

Plains Talk

NEWS FROM THE GREAT PLAINS REGION



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Leadville Mine Drainage Tunnel

Trail Restoration at Canyon Ferry Reservoir

Treehouse Cabin Rental at Keyhole Reservoir

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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 406-247-7610.

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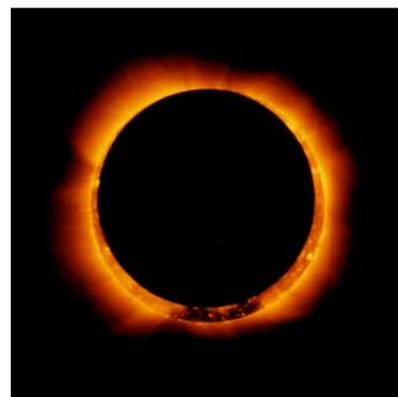
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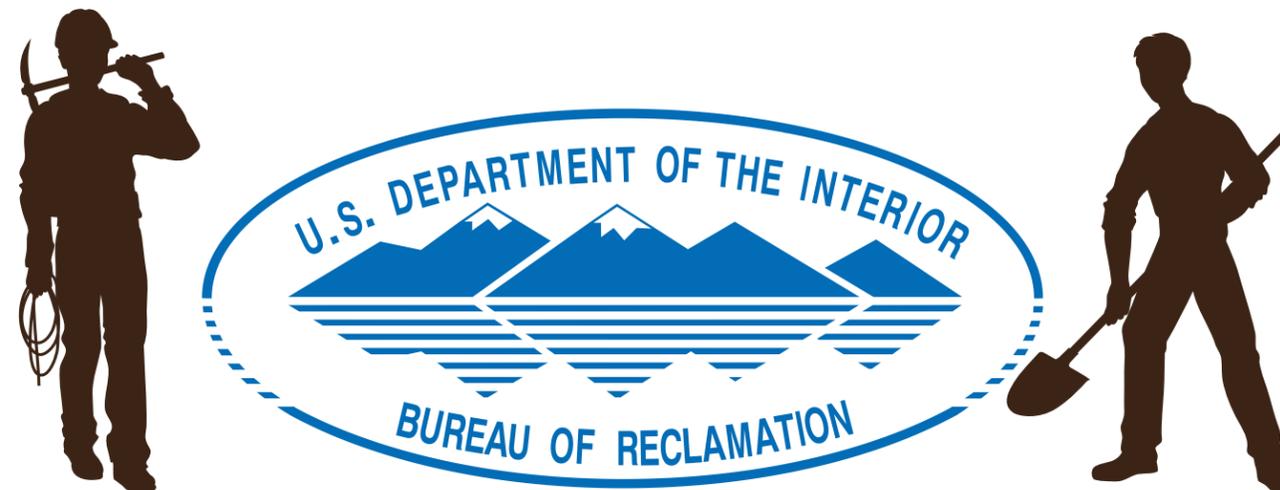
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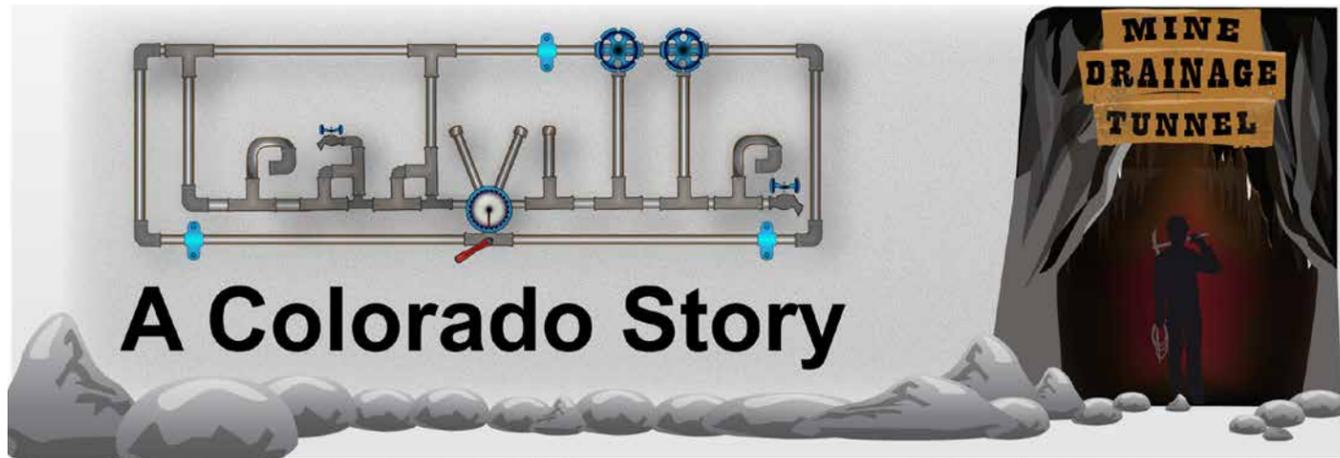
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Keep your message simple. What three things do you want the audience to remember? This is the core message you want the audience to take away.





Concrete lined portion of Leadville Tunnel Portal.

By James Bishop, ECAO

The team of five labors in what appears to be a large pole barn, decontaminating the mining waters that filter through the drainage tunnel – waters that would otherwise go on to pollute the Arkansas River Headwaters.

The name gives it away – Leadville. Now perhaps most famous for being the highest incorporated city in

the United States, this small Colorado mountain town sprung up as a boom town in 1859 during the Pike’s Peak gold rush and its history charts that of the state’s. Twelve months later into the ’59 rush, Leadville was home to over 5,000 souls who sluiced and panned their way to 4 million dollars’ worth of gold until the supply petered out about 5 years later. However, gold was merely a prelude to the Silver Boom

that followed multiplying the town’s population six-fold by 1880.

During its silver heyday, one of its many wealthy citizens founded the Tabor Opera House that hosted the likes of Harry Houdini, John Philip Sousa and Oscar Wilde. One can idly speculate that Doc Holliday may have witnessed an incredible disappearing act while staying in town, dealing Faro in a

saloon adjoining the Opera House - before he was jailed for shooting Bill Allen, that is. In many ways Leadville epitomized the heady optimism of the West and its seductive promise of vast wealth awaiting those with the grit and initiative to wrest it from the mountains.

Silver was grossly over-produced in the West in the late 1800s, and after the government quit subsidizing the market in 1893, the town’s economy contracted again ... until the next boom in 1918 that arrived with the opening of the Climax Molybdenum Mine. This mine supplied half of the world’s molybdenum – a metal used in steel production, among other things – for a time.

Keeping pace with American history, the



Caustic bulk storage tanks.

