

PlainsTalk

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

Winter 2022-2023



Clean water for
350,000

- Canyon Ferry rehab
- Photo contest results
- Lower Yellowstone ribbon cutting
- AVC construction begins
- \$8.3B in BIL funds for Reclamation
- COVID protocol changes



— BUREAU OF —
RECLAMATION



Plains Talk
Winter 2022-2023

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Cover:

Ribbon cutting ceremony at Beresford water tower, SD.
Drone photo by Banner Associates, Inc.
Inset photo by Darryl Asher.

This page:

Storm clouds rolling in on Huntley Project, MT.
Photo by Andrea Schmidt

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CROSSWORD SOLUTION

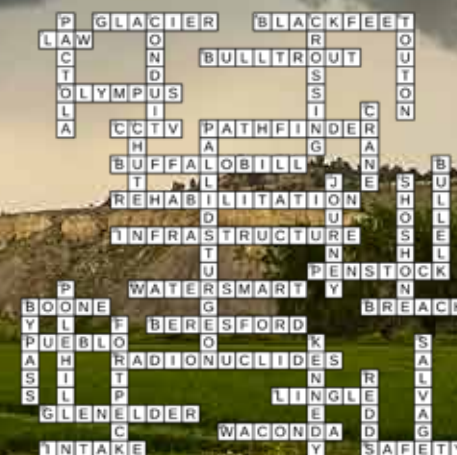




PHOTO CONTEST RESULTS



Thank you to everyone who submitted photos to the 2022 Missouri Basin Photo Contest.

190 eligible entries
185 total votes
4 top photos

Congratulations to this year's winners!



Hide-and-Seek: Bull elk near Grand Lake and West Portal of the Alva B. Adams Tunnel, Colorado-Big Thompson Project

Photo by Jacob Hoffman



(Tie) Storm 18 miles north of Belle Fourche, South Dakota on Aug. 26, 2022

Photo by Michelle Boehm



(Tie) Rocky Mountain Big Horn Sheep at Seminoe Dam, Wyoming

Photo by Ryan Dedeker





The Blue Ridge Mountain and communication site has completely disappeared in the background due to the clouds

Photo by Vance Brown



HONORABLE MENTIONS



Winter Dawn at Flatiron Reservoir in Colorado
Photo by Sonja Rosenberger



Buffalo Bill Dam, Wyoming, Aug. 19
Photo by Hailey Glarrow



A rare calm morning at Lake Sherburne Dam, Montana
Photo by Steven Darlinton



The Rocky Mountains outside of Red Lodge, Montana
Photo by Bryson Jones



Fremont Canyon Powerplant and surge tank in Wyoming on the morning of Feb. 6, 2022
Photo by Mike Rauh



CR Team inspects the dewatered outlet works of Twin Lakes Dam, Colorado
Photo by Adam Northrup



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Photo by Adam Northrup

Reclamation celebrates Bipartisan Infrastructure Law funding for Lewis & Clark Regional Water System



By Bryson Jones | Photos by Public Affairs Staff

The U.S. Bureau of Reclamation and the Lewis & Clark Regional Water System co-hosted a celebratory event for the continued work and investment of \$75.5 million from the Bipartisan Infrastructure Law to the Lewis & Clark Regional Water System project, Aug. 10 at 11 a.m., at the Beresford Water Tower in Beresford, South Dakota.

The Department of the Interior's Assistant Secretary for Water and Science Tanya Trujillo, Reclamation's Missouri Basin and Arkansas-Rio Grande-Texas Gulf Regional Director Brent Esplin, and Lewis & Clark Regional Water System Chairman Murray Hulstein, spoke at the ceremony to commemorate the investment of Bipartisan Infrastructure Law funds into the ongoing construction to connect the five remaining Lewis & Clark members—Hull, Madison, Sheldon, Sibley and Sioux Center.

"We are thrilled to celebrate the \$75.5 million of Bipartisan Infrastructure Law funds being invested in this project with our partners at Lewis & Clark," said Esplin. "We have a unique ability to fund projects like Lewis & Clark through the once-in-a-generation

investment which will eventually benefit an estimated 350,000 people in the tri-state area."

The project is currently 93 percent completed. Funding for construction is provided through federal, state and local grants. The three states and 20 members have paid 100 percent of their cost share, and the \$75.5 million in Fiscal Year 22 from BIL Funding will go toward constructing the remaining 32

miles of pipeline for the Madison service line, the 17 miles of pipeline to Sheldon, meter buildings, a pump station, and a new storage reservoir. Construction oversight and BIL funding is provided by the Bureau of Reclamation.



Lewis & Clark is a non-profit 501(c)4 organization incorporated in 1990 and authorized by Congress in 2000 (P.L. 106-246). It is a wholesale provider of water to 20 member cities and rural water systems in a 5,000 square miles area in southeast South Dakota, northwest Iowa and southwest Minnesota. The initial groundbreaking was on Aug. 21, 2003, construction began in earnest in 2004, and operations started on July 30, 2012.

Continued on next page





Continued from previous page

Water is currently being delivered to 15 members — Beresford, Centerville, Harrisburg, Lennox, Lincoln County RWS, Lincoln Pipestone RWS, Luverne, Minnehaha Community Water Corp, Parker, Rock County RWD, Rock Rapids, Sioux Falls, South Lincoln RWS, Tea and Worthington.

“Lewis & Clark is critical to the quality of life and economic development in our region,” said Troy Larson, L&C Executive Director. “The collaboration on this project with our many local, state, and federal partners is a prime example of what joint cooperation can achieve.”

Through careful engineering analysis, the Missouri River was determined to be the most viable source of water for Lewis & Clark. The System utilizes a series of wells to tap into an aquifer adjacent to the Missouri

River near Vermillion, South Dakota. When completed the System will distribute treated water through 337 miles of pipeline to members in a roughly 5,000 square mile area — the size of Connecticut. In addition to a traditional lime softening treatment facility, the non-looped system also includes a series of wells, meter buildings, pump stations and storage facilities.

The capacity of the completed system will be 45 million gallons per day, with the ability to expand to 60 MGD in the future. The 45 MGD represents less than 3/10th of 1 percent of the average daily flow of the Missouri River. After 33 years in the making, Lewis & Clark finally began delivering water to the first 11 members on July 30, 2012 and is currently serving 15 members.



By Elizabeth Smith

Olympus Dam upgrades



A series of long-duration heavy rainfall events between Sept. 9 and Sept. 13, 2013 caused floods in the Northern Front Range and Eastern Plains of Colorado. The Big Thompson River and its tributaries generated discharges that ranged from 18,400 cubic feet per second (cfs) at the North Fork of the Big Thompson upstream of Drake, to 870 cfs at Hill Gulch and created flood flows lasting more than two weeks as recorded by the Natural Resources Conservation Service.

"Colorado Big-Thompson facilities were not built for the purpose of flood control," said Chuck Files, Estes Powerplant Supervisor for the Bureau of Reclamation. "Reclamation employees worked around the clock, monitoring water levels and controlling releases, to keep Olympus Dam, all four dams at Horsetooth Reservoir, and all three dams of Carter Lake operating safely and efficiently throughout the flood event," he said.

In efforts to provide flood management in the future, the Eastern Colorado Area Office personnel recently completed a series of repairs, inspections, and upgrades at Olympus Dam. It is 25 miles west of Loveland, constructed across the Big Thompson River, and sits below Estes Powerplant, in Estes, Colorado. Lake Estes, below Estes Power Plant, is formed by Olympus Dam. The afterbay storage in Lake Estes and the forebay storage in Marys Lake enable the Estes Powerplant to meet daily variations in energy demand.

"Currently, the Casper Control Center has limited control of radial gate No. 3 of Olympus Dam," said Files. "During the flood, to meet the required flows, staff had to travel to Olympus to open the gates manually."

The Casper Control Center (CCC), in Casper Wyoming is the central control center for the Missouri Basin Division Office, which is made up of six area offices (Dakota Area Office, Nebraska-Kansas Area Office, Oklahoma-Texas Area Office, Eastern Colorado Area Office, Montana Area Office and Wyoming Area Office). A total of 21 hydroelectric powerplants, 137 dams and over 600 employees are the heartbeat of structures like Olympus Dam.

"There are plans for security cameras to be orientated at the gates, a CCTV feed to the CCC, so they can monitor the spillway and standard operating procedure revisions, that need to be executed before they have "control" of all the gates," said Files.

If the flow out of the Olympus Dam spillway goes above 1,100 cfs, lower portions of the Big Thompson Canyon will flood. Raising or lowering the gates can help control the water flow during a flood.

The Big Thompson River is about 78 miles long and flows into Lake Estes, in the town of Estes Park, and then through Big Thompson Canyon.

On July 31, 1976, the Big Thompson Canyon in Larimer County was struck with a 20-foot wall of water that flowed through the canyon during a flash flood. The Denver7 News website explains that the flood was caused when a storm front stalled over the central portion of the Big Thompson River.

Since then, many private, state, and federal organizations have worked together to study the flood systems and improve and maintain facilities and equipment used to manage environmental extravaganzas, such as the floods of 1976 and 2013.



David Tordonato performs a radial gate interior inspection. Seth Joramo bracing the removed panel.



Carter Gulsvig inspects the bottom of the radial arm gate.



Adam Northrup repairs concrete at Olympus Dam.

Isaac Stephans inspects the concrete of the Olympus Dam spillway.

Reclamation to receive \$8.3B in funding from Bipartisan Infrastructure Law



Photo courtesy Lewis & Clark Regional Water System

Funding from the Bipartisan Infrastructure Law enabled Reclamation to invest in the nation's infrastructure and benefit the American public for the next generation.

This key investment will improve federal stewardship of critical infrastructure and significantly increase Reclamation's efforts to support partners, stakeholders, Tribal nations, and communities in the 17 western states. Included in this Act is an \$8.3 billion investment in Reclamation water infrastructure and \$2.5 billion for authorized water rights settlement projects.

Reclamation is proactively engaging with tribes and stakeholders to share information regarding the implementation of the Bipartisan Infrastructure Law.

Within the Missouri Basin Region, multiple projects were allocated BIL funds in Fiscal Year 2022:

- **The Garrison Diversion**, located in central and eastern North Dakota, and serving four Tribal Reservations, was allocated \$51 million to support expansion of the Fort Berthold Rural Water System. It also supports expansion of the Spirit Lake and Standing Rock Reservations' distribution

system, and the construction of the Northwest Area Water Supply Biota Water Treatment Plant.

- **The Fort Peck Reservation** was allocated \$7 million for the regional rural water project that will provide for a single water treatment plant located on the Missouri River, near Wolf Point, Montana, and will distribute water through 3,200 miles of pipeline. Funding will support continued advancement of the Project's distribution pipelines and non-Tribal distribution pipelines.
- **Rocky Boy's/ North Central Montana** serves the Chippewa Cree Tribe on the smallest reservation in Montana. It was allocated \$57.5 million to support the continuing build-out of their rural water system, including core and non-core pipeline segments, and the water treatment plant.
- **The Lewis & Clark Regional Water System** was allocated \$75.5 million. This project addresses concerns regarding the low quality, contamination vulnerability, and insufficient supply of existing drinking water sources throughout the project area that extends throughout five counties in southeast South Dakota, two counties of

southwest Minnesota, and five counties of northwest Iowa. Funding will support completion of pipelines to convey treated water, as well as construction storage reservoirs, and reimburse the state for completed work.

