Lewis

A. Pick, director of the Missouri River office of the United States Army Corps of Engineers, and William Glenn Sloan, director of the Billings, Montana office of the United States Bureau of Reclamation.

In the early 1920s, John Neihardt, an American author based in Illinois and an alumnus of Wayne State College in Nebraska, was fascinated by the story of Hugh Glass. Neihardt, who travelled extensively throughout the west, helped install a monument and a time capsule on the private ranch of Otto Weinkauf, a German immigrant, in 1923. He left specific instructions with his family to open the time capsule on its 100th anniversary. The land, along with the ranch and monument, was purchased in 1943 for the Shadehill Dam, leaving many questions unanswered.

In 2023, Joseph Weixelman, a history professor at Wayne State College in Nebraska, expressed his interest in the stories of Glass and Neihardt and the monument left behind. He and his western studies students pursued the opening of the time capsule. However, they realized that government involvement was necessary to determine the ownership and, consequently, the right to open the monument to extract the time capsule. He reached out to Reclamation for assistance.



In May, Justin Hammer, acting Environmental and Resources Deputy Division Manager for Reclamation's Dakotas Area Office, and Jim Straight, the District Park Supervisor for South Dakota Game Fish and Parks who manages Shadehill Reservoir on Reclamation's behalf, received the request from Weixelman.

Weixelman wanted to open the Hugh Glass Monument and remove the contents of the 100-year-old time capsule over a weekend in June when his class planned to travel from Nebraska to South Dakota to perform the requested 100-year ritual to honor Neihardt's request. Hammer informed Weixelman that additional work would need to be completed before the contents could be removed. He supported the proposal to remove the contents of the time capsule but needed time to comply with federal laws and regulations, including the National Historic Preservation Act.

However, the group was denied permission to open the monument due to uncertainty about its exact ownership and who could

grant permission for it to be opened. Coralie Hughes, a granddaughter of John Neihardt and a trustee of the Neihardt Trust, also expressed her desire to assist in completing the 100-year commemoration of Hugh Glass. Her plans were in accordance with the instructions left behind by Neihardt himself. To inquire about the ownership of the monument, Hughes reached out to Reclamation.

Justin Hammer, Andrea Gue, the Environmental and Resources Division Manager for the Dakotas Area Office, and Jay Leasure, a Natural Resources specialist for the Dakotas Area Office, swiftly carried out the necessary actions and reports under the National Environmental Policy Act. After reviewing the Neihardt Trust's claim to the monument and conducting due diligence, Reclamation determined that Coralie Hughes and the Neihardt Trust were the legal owners of the monument. Their request was deemed permissible under a special use permit.

The community has shown significant interest, and Jon Cerny, President of the John G. Neihardt Foundation in Bancroft, Nebraska, also expressed support to Reclamation for the extraction of the time capsule. Cerny suggested that the Foundation would be interested in



The 1923 expedition party to the Hugh Glass site led by John Neihardt. Photo courtesy of C.J. Keene, South Dakota Public Broadcasting.

Weixelman and his class recreate the photo a century later. Photo courtesy of Joseph Weixelman c/o C.J. Keene.

adding more signage at the Neihardt/Hugh Glass monument in Lemmon. This would provide more information about Neihardt, his motivation to build the monument, and the Wayne State group.

"It's a fascinating story - still known to some old-timers in the Lemmon area - that could use more explanation for the wider public," said Cerny. He proposed that this be done at Lemmon's 2024 "rendezvous" in honor of Hugh Glass, a proposal that Straight, Hammer, Gue, and Leasure supported.

After further discussions and plans made with Hughes and the Trust, and through our partner Jim Straight, the District Park Supervisor for the SDGFP, the monument was carefully removed from Ketterlings Point. It was securely wrapped for transport and then loaded into Hughes's moving van in October and transported to Nebraska. The Trust anticipates revealing the contents of the capsule during the board meeting in spring 2024 and plans to create either an interpretative sign or commemorative nature trail at Shadehill Reservoir.