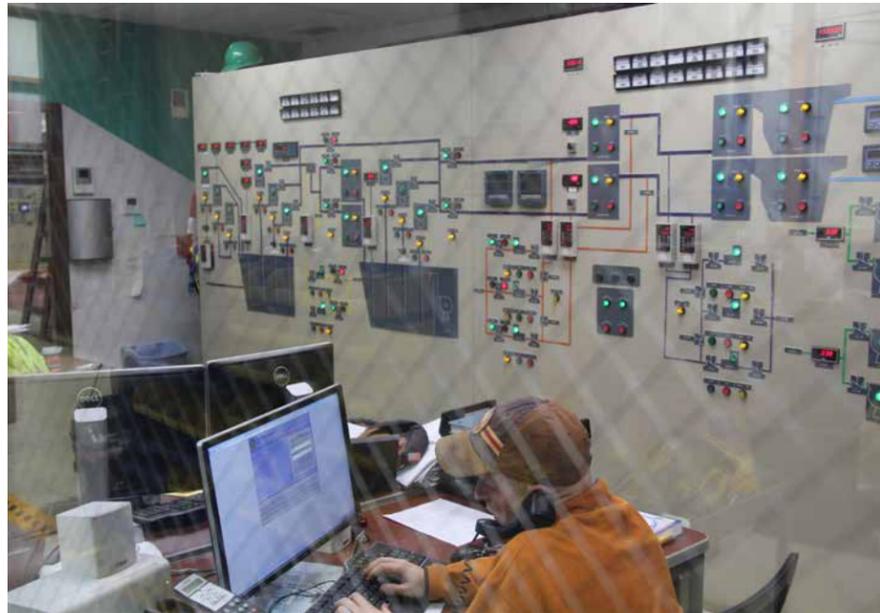
Bureau of Mines agreed to de-water lead- and zinc-bearing mines in the Leadville area to aid the war efforts of World War II and later the Korean War. To do so, the 2-mile-long Leadville Mine Drainage Tunnel was built which the Bureau of Reclamation purchased for the princely

sum of one dollar in 1959. Reclamation thought that it could use the 2 million gallons of water a day on average that the tunnel drains for its planned Fryingpan-Arkansas project.

It went like most deals that sound too good to be true as we later learned that the drainage was full of zinc, manganese, iron and cadmium turning the waters into a liability rather than resource. Since 1992, the women and men at the Leadville Mine Drainage Tunnel have been plying chemistry to strip these metals from the 730,000,000 gallons they process in an average year. It’s a job that has grown more challenging since the EPA put in a relief well in 2008 resulting in higher metal levels and harder water that strain



Chemical batching control panel and gravity filter tanks.



Operator John Weddle by the operation panel in the control room.

the plant's original design. Yet Jenelle Stefanic, Mike Lackey, John Weddle, Jeff Sellers, and Mitch Williams perform a sort of alchemy at the very real intersection they occupy between the state's economic past - with its focus on mineral wealth and agriculture - and its economic future - with its focus on technology, nature-based tourism and the attendant growing population that requires more and more fresh water. By performing carbon dioxide stripping, flocculation, and chemical and physical precipitation to remove metal sludge, they not only stop the past from tainting the future, they transform its contaminated water into safe water day in, day out.



Unit 2 solids contact clarifier.

Immediately downstream from the drainage tunnel, its purified waters flow into the Gold Medal Trout Streams of the Arkansas River and into a four-million-dollar-a-year fishing industry. Beyond the immediate value of Arkansas River tourism, the Bureau of Reclamation truly has become the 21st Century Bureau of Mines as we divert water from the West Slope to the East Slope to drive the state's current boom - people seeking the Colorado lifestyle - which is how the Leadville Mine Drainage Tunnel fits into the larger Fryingpan-Arkansas diversion project.

Currently, the mountains around Leadville, Colorado provide the state's most valuable natural resource: water.

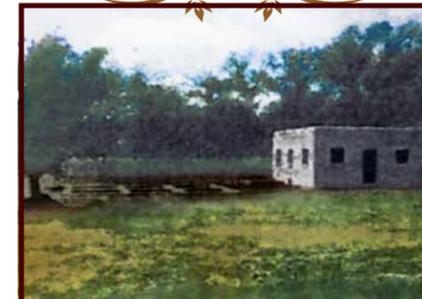


Original Snyder Pumping Station, Mountain Park Project, Oklahoma

By Kate Ellison, OTAO

The Snyder Water Supply System project in southwestern Oklahoma was constructed by the Public Works Administration (PWA) in the 1930's to provide water to the town of Snyder at a total cost of \$126,000. The project included Snyder Dam, spillway, filter plant, pumping building, two concrete reservoirs, and a pipeline for a distribution system. Bids opened in 1937 for the project and it operated until Reclamation awarded the contract for the Mountain Park Dam and dikes in 1973. Today, the Mountain Park Project provides a supplemental municipal and industrial water supply to the cities of Altus, Snyder, Frederick, and the Hackberry Flat Wildlife Management Area.

The pumping building and filtration basins are still in place on land administered by Reclamation. The pumping building was constructed in an Art Deco architectural style, characterized by its symmetry, streamlined forms, and clean smooth lines. The pumping building and associated basins



Snyder Pumping Station, 1937



Snyder Pumping Station, 2017

are eligible for the National Register of Historic Places under Criteria A and C. Criteria A: "associated with

events that have made a significant contribution to the broad patterns of our history," because it was constructed by the PWA. Criteria C: "embody 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," because of its Art Deco style.

The building is protected under Section 110 of the National Historic Preservation Act, but has been unused for many years. The building will be documented with a written history, and a contract will be developed for its preservation and implementation of a maintenance and monitoring plan. As a part of the plan, the doors will be replaced and the windows will be boarded; the entire building will be enclosed to prevent vandalism and protect it from the elements. The associated filtration basins will be emptied of vegetation, documented, and filled with gravel.



Trail Restoration Underway at Canyon Ferry Reservoir



Signs are used to inform the public that restoration efforts are taking place.

By Taryn Preston, MTAO

Summer in Montana draws tens of thousands of visitors wishing to fish, boat, camp, hike, hunt, and explore at Canyon Ferry Reservoir. Most of these people will follow established rules, but some will push the limits, especially when it comes to the operation off-highway recreational vehicles (OHV). Canyon Ferry

Reservoir is located in southwestern Montana, 20 miles east of Helena and less than a 2-hour drive from several major cities. Reclamation maintains primary jurisdiction over the 9,360 acres of land and associated resources around the reservoir, ensuring the healthy condition of public lands is preserved for the enjoyment by the public. OHV use at Canyon Ferry

has become more popular, especially in dispersed camping areas that haven't been closely monitored, with many unauthorized trails emerging around the reservoir. Rules governing the use of OHVs are found in the Code of Federal Regulations (43 CFR PART 420.2), "Reclamation lands are closed to off-road vehicle use, except for an area or trail specifically opened

to use of off-road vehicles in accordance with 420.21." Currently, there are no areas or trails that have been specifically opened for use of off-road vehicles at Canyon Ferry Reservoir.