- **The Musselshell-Judith Project** was allocated \$37 million. This project is for a coalition of eight incorporated communities, several unincorporated communities and many rural families in central Montana with a long legacy of poor water quality and limited quantity. Funding will advance construction of Phase 2 of the rural water distribution network.
- **The Glen Elder Dam** Spillway Chute Replacement project in north central Kansas was obligated \$14 million. Glen Elder Dam is located on the Solomon River. Completed in 1968, the aging infrastructure now requires replacement of the concrete spillway chute floor. Ames Construction, Inc. was awarded a \$41.2 million contract, starting work in early 2022 with completion estimated in 2025.

The Bipartisan Infrastructure Law's second year of funding in FY23 will be allocated to:

- Long-standing, well-established programs such as WaterSMART grants
- Programs that had been established already but are functioning and funded for the first time by the Infrastructure Law, such as the Extraordinary Maintenance for Reserved and Transferred Works projects
- Brand new programs that are authorized for the first time, such as the Multi-benefit Watershed Health Improvement Program

For more information about Reclamation and the Bipartisan Infrastructure Law visit www.usbr.gov/bil.





Top left: Gary Bone and Clark Larsen perform concrete sounding on Glen Elder spillway. (Photo by Anellise Deters)

Middle: 24-inch pipe being installed for the Lewis & Clark Regional Water System. (Photo by Lewis & Clark Regional Water System)

Bottom: A view of Glen Elder Dam Spillway from downstream. (Photo by Samantha Bartz)

Top Right: Glen Elder Spillway in Kansas. (Reclamation Photo)





Missouri Basin

By Bryson Jones | Photos by Reclamation Staff

BRIDGE INSPECTIONS

When the Transportation Program Directives and Standards, Project Planning and Facility Operations, Maintenance, and Rehabilitation FAC 07-01 was finalized early in 2019 and after two years of Reclamation-wide development and incorporation, staff in the Missouri Basin Regional Office knew they had an overwhelming amount of work to do. The updated regulation called for ensuring bridges on Bureau of Reclamation projects to be comprehensively inventoried, classified, reviewed for ownership, inspected, and reported on to base-line standards. These were among a few of the requirements established in the updated Directives and Standards to comply with Federal Highway Administration regulations. The updated Reclamation standard FAC 07-01 was established to ensure inspections are conducted in accordance with the National Bridge

Inspection Standards to review properly and uniformly, document, and report on Reclamation-owned bridges. In addition, state Department of Transportation has their own unique laws and regulations which also contribute to additional complications of compliance.

While it may seem like an easy assignment to manage Reclamation bridges it's a complex issue. Most of the bridges in the rural American West are older, and different stakeholders dispersed throughout rural areas, there are thousands of bridges scattered in every clime

and place throughout the Missouri Basin and Arkansas-Rio Grande-Texas-Gulf regions. The Missouri Basin region also inherited approximately one-third of the Upper Colorado Basin region's responsibility. There are also legal aspects of ownership needing to be identified to establish

"To date, we have over 1,500 bridges in Missouri Basin noted and a total of approximately 2,200 structures crossing our waterways and facilities," said Grassel. "This is a massive undertaking with many moving parts, and with many agencies, localities, and local and state governments."

liability responsibilities related to operations, maintenance, and safety issues for all structures. Further, if closure is required on any of several structures that are located within the western area offices of our region, this would result in detours for travelers on the order of 40-85 miles for extended periods of time if maintenance is not taken seriously.

"First we needed to address and identify all of the bridges we had," said David Skinner, Missouri Basin Technical Services Supervisor. "Reclamation generated the Reclamation Bridge Application database, and we had to initiate the process by adding all data we had available for the structures into the system."

To take on this massive project the Regional Office recently instituted a new Bridge group housed under the Technical Services Group that has been led by Gary Grassel, Missouri Basin Lead Civil Engineer for the past six years. Eventually, the new Bridge group intends to staff approximately three or four additional engineers in the regional office. Future plans also incorporate the addition of full-time engineering staff in approximately three of Missouri Basin's area offices to address demands on a local level.

"To date, we have over 1,500 bridges in Missouri Basin noted and a total of approximately 2,200 structures crossing our waterways and facilities," said Grassel. "This is a massive undertaking with many moving parts, and with many agencies,

localities, and local and state governments involved."

Historically, Reclamation focused on roughly 70 of the agency's more prominent publicly accessible structures. As the new Directives and Standard were being developed since 2017, it rapidly became apparent that the region would be performing detailed work on about 650 - 750 bridges rather than the original 70.

"We are now addressing inspections and report generation every two to six years depending on bridge accessibility by the public," said Grassel. "The publicly accessible bridges will require inspections and reporting to FHWA every two years, while the non-publicly accessible bridges can be inspected and reported every six years."

Therefore, it will be significantly beneficial for Reclamation to sign or install gate access to as many canal service roads as possible.

Getting the tally of bridges and structures is just the beginning. With the Missouri Basin finishing up their initial counts in Fiscal Year 2022, the task will now turn to confirmation of inventory in the field, classification, ownership, soliciting stakeholder input on the necessity of the structure for project purposes, disposal of unneeded

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structures, inspection, reporting, condition rating, recommendation generation, load rating, and scour screenings. The Regional Office will continue building future processes for managing these structures within the standards of FHWA.

Reclamation classifies these structures under one of four categories to better manage assets.

- **A Type 1 bridge** is a structure owned by Reclamation and open to the public. This type of bridge requires inspection every two years.
- **A Type 2 bridge** is a structure owned by Reclamation and not open to the public. This type of bridge requires inspection every six years.
- **A Type 3 bridge** is a structure not owned by Reclamation but crosses our facilities. These structures pose a concern for integrity as they may influence the operation of a facility if not adequately maintained. Reclamation will need to receive inspection reports from the owners of the structure to maintain knowledge of structure reliability.
- **A Crossing** has a span greater than six feet and less than 20 feet. These structures may also be of concern where these are in poor condition and can certainly influence operations if not maintained with adequate integrity such as buried culverts, siphons, and shorter span wood structures.

"Even though these bridges are categorized under different classifications and have different inspection schedules, they will all be inspected and reviewed with the same structural standards," explained Grassel. "That includes load ratings, signage, and guard rail requirements as necessary."

With such a massive responsibility, Reclamation's regional office has worked diligently to finish up their initial inventory and type classification and will then move forward into the future with help from an upcoming multi-year Indefinite Delivery-Indefinite Quantity contract to solidify overall current inventory and classification estimates.

"We've broken ground on a major program," said Skinner. "With Gary leading the charge we have formed great relationships with our partners and look forward to ensuring our bridge infrastructure is inventoried and inspected for the betterment and safety of our organization and for our end users and the American public."

With the brilliant and dedicated professionals of Missouri Basin in charge, you can be assured that you won't be driving on a bridge over troubled water.



Journey Elementary visits ALCOVA

Photos and Story by Hailey Glarrow,
WYAO Natural Resource Specialist

On Sept. 29, 2022, Alcova Powerplant hosted a field trip for 50 fourth grade students from Journey Elementary School located in Casper, Wyoming.

The students experienced a full tour of the Alcova Dam and Powerplant and learned how water and power are managed in their home state.

Michael Eisenman, Powerplant Supervisor II for the Alcova/Fremont Canyon facilities led the tour. Eisenman covered every detail from the large equipment used to operate and maintain the powerplant to the generators and infrastructure of the facility.

"It's always a great day when we get to show school-aged kids where their electricity comes from," Eisenman said. "We take a lot of pride in our facility and love to share how Alcova Powerplant provides our communities with clean energy."

The tour started at the top of the dam, where Eisenman gave a general overview. Students then broke into smaller groups and were escorted through the powerplant. Along the way they got to see the large pipes carrying water from the reservoir through the turbines, and the impressive 165-foot drop from the dam to the river.

"Mike was very informative and answered all the questions the students had for him," said Billy Bright, North Platte Facilities Manager. "These tours are our favorite part of the job, being able to show the next generation what Reclamation does. All the 'wows' and 'oohs' we received from the students tells us that they enjoyed it too and were very impressed by our facility."

Alcova Dam is on the North Platte River about 35 miles southwest of Casper, Wyoming. The dam forms a reservoir from which water is diverted into Casper Canal for irrigation of lands in the Kendrick Project near Casper. Winter releases from Alcova Reservoir generally provide power generation and relocate storage water into Glendo Reservoir for delivery the following spring and summer.

Alcova Powerplant is located just downstream of Alcova Dam and has two 20.7 megawatt generating units, and the reservoir has a total capacity of 184,208 acre-feet. The powerplant was authorized and built after Alcova Dam was completed in 1938. Construction of the plant was completed in 1955.



COMMISSIONER

visits the Missouri Basin

Photos by Public Affairs Staff



Substantial changes to **Reclamation's COVID-19 protocols**

Memo from
Scott D. Swanson
Preparedness Division Manager
Reclamation COVID-19 Coordinator

On Aug. 19, 2022, the Department of the Interior announced substantial changes to existing COVID-19 protocols and requirements. DOI issued this updated version of the plan in response to executive branch-wide COVID-19 policy modifications issued by the Safer Federal Workforce Task Force last week.

The Reclamation New Normal Information SharePoint site, which is linked on the front page of the Missouri Basin Intranet, remains the best resource for the latest requirements, guidance, and instructions concerning COVID-19 and safer workplace practices. Please contact your supervisor or servicing human resources office with any questions.

Vaccination Status

- Supervisors are not to request or collect vaccination status from employees. Applicants pending onboarding are not to provide proof of vaccination prior to or upon entry to Reclamation. Likewise, DOI has discontinued the ability to upload and verify proof of vaccination in the Safety Management Information System, however, existing entries remain archived in accordance with records retention requirements.
- The Office of Management and Budget Certification of Vaccination form has been discontinued and is no longer to be used by any entrant to a DOI indoor workspace. Reclamation employees will not request, review, or collect proof of vaccination, certification of vaccination, attestation, or any other form of documentation that establishes vaccination status from any employee, contractor, visitor, volunteer, or other entrant to a Reclamation workspace.
- In addition, unvaccinated entrants no longer must provide proof of a negative test for COVID-19 completed no more than 72 hours prior to the entry to a Reclamation indoor workspace when the Centers for Disease Control and Prevention Community Level is MEDIUM or HIGH.

Exposure

- As vaccination status no longer informs workplace activities, all employees follow the same requirements for close contact exposures. Asymptomatic employees may continue to report to the workplace and conduct normal work activities but must wear a mask and monitor for symptoms for 10 days following the date of exposure. The date of exposure is day 0, and the next day is day 1, for calculation purposes. Employees must test 5 days after the date of exposure, even if symptom free, and employees must report the result of their test to their immediate supervisor. Testing is mandatory for any close contact exposed employee who will be in the workplace and/or working around the public during the 10-day monitoring period (note that travel is considered working around the public).
- Prior infection, positive testing, and recovery within the previous 90 days no longer exempt employees from exposure testing requirements and may not be used as justification for exemption from testing. Telework eligible and ready employees may request to telework the entire 10-day monitoring period. If remaining away from the workplace and not working around the public, the teleworking employee is not required to test. Remote employees not participating in local or temporary duty travel and/or working around the public during the 10-day monitoring period are not required to test.