Original monument for Hugh Glass that was put into place on the north shore of Shadehill Reservoir and detail of inscription. Photos by Justin Hammer.



The descendants of poet/author John Neihardt work to ease a 3,200-pound monument into place at the state historic site dedicated to Neihardt. The study in the background is where Neihardt wrote "The Song of Hugh Glass," the subject of the monument. Photo courtesy of Paul Hammel, Nebraska Examiner.



New monument in place on the south shore of Shadehill Reservoir. Photo by Justin Hammer.



North Country Trail

By Elizabeth Smith

Since its establishment in the 1990s, the North Country Trail's section, which crosses the Garrison Diversion Unit projects in North Dakota, has been underutilized. The trail's location has led to confusion among recreational users, causing them to mistakenly hike along the McClusky and New Rockford Canal and local county roads. For the past decade, the trail has suffered due to the absence of a volunteer chapter, leading to missing or damaged trail markers, numerous wetland crossings without dry access, and limited trail mowing. Over the past five years, concerns about the trail's long-term management have emerged due to ambiguous roles and responsibilities among federal, state, and nonprofit entities.

In 2019, Reclamation signed a memorandum of understanding with these entities to ensure the trail's long-term management and protection on Reclamation lands. As of 2021, Reclamation has been collaborating with the newly formed local Flyway Chapter and the North Country Trail Association to reroute sections of the trail. The goal is to improve user safety and experience by relocating the trail from the canal and county roads to more scenic areas, while also preserving environmental and cultural resources. In collaboration with the North Country Trail Association, Turtle Lake Park Board, and the Flyway Chapter, Reclamation has assisted in establishing a loop trail at Brekken-Holmes.

Andrea Gue, Environmental and Resources Division Manager in the Dakotas Area Office for Reclamation, was awarded the North Country National Scenic Trail Vanguard Award for 2023. This award recognizes a legislator or other public official whose leadership and advocacy have significantly benefited the North Country Trail over an extensive area, not just a short segment. The nomination was put forward by our partner at the North Country Trail Association, Matt Davis. Gue accepted the award on behalf of Reclamation at the awards ceremony held in the Adirondack Mountains in New York on Sep. 28, 2023.

Central Flyway Chapter - North Country Trail Association
<https://northcountrytrail.org/trail/north-dakota/fly/>

Andrea Gue, Environmental and Resources Division Manager in the Dakotas Area Office for Reclamation, was awarded the North Country National Scenic Trail Vanguard Award for 2023 at a ceremony in the Adirondack Mountains on Sep. 28, 2023.



\$65 million allocated for rural water

Bipartisan Infrastructure Law investments will help bring clean, reliable drinking water

By Elizabeth Smith

As part of the Biden-Harris administration's Investing in Rural America Event Series, Secretary of the Interior Deb Haaland and Bureau of Reclamation Commissioner Camille Calimlim Touton announced a \$65 million investment for rural water projects in fiscal year 2024.

The funding will support six projects in Iowa, Minnesota, Montana, New Mexico, North Dakota, and South Dakota. These projects are either under construction or in the planning phase. This investment follows a previously announced \$668 million for rural water projects from the Bipartisan Infrastructure Law.

Commissioner Touton stated, "The Bureau of Reclamation is committed to these projects to bring clean, reliable drinking water to rural communities. Thanks to funding from the President's Bipartisan Infrastructure Law, we will expedite the completion of these projects making these communities more resilient to

the impacts of drought and climate change." Among the allocations is \$27 million for the Garrison-Diversion Unit of the Pick-Sloan Missouri Basin Program in North Dakota. This funding will support efforts associated with the expansion of the Fort Berthold, Standing Rock, and Spirit Lake distribution systems, as well as the water treatment for the Northwest Area Water Supply Project.