Unauthorized OHV use creates many problems on landscape in addition to leaving a visible scar. Even one pass on sensitive soil can result in crushed and denuded vegetation, rutting that concentrates overland run-off

causing accelerated erosion, reduced success of ground-nesting birds, disrupted wildlife, increased spread of invasive plant species, increased

risk of wildland fire, and increased conflicts with other recreationists. When unauthorized trails are not promptly addressed, the general public may believe that they too can use these trails or even create their own.

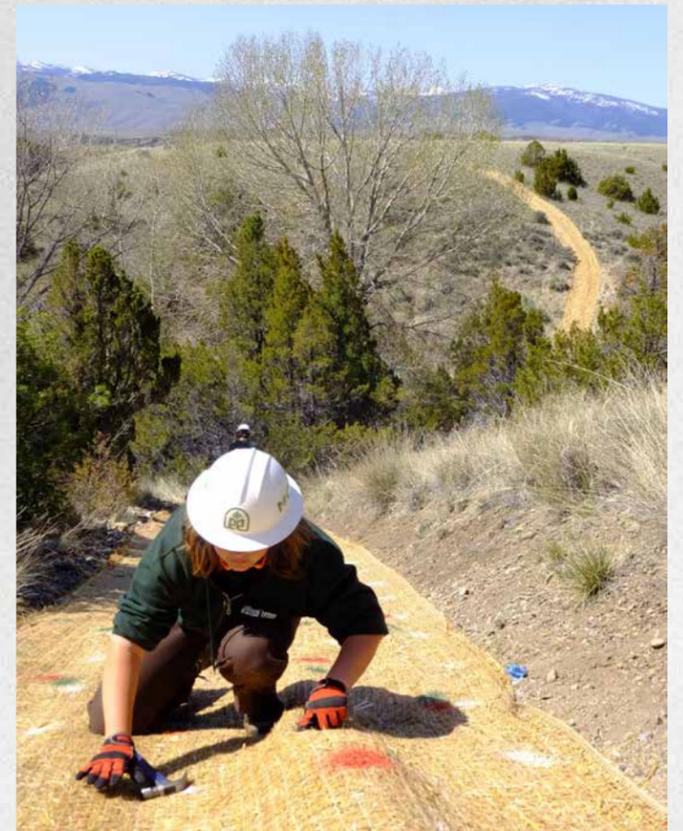
Canyon Ferry staff have worked to address unauthorized OHV issues, over the years, by placing signs and barriers at some locations. It has proved extremely difficult to reduce or stop most



A Montana Conservation Corps crew replaces deteriorated fence to block unauthorized OHV access.



Steep hillsides marred by OHV use cannot regenerate on their own due to increased erosion after rainfall.



A Montana Conservation Corps member secures erosion control fabric to help native plants establish on a steep hillside.



Native grasses are successfully growing through erosion control fabric on steep hillsides.

unauthorized OHV use with limited staffing. In 2013, efforts were increased to stop unauthorized OHV use and restore unsightly trails back into native rangeland. Aerial photography and handheld GPS units were used to map and inventory unauthorized trails, beginning on the east side of the reservoir. The east side had suffered most of the disturbance.

The Canyon Ferry Field Office collaborated with professors from Montana State University to set up field test plots to determine an appropriate native seed mix and to determine if erosion control fabric would assist in native plant growth on steep hillsides. An agreement was created in 2014 with the Montana

Conservation Corps (MCC) to provide the labor needed to begin restoration efforts. MCC has helped Reclamation staff to restore several miles of unauthorized OHV trails on the east side of the reservoir over the past three years. These projects are continuously monitored to ensure OHV use does not reoccur in these same areas in order

for the restoration process to be successful.

An interagency agreement was set up in 2014 to educate the public and enforce OHV regulations. The agreement with the US Forest Service included rangers to patrol OHV hotspots around the reservoir. Rangers have been very successful making public contacts, giving verbal warnings and in some extreme cases, writing citations. Additional public outreach was conducted in the form of two public meetings held in the summer of 2016 and the spring of 2017.

Monitoring over the past few years has been beneficial



Montana Conservation Corps members rake and seed test plots with native vegetation to restore an OHV trail.

in showing that the type and intensity of use in this area has been increasing and clearly justifies restoration in this area. Unfortunately, there is a cost associated with restoring unauthorized trails. Canyon Ferry is expecting to spend approximately \$15,000 to restore trails in this area in 2017. The Montana Conservation Corps and the US Forest Service will continue working closely with the staff at Canyon Ferry to continue restoration efforts along the north end of the reservoir where neighboring private landowners have created unauthorized OHV trails leading down to the reservoir.



This unauthorized trail, created when someone cut the boundary fence, has seen heavy OHV use but will be restored this season with help from the MCC.



Canyon Ferry Natural Resource Specialist, Taryn Preston, has been working with crews from the MCC to determine the best methods of restoring trails with native vegetation.





By Jeanette Timm, NKAO

The coordination that is required to obtain the necessary documentation and permitting to clean a stilling basin, as well as finding personnel and equipment to help with the task, can be time consuming. It's not like grabbing the vacuum cleaner, or in this case a shovel, and digging right in. The effort included Reclamation maintenance personnel, Natural Resource Specialists, Facilities, Equipment & Services Technicians, and Nebraska Game and Parks Commission personnel. Who would have thought that cleaning a stilling basin could take such effort?

I found my first experience cleaning the stilling basin at Medicine Creek dam to be enlightening. The concrete structure is definitely bigger than expected, making climbing the eight-foot tall dentate to access the stilling basin very difficult. Mud stuck to my boots and caused my feet to slip

on the cement. Safety training definitely played a vital part in this operation.

I was surprised that the stilling basin contained more than the expected mud, dirt, gravel, and large rocks; but also wood, fishing lines, lures, metal signs,

barrels, and other garbage. It never occurred to me that it would be a dumping ground for just about anything. Even with waders, the tripping hazards were everywhere. This is one place where safety was first on everyone's mind. Lucky



(L to R) Nik Johanson, Natural Resource Specialist, and Tim Honn, Facilities and Equipment Technician, with their catch of the day.



for us, the Nebraska-Kansas Area Office's new Safety & Occupational Health Specialist, Scott Bell, was also on the team.

Following the environmental review and permitting steps, the mission was to find personnel to help with the fish salvage operation. Reclamation Natural Resource Specialists coordinated with Nebraska Game and Parks Commission personnel to see if they were interested in collecting fish from the basin to relocate elsewhere. A plan was made as to which species



Safety briefing led by Carl Koenig (far right), Reclamation's Maintenance Supervisor.