Testing

- Reclamation will not implement weekly screening testing (also known as "serial" testing) of unvaccinated employees entering a Reclamation workspace when the CDC Community Level is MEDIUM or HIGH. All weekly screening/serial testing is restricted and now requires DOI and Safer Federal Workforce Task Force approval.
- Reclamation will continue to purchase testing and provide compensable time to complete testing when the bureau directs an employee to test. Testing remains appropriate and available when required:
 - In the conduct of official workplace activities
 - For travel when required by the transportation entity and/or destination
 - To satisfy close contact exposure testing requirements
 - In high-risk settings (only with preauthorization from DOI and the Safer Federal Workforce Task Force).





A Ribbon Cutting

on the

LOWER YELLOWSTONE

By Brittany Jones, Missouri Basin Public Affairs

Reclamation and the U.S. Army Corps of Engineers co-hosted an official ribbon cutting ceremony for the completion of the Lower Yellowstone Intake Diversion Dam Fish Passage Project and celebrated Reclamation's 120th Anniversary, July 26, near Glendive, Montana.

The Department of the Interior's Assistant Secretary for Water and Science Tanya Trujillo, and Reclamation's Commissioner Camille Calimlim Touton, along with Brent Esplin, the Missouri Basin Regional Director, attended the ceremony to commemorate Reclamation's 120 years of history and the success of the three-year, \$44 million construction project.

"The successful completion of the bypass

channel wouldn't have happened without years of inter-agency coordination from some of the dedicated civil servants here today," Touton said. "I want to thank each and every one of you for your hard work to support and sustain the mighty pallid sturgeon while also embracing our unwavering commitment and customer service to the project's water users."

Trujillo, Touton and Esplin released juvenile pallid sturgeons into the Yellowstone River to mark the importance of the completion of the fish bypass to help conserve the continued survival of the endangered species.

Construction on the channel started in April 2019 and was recently completed with the removal of the cofferdams on April 9, 2022.

The 2.1-mile-long channel was constructed as part of the Lower Yellowstone Intake Diversion Dam Fish Passage Project that was designed to address fish passage concerns associated with Intake Diversion Dam.

In 1990, pallid sturgeons were listed as endangered by the U.S. Fish and Wildlife Service under the Endangered Species Act. USACE, the Wildlife Service, and Reclamation have been working in partnership to determine the effects of the Lower Yellowstone Project on the species. Two primary issues were identified, entrainment into the Lower Yellowstone main canal and lack of passage success over Intake Diversion Dam. A new screened headworks structure was completed in 2012 and addressed the canal entrainment

issue. The new weir in conjunction with the bypass channel will provide passage and open approximately 165 river miles of potential spawning and larval drift habitat in the Yellowstone River.

The Lower Yellowstone Project is a 58,000-acre irrigation project located in eastern Montana and western North Dakota. The project is operated and maintained by the Lower Yellowstone Irrigation District Board of Control under contract with Reclamation. The project includes Intake Diversion Dam, a screened headworks structure, 71 miles of main canal, 225 miles of laterals and 118 miles of drains, three pumping plants on the main canal, four supplemental pumps on the Yellowstone River and one supplemental pump on the Missouri River.

Continued on next page



Left: More than 100 people including members of Reclamation, the U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, and the Lower Yellowstone Irrigation District, attended a ribbon cutting ceremony, July 26, 2022, to celebrate the completion of a bypass channel that will better facilitate the survival of pallid sturgeon and other fish species, while continuing to serve the irrigators and project users in the area. (Photo by Bryson Jones)

Right: The Department of the Interior’s Assistant Secretary for Water and Science and Reclamation’s Commissioner Camille Touton celebrate after cutting the ribbon at the Lower Yellowstone Ribbon Cutting Ceremony. (Photo by Brittany Jones)

Bottom: A detailed timeline graphic of the Lower Yellowstone Project’s history and milestones from 1990 until the completion of the bypass channel in April 2022. (Graphic by Brittany Jones)





Top left: Reclamation Commissioner Camille Touton releases a juvenile pallid sturgeon into the Lower Yellowstone River during a ribbon cutting ceremony, July 26, 2022. *(Photo by Bryson Jones)*

Middle Left: Assistant Secretary for Water and Science Tanya Trujillo speaks at the Lower Yellowstone Ribbon Cutting Ceremony to celebrate the completion of the bypass channel to facilitate the continued survival of pallid sturgeon in the river. *(Photo by Brittany Jones)*

Middle: Reclamation Commissioner Camille Touton speaks at the Lower Yellowstone Ribbon Cutting Ceremony. *(Photo by Bryson Jones)*

Top Right: A photo of a mature pallid sturgeon. *(Photo by U.S. Geological Survey)*

Middle Right: Montana Area Office Employees Ryan Colloton and David Trimpe take a photo with Reclamation's Commissioner Camille Touton after the Lower Yellowstone Ribbon Cutting Ceremony. *(Photo by Brittany Jones)*

Bottom: Distinguished guests cut the ribbon at the Lower Yellowstone Ceremony to celebrate the opening of the bypass channel. *(Photo by Bryson Jones)*

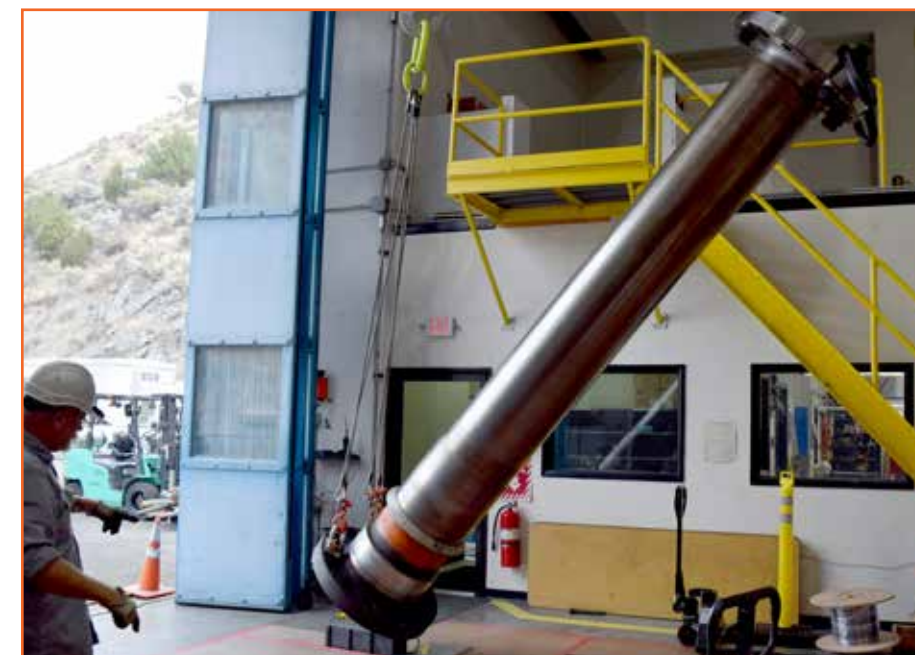




Canyon Ferry Powerplant Rehabilitation Project Begins



These photos show the disassembly progress of the U1 Generator at Canyon Ferry Powerplant as part of the larger U1, U2, and U3 Generator Rehabilitation Project. The work is accomplished through a partnership with Tennessee Valley Authority performing the generator disassembly, various generator component inspections and rehabilitation work that will be performed at Canyon Ferry and TVA's Power Service Shop in Muscle Shoals, Alabama, coatings replacements of generator components, stator windings removal, and reassembly of the generator. The rehabilitation of the generator includes new generator stator windings and new generator rotor poles provided by contract with Andritz Hydro, and a new turbine runner, wicket gates, facing plates, and other turbine machinery via a supply contract with Voith Hydro. Each unit is scheduled to take 12 months to complete the rehabilitation with a 30-day commissioning phase after reassembly.



Photos by Brock Owen, MTAO Mechanical Engineer

Boone Reach Contract 1 kicks off AVC construction



By Anna Perea, ECAO Public Affairs Specialist

The Bureau of Reclamation awarded the inaugural contract of the Arkansas Valley Conduit (AVC) to WCA Construction LLC, for \$42,988,099.79. This contract funds construction of the first Boone Reach trunk line section, a 6-mile stretch of pipeline that extends from the eastern end of Pueblo Water’s system toward Boone, Colorado.

The AVC project will use Pueblo Water’s existing infrastructure to treat and deliver AVC water from Pueblo Reservoir to a connection point east of the City of Pueblo along U.S. Highway 50. The

water will be either Fryingpan-Arkansas Project water or from participants’ water portfolios, not from Pueblo Water’s resources. Work under this contract will begin in spring of 2023. This section is expected to be completed in 2024.

“Now more than ever, people in the Arkansas River Valley understand the immense value of the Fryingpan-Arkansas Project and the Arkansas Valley Conduit,” said Jeff Rieker, Eastern Colorado Area Manager.

"In terms of drinking water, there are two basic needs for people living in southeastern Colorado: The need for good quality drinking water and the need to meet existing and future water demands."

“We look forward to the day when these residents can open the faucet and know that their drinking water is safe and healthy.”

As the AVC project moves forward, under existing agreements, Reclamation will construct the trunkline, a treatment plant and water tanks, while the Southeastern Colorado Water Conservancy District will coordinate with communities to fund and build AVC delivery pipelines. Eventually, the AVC will connect 39 water systems along the 103-mile route to Lamar, Colorado.

The AVC is a major

infrastructure project that, upon completion, will provide reliable municipal and industrial water to 39 communities in Southeastern Colorado. The pipelines will bring water from Pueblo Reservoir to Bent, Crowley, Kiowa, Otero, Prowers, and Pueblo counties. It is projected to serve up to 50,000 people in the future (equivalent to 7,500 acre-feet per year).