As well, \$11 million is allocated for the Rocky Boys in North Central Montana Rural Water System in Montana to continue construction of core pipeline and begin construction of on-reservation facilities. Funding will also be used to continue construction of non-core segments, such as Hill County Water District.

In South Dakota, Iowa and Minnesota, \$7 million is allotted for the Lewis & Clark Rural Water System to support expansion of the water treatment plant.



COMMISSIONER Visits



Bureau of Reclamation Commissioner, Camille Calimlim Touton, center, tours Alcova Dam in Wyoming in July 2023.



Commissioner Touton with staff standing at the Fremont Canyon Powerplant Tunnel.



Commissioner Touton at Alcova Dam spillway gatehouse.



Fremont Canyon Powerplant Control Room. Group is facing the Control Board.

In July 2023, Bureau of Reclamation Commissioner, Camille Calimlim Touton, visited the Wyoming Area Office to tour various facilities, including LaPrelle Dam, which is not a Reclamation facility, but is receiving FY24 BIL funding.



Commissioner Touton cooks up a pancake breakfast for staff at the office in Mills, Wyoming.

Commissioner Touton embarked on a guided tour to many facilities, including the Alcova Dam Spillway gatehouse, Fremont Canyon Powerplant Tunnel, Fremont Canyon Powerplant control room, Alcova Dam, and the Reclamation offices in Mills, Wyoming.



Pancake breakfast at the office breakroom in Mills, Wyoming.

ACROSS

DOWN

CROSSWORD

1 This word, meaning “the study of human history and prehistory through the excavation of sites and the analysis of artifacts and other physical remains” is correctly spelled two different ways in this issue