The basin prior to being dug out by NKAO's crew.





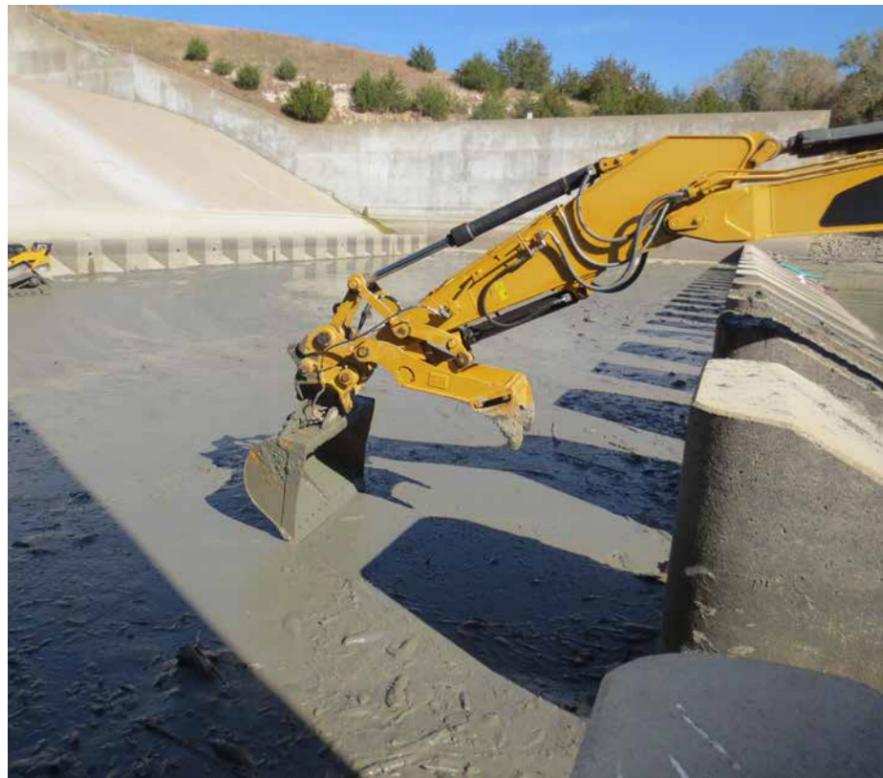
NKAO's crew prepares to dig the basin out.

to recover and a date selected to start the work.

Reclamation's maintenance personnel began cleaning the basin Sunday morning by pumping water from the basin. Without pumping, the water level in the basin (125 ft. x 262 ft.) would have been about 12 feet deep, making fish recovery nearly impossible using 3-foot wide and 50-foot long nets.

The fish recovery began two days after lowering the water level to a manageable depth. Fish nets were dragged from one end of the basin to the other, commonly referred to as a seine haul. The nets continually snagged on the large rocks and other debris along the bottom, making it a more difficult task. When the nets completed the journey to the other side of the basin, game fish

were separated from other fish and placed in Nebraska Game and Parks Commission's fish tank truck for relocation in the reservoir.



The last of the highly liquified (i.e. difficult to remove) material being removed.

The first pass of the fish net did not collect very many fish, as the water level was around 32-inches deep. The team made an adjustment and added a second net for the remaining trips, which proved to be more effective. By the afternoon, the water level was about 24-inches deep, but the salvage operation remained slow due to the debris and slippery conditions.

The operation provided quite a showing for people passing by at the top of the dam and stilling basin. On occasion, cheers would erupt from the crowd as personnel walked through the basin, covering themselves with mud and water.

More than 700 game fish were saved by the 17 member team



Crews continue removing the highly liquified material from the basin.

which included Reclamation's Maintenance personnel, Natural Resource Specialists, Facilities, Equipment & Services Technicians, and Nebraska Game and Parks Commission personnel as a result of the 15 seine hauls. The game fish retrieved and relocated included crappies, channel catfish, white bass, wipers, bluegills, blue cats, and flatheads. The largest game fish of the day were more than two dozen flatheads, ranging from 15 to 30 pounds. Some of the flatheads were estimated at 20 years

old by a Nebraska Game and Parks Commission Fisheries Biologist. The following day Reclamation maintenance personnel went back to the location and saved more than two dozen more game fish, including flatheads.

The basin, which originally contained roughly 4 million gallons of water was almost pumped out by the third day. Reclamation's maintenance crew began removing the sediment, rocks, and other debris from the stilling basin using skid loaders, an excavator, and

a dump truck. It took the crew three additional days to remove an estimated 300 yards of material (equal to 30 dump trucks full) from the basin.

Additional dewatering and cleaning was completed to facilitate an examination of the structure as required by Directive and Standards FAC01-07 -Examinations of Normally Inaccessible Features. The basin was inspected and found to be in excellent condition. A task successfully completed in a safe manner by a multi-agency team.



Co-op Agreement Brings New Treehouse Cabin Rental to Keyhole State Park



The new treehouse cabin rental at Keyhole State Park, Crook County, Wyo. The rental is expected to be completed in May 2017.

By Patience Hurley, DKAO

A new tree house camper cabin, the first of its kind in Reclamation, is nearing final construction at the Dakotas Area Office Keyhole Reservoir on the Keyhole State Park's Cottonwood Campground. The campground is managed by Wyoming State Parks, Historic Sites and Trails and is situated along the southeast shore of Keyhole Reservoir. The Park is located six miles north of Sundance, Wyoming, on the western edge of the Black Hills.

"The construction of the tree house cabin is made possible under a Title 28 Cooperative Agreement 50/50 cost share

between Reclamation and Wyoming State Parks, Historic Sites and Trails at a total cost to Reclamation of \$175-thousand," said Joe Hall, Environmental Resources Division Manager.

Since the enactment of Public Law 89-72 in 1965, Reclamation may provide up to 50-percent of the costs for planning and developing recreation facilities with non-Federal partners in which Reclamation has entered into a long term management agreement.

"Under our Title 28 Program, Wyoming State Parks, Historic Sites and Trails' Project Manager, Conrado Deniz, was able to design the tree house cabin," said Joe Hall. "This is an exciting

addition to Keyhole State Park and is not only a first of its kind for Reclamation, when completed, it will be the first of its kind in the Wyoming State Parks' system."

The tree house camper cabin is 576 square feet, includes two bedrooms, a main room, a storage/utility closet, a deck and is universally accessible. Basic electric services and an electric fireplace will light and warm the cabins. With its elevation six to ten feet off the ground, the tree house camper cabin has a beautiful view looking through the trees towards Keyhole Reservoir.