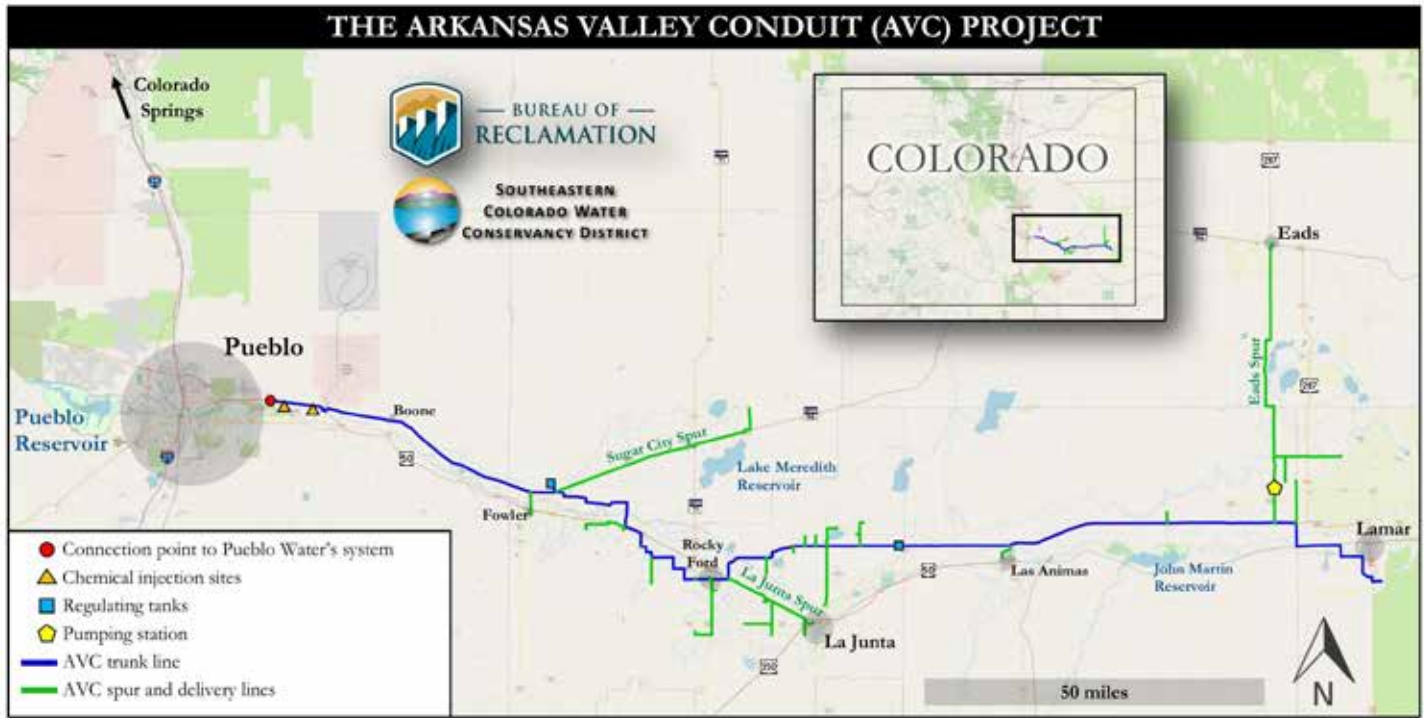
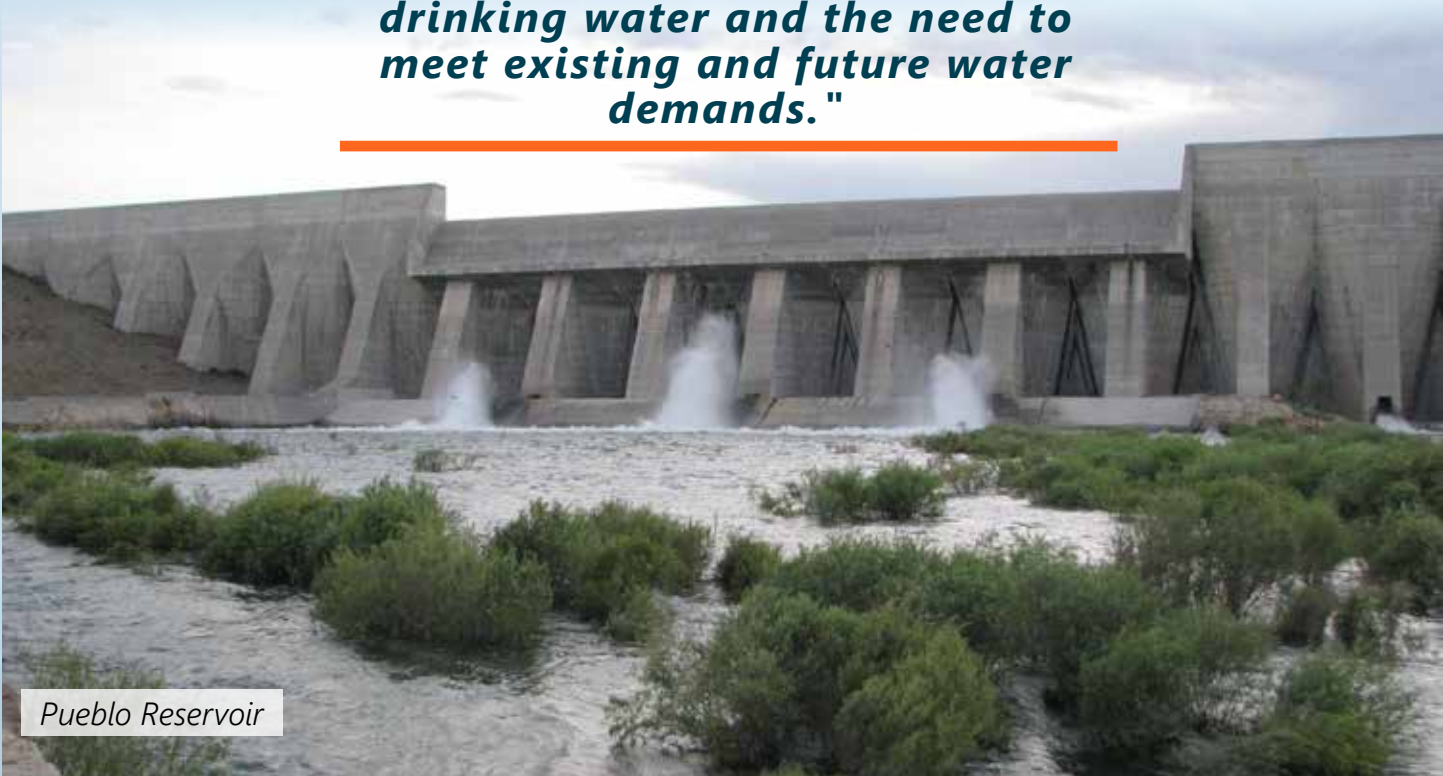
The AVC was authorized in the original Fryingpan-Arkansas Project legislation in 1962 (Public Law 87-590). The AVC would not increase Fry-Ark Project water diversions from the Western Slope of Colorado; rather, it was intended to improve drinking water quality.

Currently, many people in the areas that will be served by the AVC rely on groundwater supplies that may be contaminated by naturally occurring radionuclides, such as radium and uranium, or use shallow wells that contain harmful microorganisms

and pollutants. Alternatives for these communities consist of expensive options such as reverse-osmosis, ion exchange, filtration, and bottled water.

"In terms of drinking water, there are two basic needs for people living in southeastern Colorado: The need for good quality drinking water quality and the need to meet existing and future water demands," said Derek Mickle, AVC Project Manager.

This contract continues many years of hard work by Reclamation, Southeastern, Pueblo Water and other project partners to improve the lives of residents and provide opportunities for economic development and job creation.



Pole Hill Powerplant is EUCG Top Performer for 2019-2021



By Anna Perea, ECAO Public Affairs Specialist

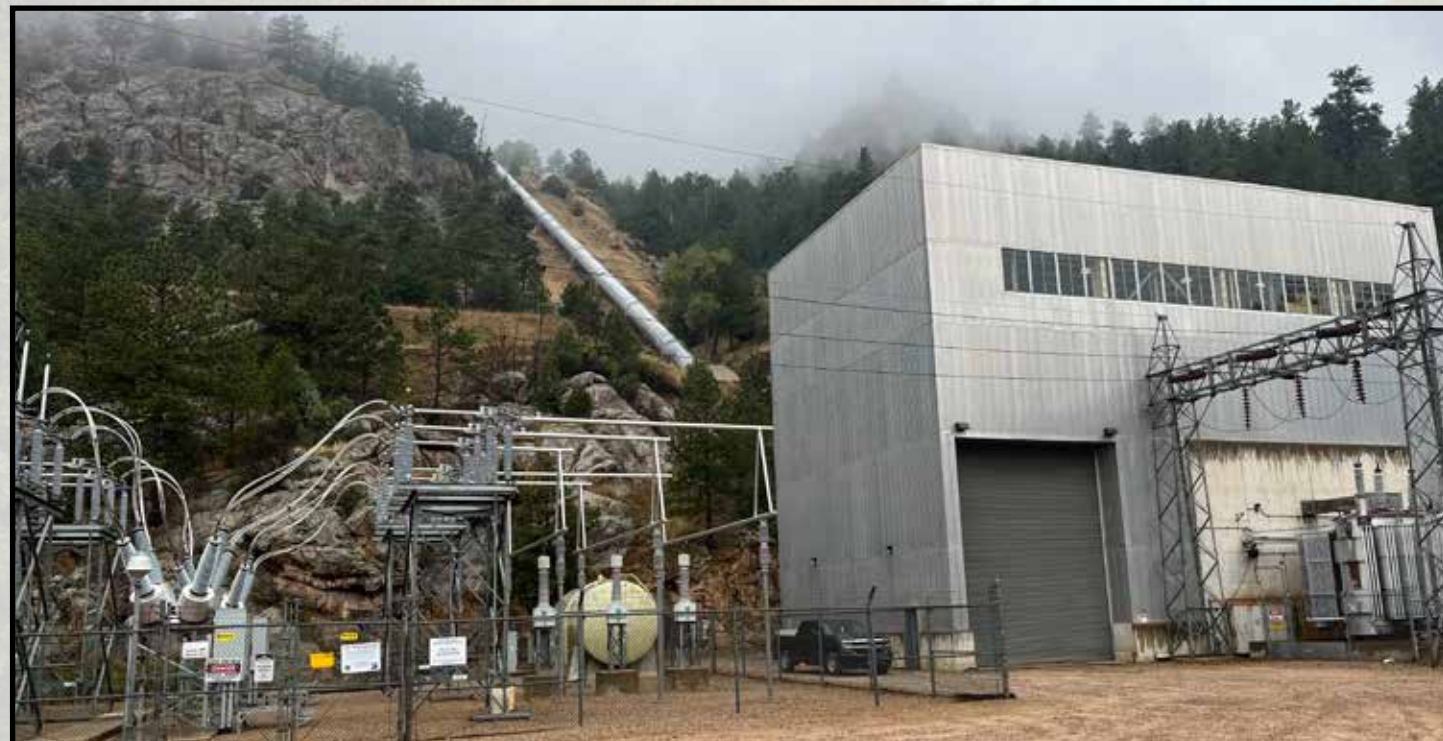
Have you heard of Pole Hill Powerplant? Tucked in the foothills west of Loveland, Colorado, this low-profile hydroplant packs a punch—producing enough power for nearly 19,000 homes in 2021 (203 gigawatt hours).

The Electric Utility Cost Group (EUCG) has designated the Pole Hill Powerplant a Top Performer Plant in the 30-100MW category for 2019-2021. Congratulations to the Flatiron-Pole Hill Section of the Eastern Colorado Area Office!

The Pole Hill Powerplant is one of six Reclamation-run powerplants in the Colorado-Big Thompson Project. It is an integral part of a trans-mountain water diversion from the Colorado River.

Water from Lake Estes and the Big Thompson River reaches the Pole Hill forebay by tunnel and canal. From the forebay, water drops 815 feet through the penstocks and into the Pole Hill afterbay. Water then enters the Rattlesnake Siphon and Tunnel which transports water to Pinewood Reservoir further down the mountain.