3 See 1 across

5 Canyon Ferry Powerplant is located in this state

9 Indigenous stone fortifications were discovered during relocation of this kind of vital infrastructure asset

12 Before the improvement and relocation of this trail, hikers would often find themselves on the wrong path

13 A monument to a legendary figure was transported to this state

14 This movie was based on the legendary figure in 13 across

15 The 1st place winning photo of the 2023 contest was taken during this season

17 State-of-the-art _____ in tunnels at ECAO has improved safety

20 The subject of the 2nd place photo contest winner

22 One of six states benefiting from the \$65M investment in rural water

23 Commissioner Touton recently visited this powerplant

25 A \$27M investment in rural water benefited a project this state

26 A tour of this facility was led by a longtime Reclamation employee

27 There are 20 of these totaling 55 miles in length in ECAO

28 These were rehabilitated at Canyon Ferry

29 This kind of contest is hosted annually by the Public Affairs office

2 The “F” in AFOs

4 The process of returning important objects to their rightful owners

6 OTAO worked closely with Tribes to return these types of remains

7 The third place photo contest winner shows this feature of Yellowtail Dam

8 The survival story of Hugh Glass took place in this state

10 What Commissioner Touton had for breakfast in Wyoming

11 A small monument placed in 1923 contained this

16 Reclamation staff dangled from ropes at Sun River Diversion Dam to obtain these important items for study

17 Construction at this reservoir was the catalyst resulting in the discovery of stone structures

18 The “centerfold” of this issue features these, which are important to Regional Director Brent Esplin

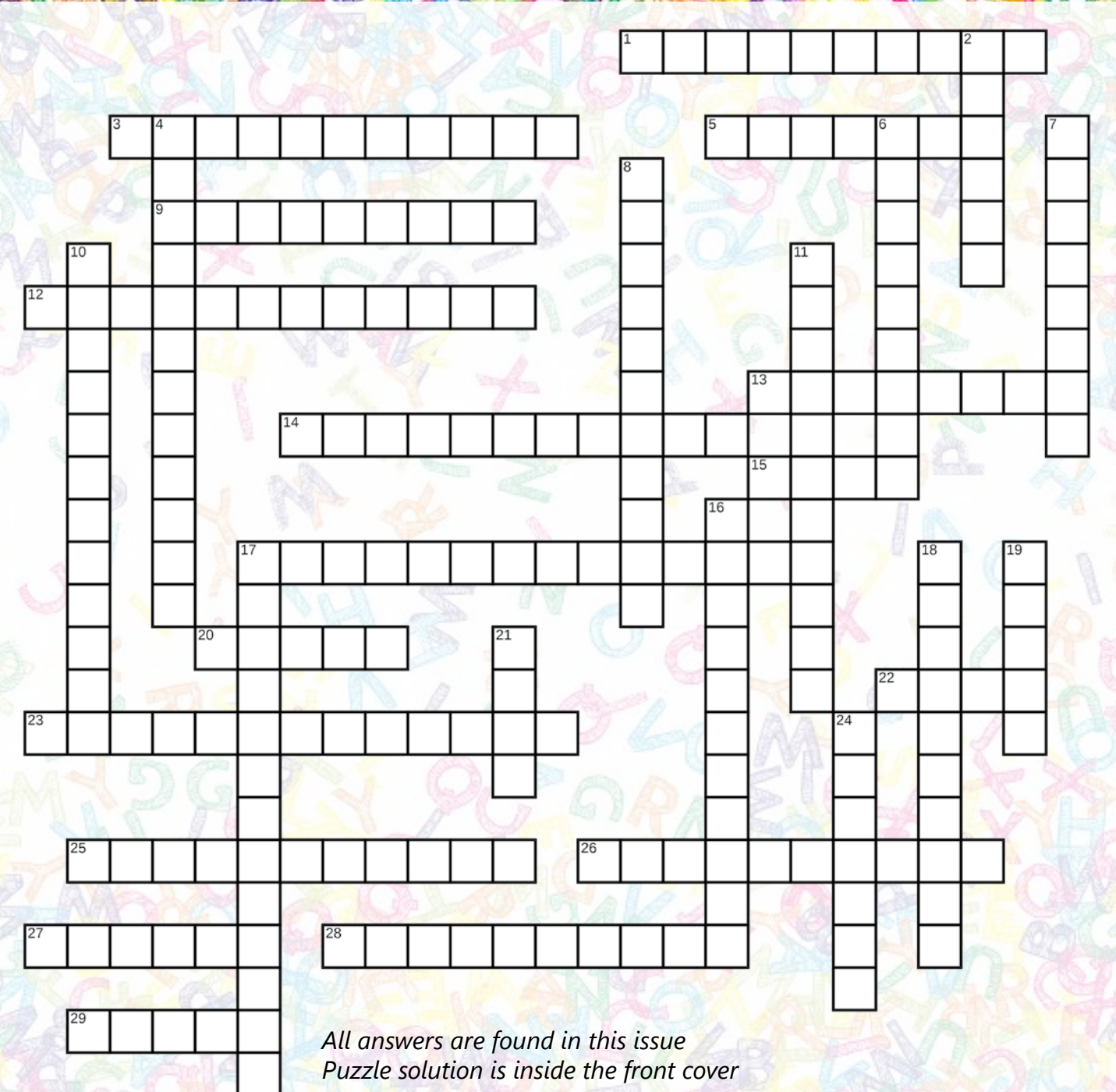
19 These kinds of water projects are vital to providing clean, reliable drinking water to non-urban areas