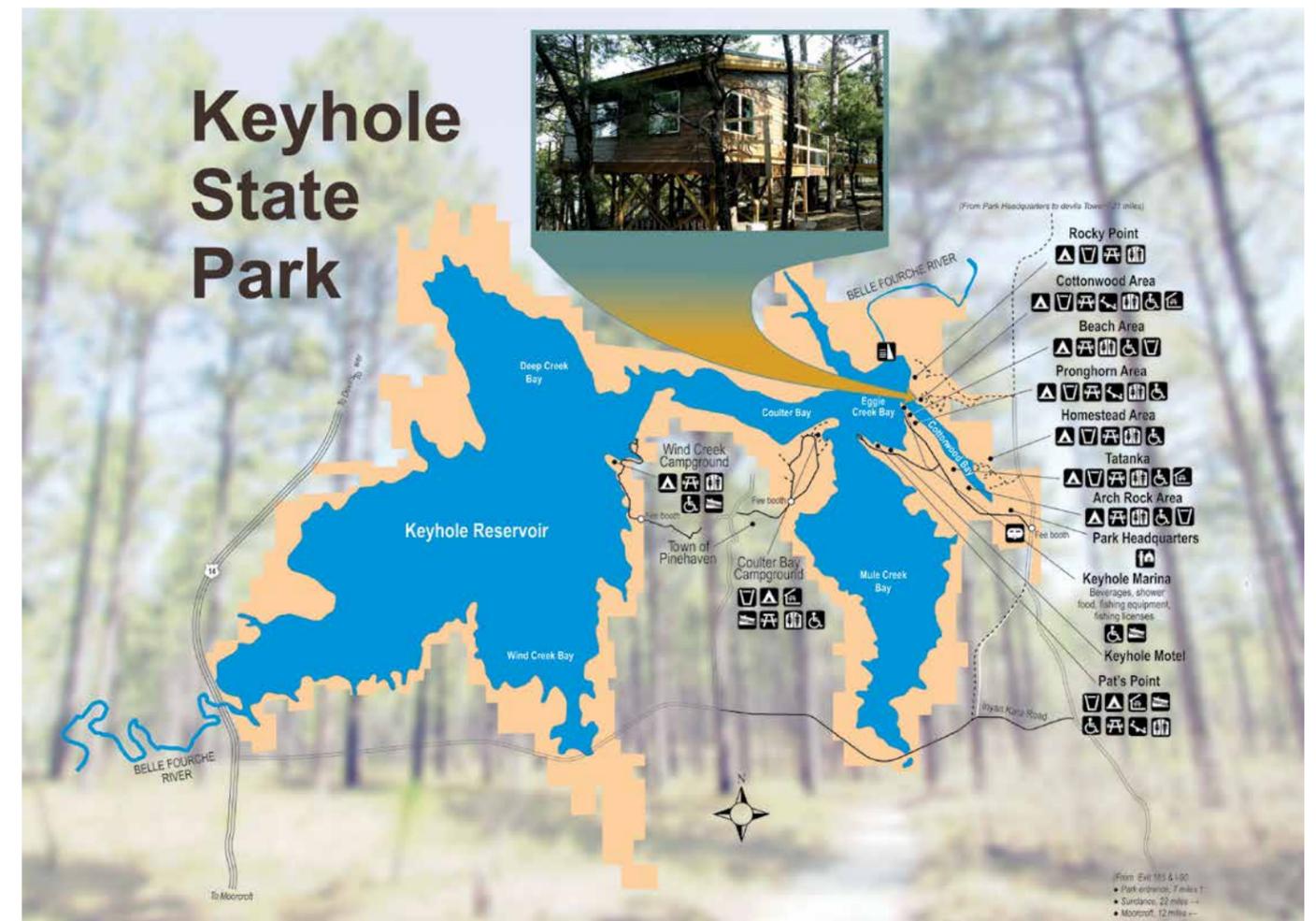
In addition to the new tree house camper cabin, visitors to Keyhole Reservoir will find world class bird watching opportunities with 225

species of birds for viewing, an abundance of wildlife to include white tailed deer and wild turkeys, and the Reservoir offers top notch ice fishing opportunities in the winter months.

Construction of the tree house camper cabin is scheduled for completion in May. Keyhole State Park anticipates adding the tree house camper cabin to their online reservation system by early June and are projecting nightly fees for the tree house to run between \$100 and \$150. Once available, reservations may be made at <http://travel.wyo-park.com/campgrounds-and-rv-parks/all/keyhole-state-park/reservations>.



Treehouse cabin interior under construction.



Map of Keyhole State Park showing location of the treehouse cabin rental.



WYAO Guernsey North Spillway Gate Gets A Facelift



Upstream side of spillway gate with contractor's scaffolding.

By Jay Dallman, WYAO

The main spillway gate at Guernsey Reservoir was recently refurbished. Guernsey Reservoir is the furthest downstream Bureau of Reclamation reservoir on the North Platte River in Wyoming. The 45,000 acre-foot reservoir can release around 1,200 cubic feet per second (cfs) through the power

plant, but higher releases require the use of the north spillway gate.

The gate can be raised to allow water to discharge between its lower edge and the fixed crest of the dam spillway. The Stoney gate is raised and lowered in a slot that was constructed between the spillway piers of the dam. In its fully raised position, the gate

is supported in the superstructure of the spillway gatehouse. A winch and counterweight system is used to raise and lower the gate. When the gate is in motion, it bears upon sets of cylindrical steel rollers called roller assemblies or roller trains.

In 2007, inspection teams noticed that the gate coating had significantly degraded since



Gate leaf and roller train after removal.

the last coating replacement in 1983 and the roller trains were showing serious deterioration, especially in the four lowest roller trains. It was determined that edge effects of the water flowing under the spillway gate caused the rollers to rotate in place which created wear on the connecting links, bushings, and rollers comprising the roller train assembly. Recommendations were made, as a result of the inspection, and refurbishment of the spillway gate was added

to the WYAO Replacements, Additions and Extraordinary Maintenance (RAX) list.

Design by Reclamation's Great Plains Region and Technical Service Center (TSC) engineers on the refurbishment and recoating to North Gate began in 2012. TSC engineers came up with a design for deflector plates to be installed on the spillway walls directly upstream of the gate to address the problem that caused a majority of the damage to the lower roller trains. These plates

will divert the water toward the center of the gate, so the high pressure flows passing underneath the gate will not directly strike the roller trains.