"EUCG identifies top performers across key cost and performance metrics. These metrics include operations and maintenance expenses per megawatt and plant forced outage and availability factors. Pole Hill was identified as a top performer for the 2021 30-100 megawatt peer group," said Bishop.



Pole Hill Powerplant

Performance benchmarking is a management tool, allowing Reclamation to identify opportunities to adopt and validate best practices in coordination with industry peers for the benefit of our customers.

Each year, Bishop works with regional coordinators to report Reclamation plant data to the EUCG database. All submissions to the EUCG database undergo a thorough peer review to ensure data is accurate and consistent with EUCG HPC reporting guidelines.

"This unexpected award highlights the diligent efforts of the local staff performing efficient and effective recurring maintenance year after year," said Karl Thiel, Power Operations and Maintenance Manager at Mt. Elbert. "It also reflects the necessary support given from key facilitators in the regional office and TSC."



Top of Pole Hill penstocks



Pole Hill Afterbay



Full Travel Gate Testing

Buffalo Bill Dam Cody, Wyoming

Story and photos by Bryson Jones, MB Public Affairs

The Bureau of Reclamation's Wyoming Area Office completed full travel gate testing at Buffalo Bill Dam outside of Cody, Wyoming, Aug. 22-24.

Every six years Reclamation employees perform full travel testing on Buffalo Bill's two spillway gates. This is done to ensure the massive 28-foot by 20-foot, stainless steel faced gates work to their full capacity when called upon to open and release water from Buffalo Bill

Reservoir. While the full travel test is done in six-year intervals, Reclamation does a 10 percent

"All in all, we had a successful and safe examination on both gates."

test yearly to ensure everything is in working order. This mandated testing integrates

Operations and Maintenance work activities alongside Reclamation's Safety of Dams Program.

"The last time that we did a full travel test at this facility was in 2015," said Mark Skoric, Big Horn Basin Facilities Manager. "We were delayed one year due to the COVID-19 pandemic, so we are excited to complete the testing."

Starting Aug. 22, the Reclamation employees

of Buffalo Bill Dam began preparing for the task at hand. To begin evaluating the gates, the water from the reservoir needed to be stopped. The process of cutting off the water began by lifting massive steel stop logs with rubber seals down the upstream face of the spillway structure closing the flow of water to the gates. This process was done with the help of a crane and a special rigging that allowed for the logs to be released from the topside of the dam.

Once the stop logs were in place, the void immediately behind the spillway gate was drained and the differential pressure created pressed the stop logs firmly in place. After the water was drained, the gates were unrestricted to maneuver freely without water flows from the reservoir.

The employees and engineer teams then maneuvered the gate fully open. While the gate was moving it was timed, and visually inspected. The gate was checked for deterioration, rubber seal condition and the



massive hydraulic cylinder was inspected as it lifted the load.

Upon completion, the team closed the gate, refilled the void behind it relieving the pressure, lifted the stop logs out of place, and began the same process on the second gate.

"All in all, we had a successful and safe examination on both gates," said Skoric. "Both are fully operational and doing what they need to do to ensure water flows from Buffalo Bill Dam when required."

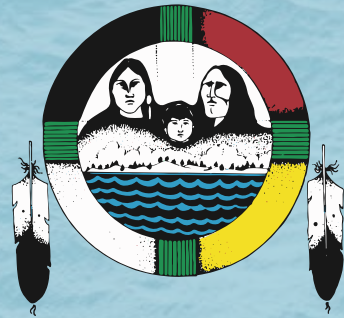
The planning, safe execution, and examination are shining examples of the careful dedication Reclamation brings to ensure water is delivered to the state of Wyoming and the American West.

Buffalo Bill Dam, on the Shoshone River about 4 miles upstream from Cody, Wyoming, is a concrete arch structure of constant radius. The structural height is 350 feet and the volume is 87,515 cubic yards. It is one of the first high concrete dams built in the United States. The reservoir impounds 646,565 acre-feet of water.



DKAO Implements Recommended Changes at Mni Wiconi RWS

Story by Stacy A. Myhre, DKAO Deputy Rural Water Manager & Bryson Jones, MB Public Affairs



In Fiscal Year 2021, Reclamation's Technical Service Center staff from the Water Conveyance Group & Water Treatment Group directed a condition assessment study of the Mni Wiconi Rural Water Supply System pipeline. The assessment study included an investigation of probable causes of pipe failures in the rural water system, development of short-term mitigation strategies, and a presentation of the results of the assessment and follow-up recommendation report in Fiscal Year 2021.

In 2022, the team at the Dakotas Area Office took major strides to implement many of the recommendations from the 2021 report.

"One recommendation from TSC was a surge mitigation project to provide protection from power hydraulic transients which contribute to pipeline failure," said Stacy A. Myhre, Mni Wiconi Project Team Leader and DKAO Deputy Rural Water Manager. "This project is at 90 percent design completion and will be bid by the end of calendar year 2022."

DKAO implemented an additional recommendation, a water chemistry change to drinking water. By adding additional water treatment chemicals, the team was able to stabilize the pH of the water.

"By tweaking the chemistry in the system, we were able to balance the pH in the water which will lead to a higher alkaline environment within the system," said Myhre.

This was no easy feat however as the changes in chemistry required substantial coordination with The U.S. Environmental Protection Agency and the State of South Dakota's Department of Agriculture and Natural Resources for approval. The change also required significant coordination with members of the system, public notices, purchasing and installing new equipment, and additional permitting and regulatory requirements. With the coordination of agencies, DKAO was able to implement the changes in April and were completed in August 2022.

DKAO is conducting an additional study to determine the viability of permanent replacement or repair to prevent further interruptions to water service. This study is expected in 2023.

The Mni Wiconi project is complex and has spanned decades. Originally authorized by the Mni Wiconi Project Act of 1988 and the Reclamation Projects Authorization and Adjustment Act of 1992, Mni Wiconi consists of five individual but interconnected tribal and non-tribal rural water systems: the Oglala Sioux Rural Water Supply System (OSRWSS) Core System, the Lower Brule Sioux Rural Water System (LBSRWS), the Rosebud Sioux Rural Water System (RSRWS), the OSRWSS on-reservation distribution system Department of Water Maintenance and Conservation (DWMC), and the West River/Lyman-Jones Rural Water System (WR/LJ).

The primary source of water for the Project comes from the Missouri River, but many ground water wells are also used.

"Potable water is delivered via approximately 5,000 miles of pipelines throughout the project area," said Joe Hall, DKAO Area Manager. "It is estimated about 55,000 people and 225,000 cow units (cow/calf pairs) are currently being served by the system."

The system covers large portions of South Dakota and stretches into Nebraska, including the counties of Stanley, Haakon, Lyman, Jones, Jackson, Mellette, Pennington, Todd, Bennett, and Oglala Lakota, formerly known as Shannon.

"Mni Wiconi is a massive project," said Hall. "It covers roughly 1/6 of the entire state of South Dakota or 12,500 square miles."

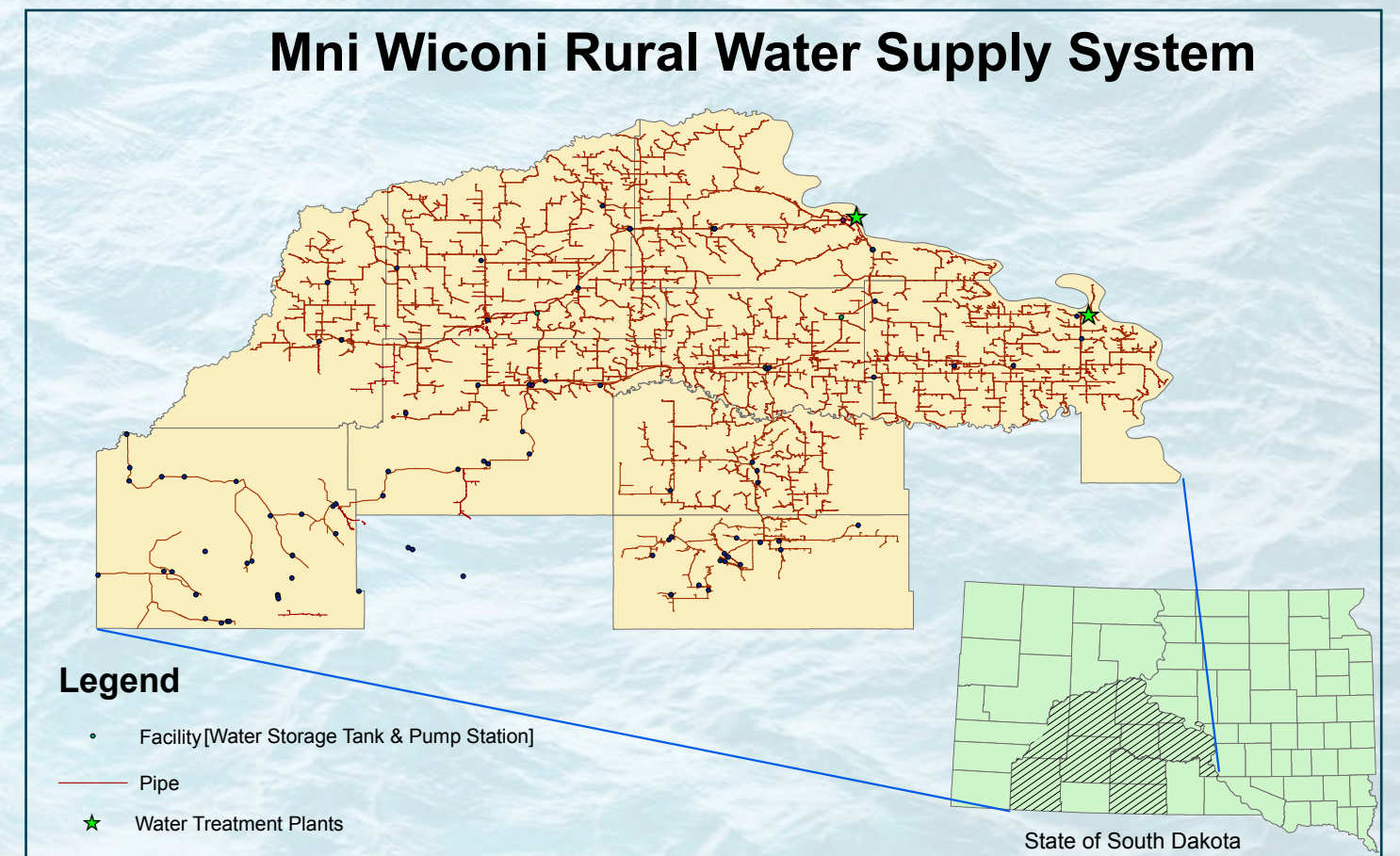
The Mni Wiconi Act states the Secretary of the Interior is responsible for the Operations, Maintenance and Replacement (OM&R) of existing water systems and appurtenant facilities on the Pine Ridge, Rosebud, and Lower Brule Indian

Reservations and the off-reservation OSRWSS Core System. Reclamation and the tribes entered into Public Law 93-638 cooperative agreements for the OM&R of their respective portion of the Mni Wiconi rural water system. Reclamation provides Mni Wiconi OM&R appropriations via its cooperative agreements and provides technical oversight for the Tribal portions in which are held in trust for the Tribes. WR/LJ is a non-tribal portion of the system and doesn't receive OM&R funding through the Mni Wiconi appropriations.