21 The only plains Tribe with a clan system

24 The Public Affairs office hosts this every year to give staff a chance to share their photographs



— BUREAU OF —
RECLAMATION

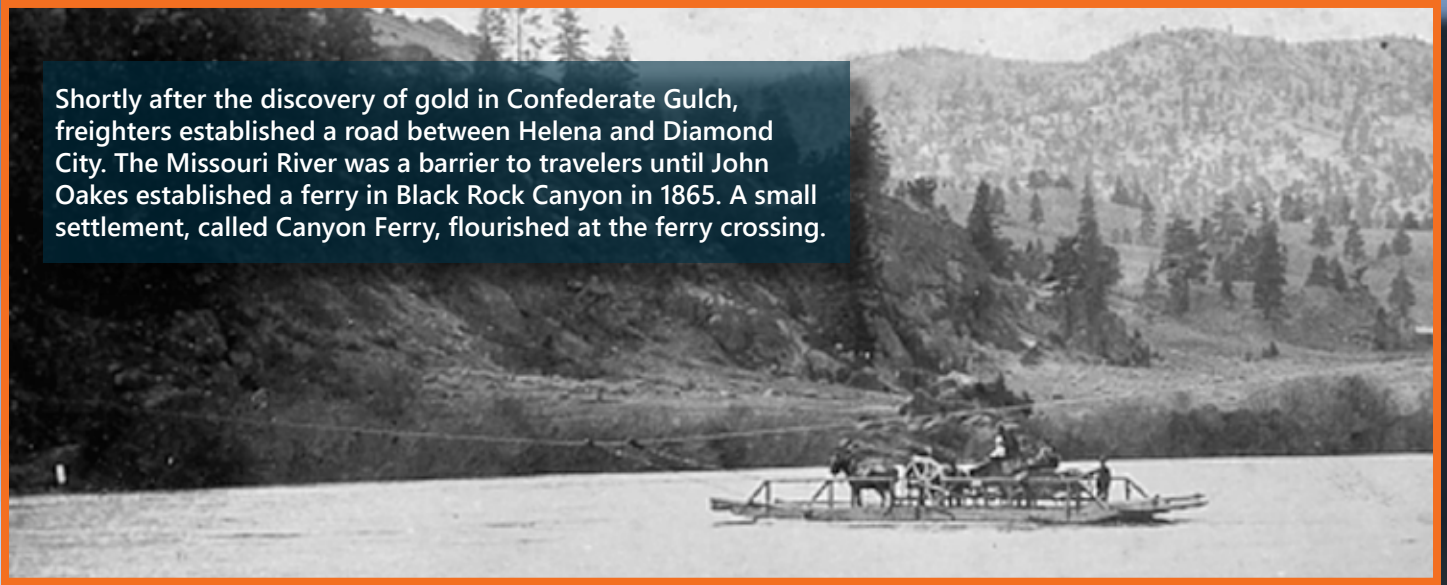


*All answers are found in this issue
Puzzle solution is inside the front cover*

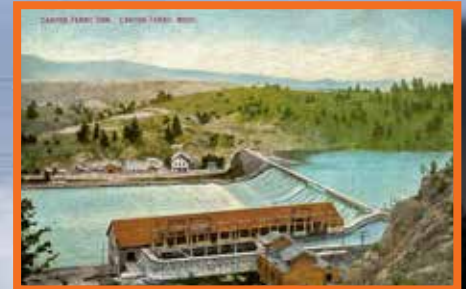
Back in Reclamation history

A brief history of Canyon Ferry Dam

Shortly after the discovery of gold in Confederate Gulch, freighters established a road between Helena and Diamond City. The Missouri River was a barrier to travelers until John Oakes established a ferry in Black Rock Canyon in 1865. A small settlement, called Canyon Ferry, flourished at the ferry crossing.



In 1898, Samuel Hauser's Helena Water and Electrical Power Company built a stone dam at a narrow point in the canyon near Canyon Ferry.



In July 1949, the Bureau of Reclamation began construction of a massive concrete dam just downstream of the old structure. Since 1954, the dam has produced hydroelectric power and water for irrigation. It backs up a reservoir 25 miles in length with 76 miles of shoreline. Canyon Ferry Reservoir took two years to fill, flooding thousands of acres of farmland and inundating the communities of Canyon Ferry and Canton. Today the reservoir provides water for irrigation and recreation for fishermen, boaters, and other sportsmen.