Great Plains Regional Procurement executed a contract for the repair work with Lillard and Clark Construction Co. out of Denver, CO. and the work was scheduled for the 2016-2017 winter season. Since the contract work needed to be done under dry working conditions, Guernsey Reservoir was emptied by the



(Left) Workers inspecting roller train after removal. (Right) New stainless steel roller trains.



end of the irrigation season and flows from Glendo Reservoir, 22 miles upstream, were discontinued for the winter. The contract specified that the contractor must finish the work and have the gate back in service by April 15th so that normal water deliveries could be made for the 2017 irrigation season.

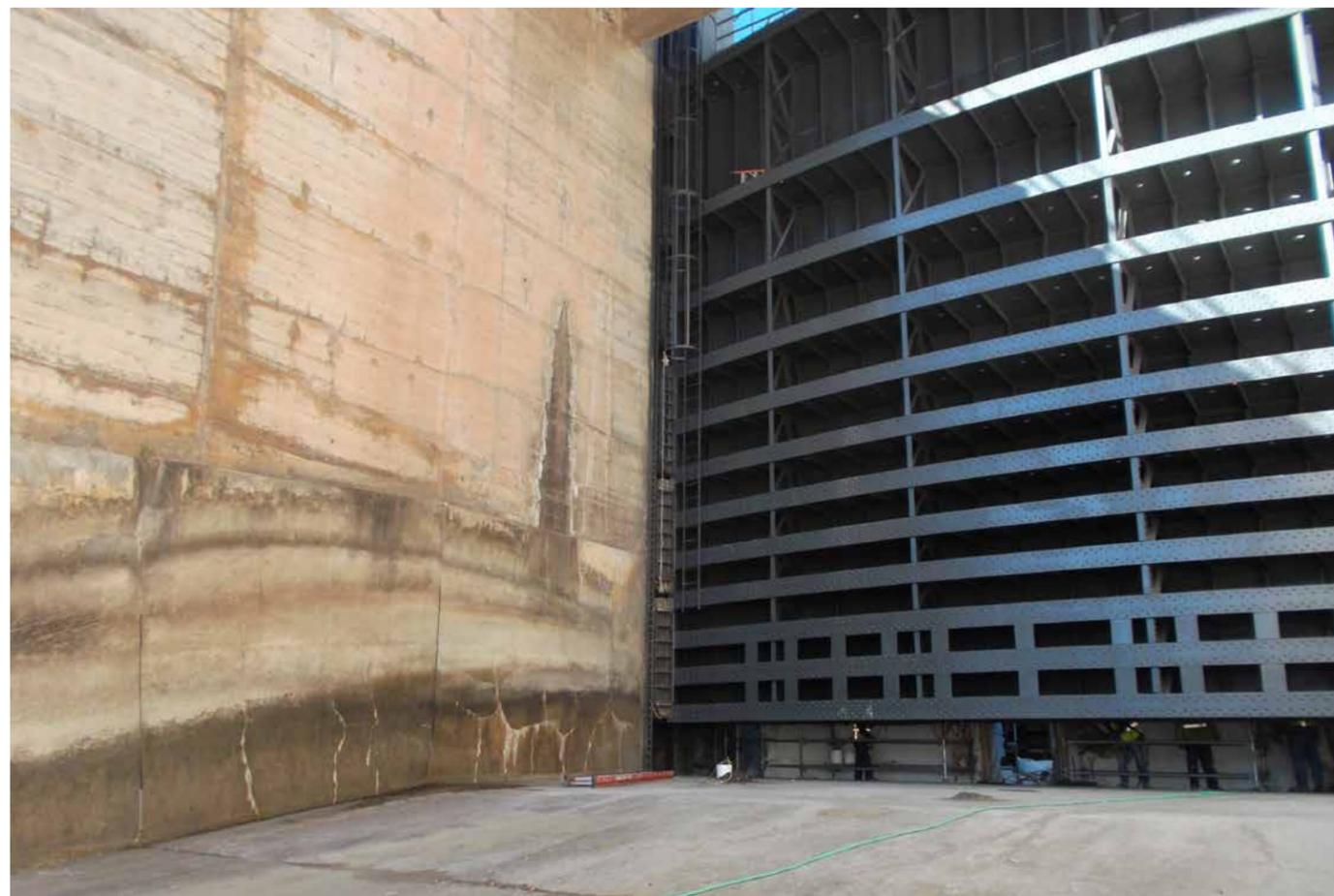
The contractor began removing the roller train assemblies in October 2016. There were a total of 12 roller trains, six per side, which needed to be removed from the gate for inspection and repairs. The removal of the roller train assemblies required coordination and assistance from

Guernsey Power Plant maintenance staff, as clearances needed to be placed and removed and the gate had to be moved up and down many times to allow the necessary access to the gate surfaces and roller trains.

The four lowest roller trains were the first to be removed. They were inspected at the contractor's on-site shop by contractor and Bureau personnel. All four of these were found to have significant material loss and damage that required new roller train frames to be fabricated from stainless steel material. The upper roller trains were removed, disassembled,

frames sandblasted, and roller train assemblies inspected. New bushings, roller pins, and link securing pins were installed on all of the upper roller trains. The lower 24-foot of roller beam wear plate was warped on both sides of the gate which required replacement. New stainless steel wear plates were installed and voids between the new wear plate and existing roller beam were grouted. New rollers were fabricated from 400-series stainless steel.

Sandblasting of the gate to remove the corrosion and remaining coating began in November 2016. The removal



Downstream side of refurbished gate.



Guernsey Spillway gatehouse with empty reservoir in background.

of the coating and corrosion helped for inspection of the rivet heads on the gate. This gate contains an estimated 20,000 rivets. The contractor replaced 635 of the most severely corroded rivets with Grade-5 bolts and matching nuts. Seal welding of the bolt heads was performed to create a water tight seal to prevent leakage and future corrosion problems. Weld repairs were made to areas of the skin plate and structural members of the gate that showed a material thickness loss of more than 25% of the original thickness.

Great Plains Region Loveland Construction Services Division and Wyoming Area Office Project Management provided the oversight for the

project, including the delegated Contracting Officer's Representatives and full-time inspector services. At the time of the article, the contractor was on schedule to have all the repair and recoating work completed by the April 15th

deadline. The gate refurbishment work will provide benefits to water and power customers as well as downstream entities by assuring the continued reliable operation of the Guernsey North Spillway Gate.