"On multiple occasions in the last several years, Reclamation staff and staff from the rural water system have performed emergency repairs to the Oglala Sioux Tribe Core System," said Myhre.

DKAO staff and the Oglala Sioux Tribe Core System staff have worked together to complete repairs and the repair teams successfully shut down miles of pipeline in different hydraulic operation zones, lead excavations, and performed welding operations to restore the pipeline.

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The team has developed a methodology to reduce the amount of time the system has to be shut down and minimizes the impact to water users.

A hydraulic study was completed in 2018 indicating additional storage requirements for the main system for emergency storage and demand variations. The study was completed due to high demand and delivery issues that resulted in a moratorium on new connections and water restrictions. Additional storage was recommended at all four current locations.

"To date, a new 800,000-gallon tower has been constructed near Murdo, South Dakota, and was completed during the COVID-19 pandemic," said Myhre. "Three additional storage reservoirs are planned. Two of the three are in design and each will have a 2-million gallon storage capacity."

One reservoir will be bid by the end of calendar year 2022, with the second reservoir to follow shortly behind. The third reservoir is in preliminary site selection and design. Funding for all three reservoirs came from Extending Government Funding and Delivery Emergency Assistance Act (P.L. 117-43) and Mni Wiconi Appropriations.

Invasive zebra mussels were identified in Lake

Sharpe in 2019, where two of the Mni Wiconi RWS intakes are located. LBSRWS intake has been significantly impacted. Bidding for a zebra mussel mitigation will be completed in November 2022. The project required significant coordination and approval from the EPA as well as a permit from U.S. Army Corps of Engineers. The project will include a chemical injection line to the intake, cleaning of the intake pipeline, and installing additional chemical equipment. To date, the other Mni Wiconi intake has not been impacted, however a zebra mussel mitigation project is in the preliminary design phase of the project.



Aerial photograph of the OSRWSS Core System. The new 800,000 gallon tank in foreground and legacy tank in the background.

Additionally, smaller projects for the system include a water treatment plant generator replacement at LBRWS, generator additions and replacements through DWMC facilities, Phase 1 Booster 2 improvements at RSRWS, construction of a new aboveground booster station at RSRWS, generators installation at the Core System water treatment plant, Big White River Crossing Replacement for the Core System, and a pipeline replacement at DWMC in the Oblaya area. Funding for these projects come from the Mni Wiconi Appropriations and Native American Affairs Drought Funding.

"Mni Wiconi has its complexities," said Hall. "But the dedicated professionals here in the Dakotas are focused on improving the quality of drinking water for the communities we serve."



Contractors repair leaks on the OSRWSS Core System in 2021.



Reclamation and Partners Repair Interstate Breach

by Missouri Basin Public Affairs

The Bureau of Reclamation was notified and responded to a breach of the Interstate Canal located west of the town of Lingle, in southeast Wyoming, which occurred sometime between the evening of June 30 and the morning of July 1, 2022.

At the time of breach, the canal was diverting approximately 1800 cubic-feet-per-second. Alongside the Pathfinder Irrigation District, Reclamation advised their partners and were able to come up with a repair plan. Pathfinder Irrigation District responded immediately working to place rip-rap in the breach to minimize flooding and retain as much water in the canal as possible. "I have to brag about my

employees in our irrigation district," said Rick Miller, manager of the Pathfinder Irrigation District. "I never heard a single complaint, and I worked them



to death! I was amazed at how faithful they were to the district and to the irrigators below us."

The repairs were quick, and the canal was back in working order

by July 7 with minimal impact to local irrigators and customers. No injuries occurred due to the breach.

The canal is over 100 years old and was constructed during 1905-1915. It follows the contour of the land for 95 miles from Whalen Diversion Dam to Lake Alice and Lake Minatare Reservoirs northeast of Scotts Bluff, Nebraska. The canal serves Lingle, Hill, and Pathfinder Irrigation Districts. The canal delivers water to over 106,000 irrigated acres of farmland in Wyoming and western Nebraska.





SALVAGE on the ST. MARY

Article and photos by Brittany Jones

Since 2020, the St. Mary Minimizations Team, a multi-agency team of biologists, environmental specialists, Blackfeet Tribal members, and other federal employees from the Bureau of Reclamation and the U.S. Fish & Wildlife Service join forces for a week to help save an endangered species near Babb, Montana. The average member has a long packing list including items like hiking boots, multiple layers of clothing, waders, bear spray, fish nets, ATV helmets, and more.

So, what exactly is this team of specialists up to? They get chest-deep into water to salvage bull trout from an irrigation canal and search for bull trout redds (nests for eggs) 10 miles into the back country of Glacier National Park. But why?

What is a Bull Trout & Why does Reclamation Care?

Bull trout, *Salvelinus confluentus*, is a char of the Salmonidae family located in the northwestern United States and Canada. The only population of bull trout located east of the continental divide in the United States is found in the upper St. Mary River Basin.

Bull trout are an olive drab color with light-colored orange spots on their sides with an average length of 25 inches when mature. They are named for their large head and mouth. They have a lifespan of about 10 years and become sexually mature at four years. They spawn every year or every other year in very precise conditions.

Bull trout require specific habitat characteristics that include the “Four Cs” for ideal reproduction and survival rates:

- **Cold:** Bull trout thrive best in waters ranging in temperatures from 53.6 – 57.2 degrees Fahrenheit.

- **Clean:** They flourish in unpolluted waters with minimal sedimentary residue.
- **Complex:** Bull trout prefer diverse environments including various water depths, undercut banks, and an abundance of logs for protection or finding prey or other nutrients.
- **Connected:** Their habitats must connect to other rivers, lakes, or oceans to facilitate proper migration for feeding and spawning every year.

Bull trout were listed as threatened under the Endangered Species Act in 1999. Habitat degradation, competition with nonnative fish species, and passage and entrainment issues around dam infrastructure have all contributed to the species’ decline.

According to the Thoreau Institute, dams have restricted migratory bull trout populations, isolating any remaining populations of the fish, which often live in small groups of less than 1,000. These small numbers, and the inability to reach other bull trout populations, negatively impacts the genetic health and diversity of the species and decreases survival rates.

The St. Mary Minimizations Measures Team was born to ensure compliance with the USFWS’s 2020 Biological Opinion for Effects of Operation and Maintenance of the St. Mary Unit of the Milk River Project on bull trout and to reduce the effects of the Project for a five-year period (2020- 2025). Efforts help protect the threatened species while providing continued water delivery in the Project area.

In the BO, USFWS identified three main threats to the survival of bull trout populations within the St. Mary Unit area of operations:



Members of the St. Mary Minimizations Team pose for a group photo near Boulder Creek in Glacier National Park in northwestern Montana. Front from left, Jacob Bradford, Reclamation natural resources specialist; Lauri Teig, Reclamation environmental specialist; Kevin Aceituno, FWS biologist; and Jeremiah North Piegan, Blackfeet Fish & Wildlife fish biologist. Back from left, Kurt Weidich, Reclamation hydrologic technician; Joaquin Four Horns, Blackfeet Fish & Wildlife student intern; Jim Mogen, FWS biologist; Blair Little Mustache, Blackfeet Tribe Animal Control Officer; Dan Brewer, USFWS biologist; and Josh Melton, FWS biologist.

1. *Lack of flowing water in Swiftcurrent Creek below Sherburne Dam during the winter months*

the threatened bull trout. The backpack uses a safe level of electrical current to stun fish so they can be caught with a net.

1. *Passage at the St. Mary Diversion Dam*

1. *Entrainment into the St. Mary Canal*

“After a long day of work, the team located and salvaged two juvenile bull trout from the creek, and they were safely relocated downstream of dam infrastructure,” said Lauri Teig, Reclamation environmental specialist.

The Week of the Fish Salvage

To combat these factors, the team conducts an annual fish salvage in Swiftcurrent Creek and the St. Mary Canal following the end of irrigation season. After the diversion dam is no longer diverting water, fish can get stuck in the canal and Swiftcurrent Creek has low flows throughout the winter months which can be harmful to bull trout populations.

On Monday, Jeremiah North Piegan, Blackfeet Fish and Wildlife fish biologist, lead the team during the salvage. In Swiftcurrent Creek, he donned waders and an electrofishing backpack while accompanied by at least two other members with fish nets while they walked for miles in shallow water in search of

On Tuesday, the team moved their efforts to the St. Mary Canal. The canal is 29 miles long, but a temporary block-net deployed across the canal prior to canal shutdown helped retain fish in the salvage area as the canal was drained. The team again trudged along for two miles on foot, this time with a standalone electroshocker pushed along on a small, plastic barge that floated beside them. The team did not find any bull trout in the canal, but surveyed and measured other fish species including whitefish, pike, suckers, and burbot.

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Jeremiah North Piegan, Blackfeet Fish & Wildlife fish biologist, Blair Little Mustache, Blackfeet Tribe animal control officer, and Joaquin Four Horns, Blackfeet Fish & Wildlife student intern, wade through the shallow waters of Swiftcurrent Creek in search of bull trout. The team salvaged two juvenile bull trout and relocated them downstream of dam infrastructure in the St. Mary River.



Lauri Teig, Reclamation environmental specialist, releases a bull trout into the St. Mary River after being rescued from shallow water in Swiftcurrent Creek.



A juvenile bull trout is rescued from Swiftcurrent Creek.



From left, Jacob Bradshaw, Reclamation natural resources specialist; Jeremiah North Piegan, Blackfeet Fish & Wildlife fish biologist; Kurt Weidich, Reclamation hydrological technician; and Dan Brewer USFWS biologist, search the St. Mary Canal for entrained bull trout following the end of the 2022 irrigation season, using an electrofishing method that sends a safe pulse of electrical current through the water to stun fish. When a bull trout is found it is captured with a net and relocated downstream of dam infrastructure into the St. Mary River.



Blair Little Mustache, Blackfeet Tribe Animal Control Officer and Jeremiah North Piegan, Blackfeet Fish & Wildlife fish biologist, measure a pike that was found in the St. Mary Canal during bull trout salvage efforts following the end of the 2022 irrigation season. The largest pike found and recorded was 806 mms long.



Members of the St. Mary Minimizations Team look for entrained bull trout in the St. Mary Canal following the end of irrigation season.

PIT Tags and Stations

Another way the team monitors the health of bull trout populations in the Project area is to tag bull trout and track their movements and behaviors using Passive Integrated Transponder technology. To assess the degree of fish movement among the various St. Mary tributaries, PIT tags, small chips and antennas housed in glass, are inserted into the fish using a needle. The tags do not require a power source to operate and use radio signals to transmit data to a scanning device or reader system that is set up by the team following the bull trout salvage.

"The team puts a cable in place across the river that has an antenna. Tagged bull trout who pass through will be counted for USFWS and Reclamation to have a better understanding of bull trout migratory patterns in the St. Mary River," said Josh Melton, USFWS biologist.



Jeremiah North Piegan, Blackfeet Fish & Wildlife fish biologist and Kevin Aceituno, USFWS biologist, run a cable with an antenna across the St. Mary River to collect data from tagged bull trout in the recovery efforts of the threatened species.