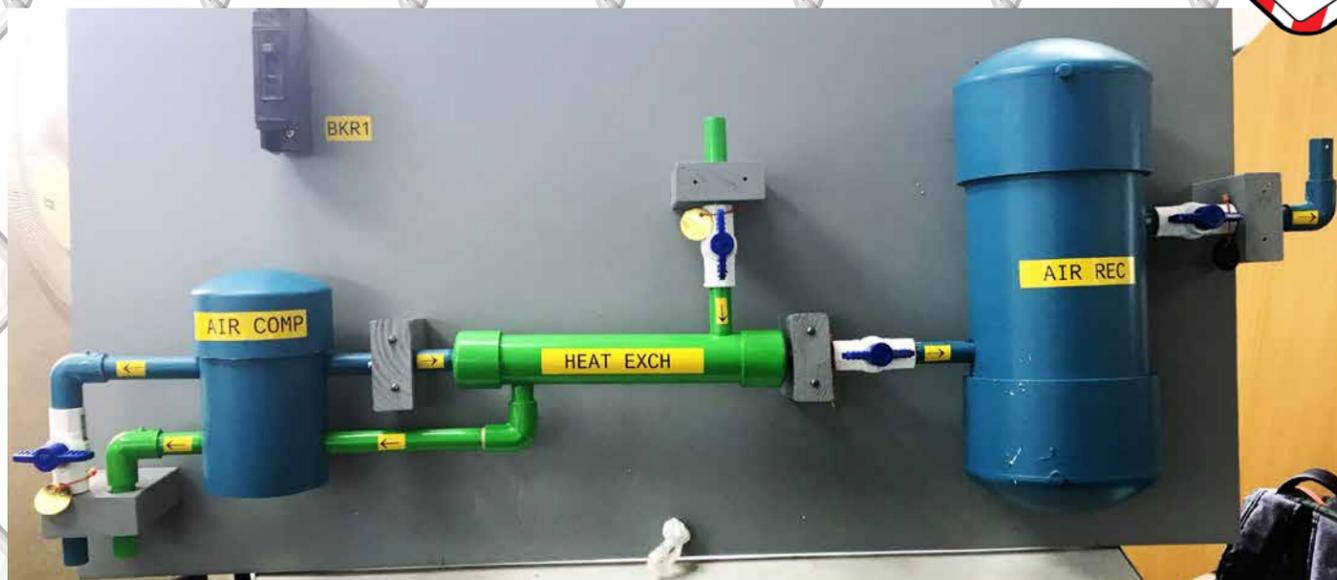


Newly refurbished gate section.



DANGER

ECAO Steps Up HECP Training



One of the four plant air compressor assembly models made for the hands-on lock-out-tag-out training (HECP).

By David Hartman, ECAO

Eastern Colorado Area Office (ECAO) hosts a week of Block Safety Training twice a year, dealing with topics such as Confined Space, Hazardous Communications, Hearing Conservation, Fall Protection, Hazardous Energy Control, etc.

ECAO hosted the initial block training of the year in



Ronnie Rogers, Flatiron Plant Mechanic, prepares a switching program form and gets ready to apply locks.

the first week of February in 2016, and as usual, one of

the topics covered was the Hazardous Energy Control Program (HECP), or as many of you might call it, “Lock-Out-Tag-Out.” What was different about this HECP training was the use of hands-on models.

In-house HECP instructors Ralph Beall (Colorado Big Thompson Facility Manager), Scott Wik (Frying-Pan Arkansas Facility Manager),



Trent Bennett, Mechanic Foreman 1, applies a lock to the compressor power switch on the model.

and William (Jeff) Cross (PS2 at Flatiron Powerplant) have been working to improve the HECP training experience for the past several years.

In order to improve the training experience, they used the original informational PowerPoint provided by the Power O&M Office and arranged it to more closely follow the Facilities Instructions, Standards and Techniques (FIST) 1.1 Manual. They also created table top exercises providing the staff a chance to practice and better understand the manual. This year Beall and Cross, with the help of staff from Flatiron Power Plant, stepped it up even further by creating hands-on models that students could work with.

The students were divided into four groups and each group had to pick people to play the roles of Operations

Supervisor, Job Supervisor, Switchman, Workman, and even Operator from the Casper Control Center. They were given the assignment of correctly putting

a clearance (the formal process of locking out a hazardous energy device) on a plant air compressor assembly represented by the model. They created a Job Hazard Analysis (JHA) for the activity, identified all the steps needed in the clearance procedure, filled out the clearance

request and switching program forms, positioned the valves in the proper configurations, and placed locks just as they would in a real work environment.

The whole hands-on approach to teaching HECP was well received and the instructors already have plans to improve on changes they have incorporated so far. In the future, they hope to have additional models, table-top exercises, and interactive devices for each student to allow for instantaneous polling of the class to ensure they understand the material before moving on.



Employees from the Flatiron & Estes Power Plants, Jonathan Haywood, Trent Cherry, Steve Jagielo, and Allan Philips watch as Adam Northrup applies a lock to the model.

Reclamation in Wyoming

Reclamation has been involved with the conservation and development of Wyoming's water resources for more than 110 years. The agency's Wyoming Area Office (WYAO) administers several multipurpose projects which provide an important economic base to the region by supplying water to 43 water user entities which collectively serve approximately 650,000 acres of land, and 8 municipal and industrial contractors which serve a rural and urban population of about 50,000. The projects also provide hydroelectric power, flood control, fish and wildlife enhancement, and recreation.

The Wyoming Area Office in Mills, manages 19 dams and 20 reservoirs with a collective storage capacity of more than 4.8 million acre-feet, and 12 Power Plants with a combined installed capacity of almost 280 megawatts. The WYAO has a centralized control center located in Mills, Wyoming that provides automated supervisory control of the federal dams and power plants on the North Platte, Wind, Bighorn, and Shoshone Rivers in Wyoming; Yellowtail and Canyon Ferry Dams and power plants in Montana, and Colorado-Big Thompson facilities in Colorado.

The Pick-Sloan Missouri Basin Program in Wyoming

Many of the projects in Wyoming were constructed under the Pick-Sloan Missouri Basin Program. Created in 1944 by Congress, it serves as a comprehensive develop-

ment program in the basin for the Corps of Engineers and Reclamation

Boysen Unit

The Boysen Unit on the Wind River about 20 miles south of Thermopolis, Wyoming, consists of Boysen Dam, Reservoir, and Power Plant. Boysen Dam impounds the waters of Wind River and plays a major role in the irrigation of farmland in the Wind River Basin above the reservoir and in the Bighorn Basin below the reservoir.

Glendo Unit

The Glendo Unit is a multiple-purpose development consisting of Glendo Dam, Reservoir and Power Plant, Fremont Canyon Power Plant (below Pathfinder Dam), and Gray Reef Dam and its re-regulating reservoir. The Glendo Unit facilities are adjacent to and work in conjunction with other units of the Pick-Sloan Missouri Basin Program as well as the Kendrick and North Platte Projects to provide for irrigation in Wyoming and Nebraska, hydropower for the region, and significant flood control benefits.

Hanover Bluff Unit

The Hanover-Bluff Unit is in north-central Wyoming near Worland. Water is diverted by a diversion dam on the Bighorn River into a canal, lateral and pumping system which serves over 8,000 acres of farmland.