A Passive Integrated Transponder tag used to track bull trout in the St. Mary River and its tributaries in northwestern Montana.



Josh Melton, USFWS biologist, Toby Tabor, Reclamation supervisory natural resource specialist for the Marias/Milk Rivers Division, and his black lab, Trigger, set up a PIT tag reading station on the banks of the St. Mary River. The reading station captures data of tagged bull trout to determine population and migration information of the species in the St. Mary River in northwestern Montana.



Jacob Bradshaw, Reclamation natural resources specialist and Lauri Teig, Reclamation environmental specialist, pound T-bars into the riverbed to secure a cable with an antenna across the river to transmit data of tagged bull trout to a reader system on the bank. USFWS downloads the data from each station to determine information about the health of bull trout populations in the St. Mary River and its tributaries.

The Search for Redds

On Wednesday and Thursday, the team climbed 10 miles into the back country of Glacier National Park to reach Boulder Creek and Kennedy Creek in search of redds, bull trout egg nests, while enjoying picturesque views of towering mountains, reaching an elevation of more than 7,700 feet. It is not exactly an easy trek and is only accessible by ATVs and foot. More often than not, the team runs into a moose, bear, elk or other forms of wildlife during their journey.

Jim Mogen, USFWS biologist, has been doing redd counts in Boulder Creek and Kennedy Creek for more than 25 years. Mogen said the bull trout use their fins to move gravel around and cover the eggs leaving a distinctive pattern in the creek. According to USFWS, once a female bull trout finds a suitable area in the creek, she will dig out an area to lay her eggs, around 5,000 per nest. The nest building and digging attracts male bull trout to the area who will later fertilize the nest. The eggs will not hatch for another 210 days. Once born, the juvenile bull trout will stay in the creek where they were born for one to four years before migrating to other rivers and lakes to mature.

"Bull trout spawn in the fall and then move down stream," said Teig. "The team hikes to these locations to look and count for redds. This year, the team found 41 redds in Boulder Creek, but only three redds in Kennedy Creek."

USFWS data recorded since 1997 indicates the lowest number of bull trout redds found in Boulder Creek has been 12, the highest count has been 66, with an average of 38 nests found per year. In Kennedy Creek, the lowest number of redds found was zero, while the highest was 37, with an average of 14 nests spotted annually.

After the salvage and redd counts were completed, the team parted ways, but will maintain communication throughout the year to plan for the next year's event.

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A photo of a moose spotted near Babb, Montana during the week of the 2022 St. Mary fish salvage.



A photo of Boulder Creek in Glacier National Park where the St. Mary Minimization Measures Team searches for and counts bull trout redds.

Background photo: Kennedy Creek in Glacier National Park where the St. Mary Minimization Measures Team searches for and counts bull trout redds. (Photo by Lauri Teig)

The St. Mary Unit and Bipartisan Infrastructure Law Funding

The St. Mary Unit of the Milk River Project was authorized by congress in 1903. Reclamation's Montana Area Office operates and manages the St. Mary Unit which includes the Lake Sherburne Dam, the St. Mary Diversion Dam, the 29-mile St. Mary Canal, four steel siphons, five concrete drop structures, and other appurtenant structures. Most of the construction of the project was completed between 1906 and 1940, with only minimal repairs and two drop structure replacements in the last century. The Milk River Project provides irrigation water to more than 120,000-acres for eight irrigation districts, individual users, and municipalities along the Hi-Line and in Canada.

As part of the Bipartisan Infrastructure Law, Reclamation will allocate \$85 million for the St. Mary Canal diversion and headworks replacement project in Fiscal Year 2023.

The new structure will include a large fish bypass structure to accommodate upstream and

downstream movement of the ESA-listed bull trout as well as prevent fish entrainment into the canal. The large fish bypass structure will mitigate impacts to bull trout.

Reclamation will award the construction contract in FY 2023. The \$85 million will be used to award the construction contract and fund staff time in support of this contracting action and project. Staff time will include acquisitions, project management, staff time for submittal review, site prep conducted in-house, and general coordination and collaboration with the Blackfoot Tribe and stakeholders.

Reclamation will receive \$1.7 billion in BIL allocations for rural infrastructure funding during FY 2023. Reclamation will invest in communities to address drought across the West, and repair and upgrade water infrastructure throughout the country.

For more information about Reclamation and the Bipartisan Infrastructure Law visit www.usbr.gov/bil.



The St. Mary Diversion Dam in northwestern Montana in October 2022.



Fremont Canyon conduit inspection

By Hailey Glarrow,
WYAO Natural Resource Specialist

From Oct. 11-12, 2022, Reclamation employees with the Wyoming Area Office inspected the Fremont Canyon Conduit. The 3-mile-long, 18-foot diameter concrete lined conduit tunnel, constructed between 1956-1961, provides water for power generation at the Fremont Canyon Powerplant. The conduit is inspected every five years for serviceability and seepage.

"These types of inspections are quite complex," said Michael Rauh, WYAO mechanical engineer. "There are several safety considerations with entering the conduit."

Fremont is located approximately 44 miles from the nearest hospital and time is of the essence whenever there is an emergency. Prior to walking the conduit and inspecting the tunnel, the team of Reclamation employees preformed safety and extraction drills to familiarize themselves with proper methods in case of an accident. Employees set up tripods over the entrance, and practiced evacuating "Rescue Randy" a 160 lb. training dummy.

"The safety training is an important consideration and refresher for our teams doing this work," said Rauh. "There is no cell service, so we have a satellite phone on-site all times, just in case."

Once the practice rescue was completed, the crew was ready for their inspection. All workers on top of the conduit entrance are equipped with a harness that safely secure them to anchor points. The penstock is accessed by climbing down a series of ladders.

Mechanical Engineer Michael Rauh, WYAO, takes meter readings inside the Fremont Conduit. (Photo by Regis Michelena, WYAO Civil Engineer)



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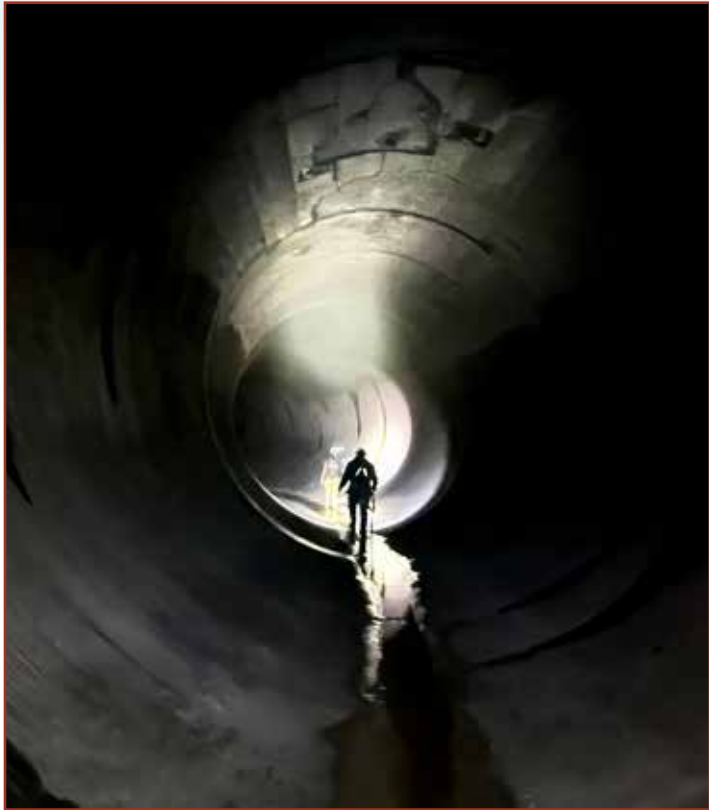
The atmosphere in the penstock was checked prior to entry, and the inspection team continued to monitor oxygen levels and other potential atmospheric hazards during the inspection.

Radios have not worked in the penstock in the past, so the team used air horns to maintain communication with employees outside of the tunnel. One toot every fifteen minutes served as a check in with the attendants and rescue personnel, and three blasts would have called for aid from rescue personnel.

“This is another sterling example of the professionalism and dedication of the Reclamation teams here in Wyoming.”



Wyoming Area Office employees Aaron Bartolic, Zach Gorsuch and Billy Bright hoist up "Rescue Randy" at the entrance of Fremont Conduit. (Photo by Hailey Glarrow)



Wyoming Area Office employees walk down the inside of the Fremont Conduit. (Photo by Regis Michelena, WYAO Civil Engineer)

Inside, the inspection proceeded in an orderly fashion with personnel looking for cracks, seepages, and any other possible damage along the tunnel's path. Entrants also performed a visual inspection of the fixed-wheel gate at the upstream end of the tunnel and the unit penstock branches at the downstream end. Ultrasonic testing equipment was used to assess gate and penstock wall loss due to corrosion and, luckily, everything checked out fine. Gate and penstock coatings were in good shape.

"From my perspective the penstock is in pretty good shape. We observed regular cracking, but the cracks were almost all closed with minimal material loss and no significant offsets were encountered," said Regis Michelena, WYAO civil engineer. "In many cases, the cracks had filled back in with mineral buildup."

The inspection team that entered the penstock on Oct. 11 travelled upstream approximately 0.8 miles from the access point to inspect the intake gate. The following day, the entry team walked approximately two miles downstream to the surge tank, where the conduit bifurcates and drops down to the Fremont Canyon Powerplant. Each entry lasted up to four hours of work, after which the WYAO team safely exited the tunnel.

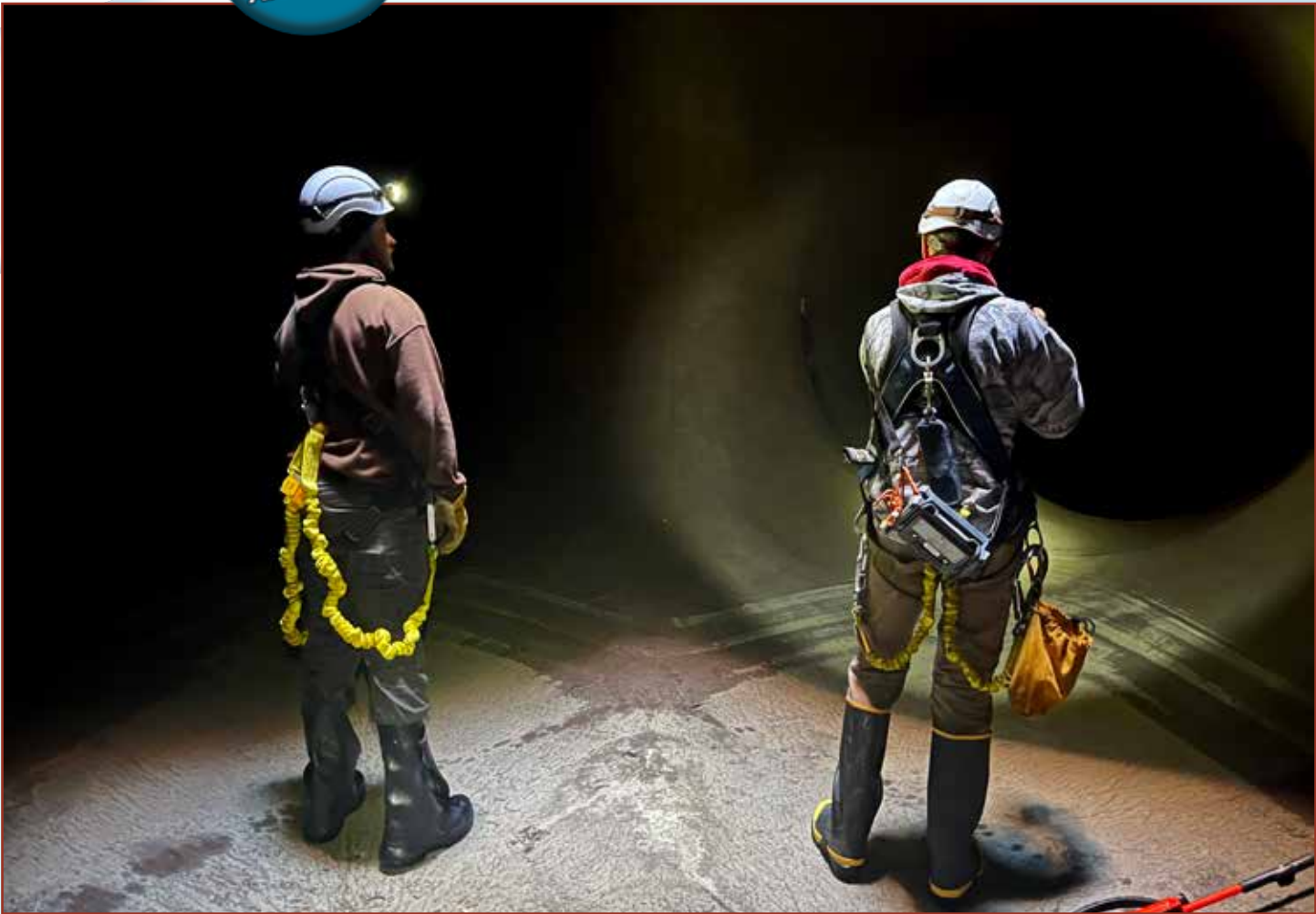
"Overall, the inspection went well, and was safely conducted," said Michelena. "This is another sterling example of the professionalism and dedication of the Reclamation teams here in Wyoming."

The Fremont Canyon Powerplant and conduit are part of the Glendo Unit of the Pick Sloan Missouri Basin Program. The powerplant has the capacity to furnish 66,800 kilowatts of power. The Glendo Unit is a multi-purpose project. The unit furnishes a maximum of 40,000 acre-feet of water annually from Glendo Reservoir for irrigation in Wyoming and Nebraska. Glendo and Fremont Canyon Powerplants supply electrical power to Wyoming, Colorado, and Nebraska. The unit provides irrigation, power generation, flood control, fish and wildlife enhancement, recreation, sediment retention, and pollution abatement. It also improves the quality of municipal and industrial water supply in the North Platte River Valley between Gray Reef Dam and Glendo Reservoir.



Above: A portion of the fixed wheel gate at the upstream end of the tunnel. (Photo by Michael Rauh, WYAO Mechanical Engineer)

Below: Wyoming Area Office employees Aaron Bartolic and Michael Rauh at the tunnel bifurcation. (Photo by Regis Michelena, WYAO Civil Engineer)



GLEN ELDER DAM SPILLWAY

Chute Replacement Project

By Darryl Asher



Photo by Aaron Thompson



Photos by Douglas Naegele

The 644-foot wide spillway chute at Glen Elder Dam is undergoing a major project to replace the concrete on the aging structure, which was built in 1968.

Ames Construction, Inc. was awarded a \$41.2 million contract and began work this year, with an estimated completion in 2025. Reclamation obligated \$14 million of funding from the Bipartisan Infrastructure Law toward the project.

"Glen Elder Dam is critical to protecting the way of life in the surrounding communities," said Reclamation's Nebraska-Kansas Area Manager Aaron Thompson. "The main purpose of the dam is flood control; and we want to continue to safeguard these communities from potential disaster from Solomon River flooding for years to come."

Glen Elder Dam is a multi-purpose dam in north central Kansas, about 40 miles from the Nebraska border. It protects the lower Solomon River Valley and helps control flooding on the Smokey Hill and Kansas Rivers. The dam has a storage capacity of 976,000 acre feet.

Waconda Lake, the reservoir created by Glen Elder Dam, features 100 miles of shoreline and provides numerous recreation opportunities.



ACROSS

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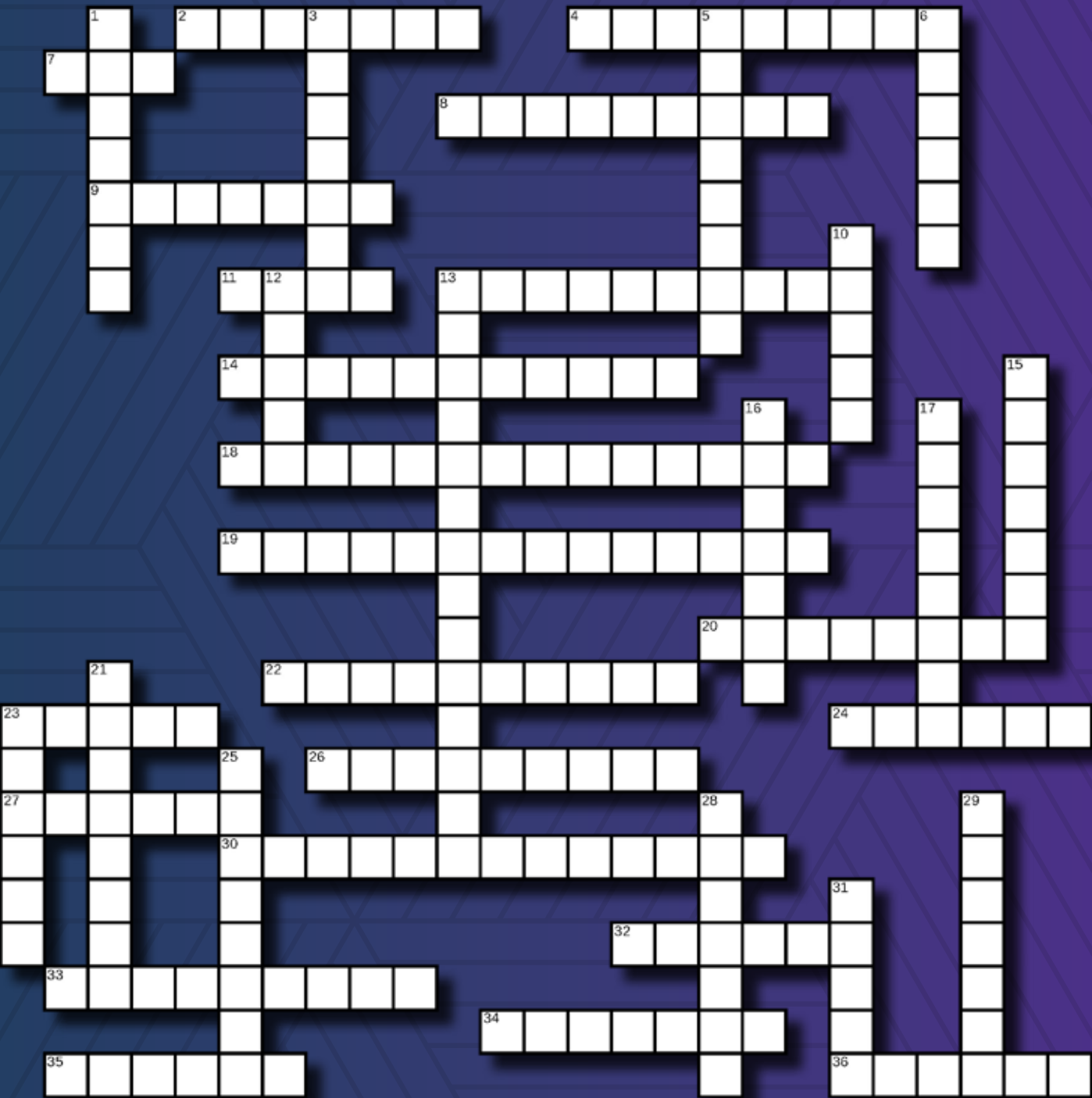
CROSSWORD

- 2 National Park where the St. Mary Minimizations Team looks for bull trout nests
- 4 Tribal partners that help with the St. Mary Unit fish salvage
- 7 Bipartisan Infrastructure ____
- 8 Endangered species inhabiting the St. Mary River in northwestern Montana
- 9 Dam repaired and upgraded to provide future flood management
- 11 Type of feed that will monitor spillway at Olympus Dam
- 13 Irrigation District effected by Interstate Canal breach
- 14 Every six years, full travel testing occurs on this dam's two spillway gates
- 18 Canyon Ferry Power Plant generators are currently undergoing this
- 19 BIL enables investment in the Nation's _____
- 20 Water drops 815 feet through this to reach the Pole Hill afterbay
- 22 Grants eligible for FY23 BIL fund allocations
- 23 6-mile stretch of pipeline is being constructed for this AVC reach
- 24 Incident at Interstate Canal requiring immediate response from Reclamation & Pathfinder Irrigation District
- 26 This town in SD recently celebrated the construction of a new water tower
- 27 AVC Project will treat and deliver water from this reservoir
- 30 Naturally occurring _____ contaminate groundwater in southeastern Colorado
- 32 Reclamation responded to a canal breach west of this town in Wyoming
- 33 Dam in Kansas that received \$14 million in BIL funds for a spillway chute replacement
- 34 Lake with more than 100 miles of shoreline, covering 12,586 acres at the top of the irrigation or conservation pool
- 35 Diversion Dam on the Lower Yellowstone
- 36 Bridges are inspected for the betterment and _____ of Reclamation, end users, and the American public

- 1 Invasive species were recently found at this reservoir in SD
- 3 Workers see a view of Shoshone Reservoir through the _____ Controlling Works inlet trashrack
- 5 Bridge type with span greater than six feet and less than 20 feet
- 6 Commissioner that visited Missouri Basin Region in 2022
- 10 Machinery necessary to close water flow and test full travel gate
- 12 Aging infrastructure in Kansas requires replacement of the concrete spillway _____ floor
- 13 Bypass channel on Lower Yellowstone constructed in efforts to help this endangered fish species
- 15 Subject of the first-place photo in the 2022 contest
- 16 Elementary school that visited Alcova Dam and Powerplant
- 17 Buffalo Bill Dam sits on this river
- 21 Powerplant that won EUCG Top Performer 2019-2021
- 23 A Ribbon Cutting Ceremony in Montana celebrated the completion of this
- 25 Reservation to receive water treatment plant from BIL funds
- 28 President that celebrated the signing of the Fry-Ark Project in 1962
- 29 The St. Mary Minimizations Team conducts this in an effort to bolster populations of an endangered species
- 31 Another name for bull trout nests



— BUREAU OF —
RECLAMATION



Back in Reclamation history

Looking out into Shoshone Reservoir through Shoshone Canyon Conduit Controlling Works inlet trashrack March 29, 1941. (BOR archive photo.)