Kortes Unit

The Kortes Unit in central Wyoming about 60 miles southwest of Casper was the first unit initiated

by the Bureau of Reclamation under what ultimately became the Pick-Sloan Missouri River Basin Program. It was designed solely for power production. The unit consists of Kortes Dam, Reservoir, and Power Plant just downstream of Seminole Dam. The dam is a 244-foot-high concrete gravity structure which sits in the 1,000-foot-deep gorge of the Black Canyon of the North Platte River.

Owl Creek Unit

Anchor Dam is a thin-arch concrete structure located in a narrow gorge on the South Fork of Owl Creek, a tributary of the Bighorn River, west of Thermopolis, Wyoming. It provides supplemental irrigation water to about 11,000 acres of farmland.

Riverton Unit

This unit is located in central Wyoming in Fremont County on the ceded portion of the Wind River Reservation. Direct flow water from the Wind River and stored water from Bull Lake Creek are used to provide irrigation water to about 72,000 acres. Unit features are Bull Lake Dam, Pilot Butte Dam, Wind River Diversion Dam, together with about 100 miles of main canals and 300 miles of laterals. Bull Lake Dam is an 81-foot-high earthfill structure which impounds a reservoir with a 152,000 acre-foot storage capacity. Pilot Butte Dam is also earthfill, and 51 feet high.

Note: The Keyhole Unit, located in northeastern Wyoming, provides a supplemental supply of irrigation water to the Belle Fourche Project in South Dakota and is managed by Reclamation's Dakotas Area Office.

Background image: Shoshone Power Plant and Buffalo Bill Dam.

Other WYAO Projects

The Shoshone Project

The Shoshone Project is near Cody in northwestern Wyoming. Features of the project include Buffalo Bill Dam and Reservoir; Shoshone, Heart Mountain, Spirit Mountain, and Buffalo Bill Power Plants and associated transmission facilities; and a network of canals and laterals to deliver water to about 93,000 irrigated acres. Buffalo Bill Dam, completed in 1910, was originally called Shoshone and was one of the first concrete dams built in the United States at 325 feet high. It is composed of cyclopean masonry: varying sizes of native rock placed in concrete during construction. When built, it was the tallest dam in the world. Beg 1987.

The North Platte Project

The North Platte Project irrigation extends 111 miles along the North Platte River Valley from Guernsey,



Boysen Power Plant as seen from the dam.

Wyoming to Bridgeport, Nebraska. Full service irrigation is provided for about 226,000 acres divided into four irrigation districts. Supplemental irrigation service is furnished to nine water-user associations serving a combined area of about 109,000 acres.

Major project facilities are Pathfinder Dam in south-central Wyoming and Guernsey Dam and Power Plant. Pathfinder Reservoir holds much of the North Platte Project water. Started in 1905, it was one of the first built by the Bureau of Reclamation (then

called the Reclamation Service). Like Buffalo Bill, Pathfinder is a cyclopean masonry dam but is faced with granite blocks quarried from nearby hills laid in horizontal courses with a structural height of 214 feet.

Kendrick Project

The Kendrick Project (formerly the Casper-Alcova Project) holds the North Platte River for irrigation and electric power generation. Major features of the project are Seminole Dam and Power Plant, Alcova Dam and Power Plant, a canal and laterals, and power distribution systems. Seminole Dam is a 295-foot-high concrete arch and is the furthest upstream on the river of all Reclamation facilities. Alcova is a 265-foot-high zoned earthfill structure closest to Casper and functions as a high diversion dam to divert water for irrigation of about 24,000 acres.

Summary of WYAO Facilities:

Reclamation Project / Unit	Reservoir Names	Storage Dam Names	Diversion Facility Names	Powerplant Name
Shoshone Project	Buffalo Bill Reservoir	Buffalo Bill Dam	Corbett Diversion Dam	Buffalo Bill
	Deaver Reservoir	Deaver Dam	Willwood Diversion	Heart Mountain
	Ralston Reservoir	Ralston Dam		Shoshone
				Spirit Mountain
North Platte Project*	Guernsey Reservoir	Guernsey Dam	Whalen Diversion Dam	Guernsey
	Lake Alice 1 *	Lake Alice Dams 1 and 1.5 *	Horse Creek Diversion Dam	
	Lake Alice 2 *	Lake Alice Dam 2 *	Dry Spotted Tail Div. Dam *	
	Lake Minatare *	Minitare Dam *	Tub Springs Creek Div. Dam *	
	Pathfinder Reservoir	Pathfinder Dam and Dike		
Kendrick Project	Alcova Reservoir	Alcova Dam		Alcova
	Seminole Reservoir	Seminole Dam		Seminole
Pick-Sloan Program (P-S)				
P-S Kortes Unit	Kortes Reservoir	Kortes Dam		Kortes
P-S Glendo Unit	Glendo Reservoir	Glendo Dam		Glendo
	Gray Reef Reservoir	Gray Reef Dam		Fremont Canyon
P-S Boysen Unit				
P-S Hanover Bluff Unit	Boysen Reservoir	Boysen Dam		Boysen
P-S Owl Creek Unit			Hanover Diversion	
P-S Riverton Unit	Anchor Reservoir	Anchor Dam		
	Bull Lake Reservoir	Bull Lake Dam	Wind River Diversion	Pilot Butte
P-S Buffalo Bill Dam Modification	Pilot Butte Reservoir	Pilot Butte Dam		
P-S Keyhole **				
*****	Keyhole Reservoir	Keyhole Dam		
Eastern WYOMING TOTALS	*****	*****	*****	*****
	18 reservoirs *	19 storage dams & 1 dike *	8 diversion dams*	12 powerplants
NOTES:				
* The North Platte Project extends into Nebraska and is managed by the Wyoming Area Office.				
** Keyhole dam in Wyoming is managed by the Dakotas Area Office				

TIPS FOR BETTER PRESENTATIONS



Effective presentations make communicating your material look easy. As many of us know, that is not always how we feel while speaking in front of an audience. With preparation and practice, a good presentation is easier to give. Below are a few tips to a better presentation.

Smile, be relaxed and poised. Acting relaxed can help you feel more relaxed. Focus on delivering your message, not how nervous you feel.

Keep your message simple. What three things do you want the audience to remember? This is the core message you want the audience to take away.

Your objective is to engage the audience and have them understand your message. Don't flood them with more information than they can absorb. Present only as much information as can reasonably fit in the allotted time, and allow time for questions to clarify any misunderstood points.

Know your venue. If possible, arrive early and learn the space before giving the presentation. This is especially important when giving a presentation to a Video Conference audience, as you can learn the camera angles and where to stand to be best seen by those viewing from remote locations.

If using unfamiliar equipment, test out the presentation beforehand to make sure that everything works. This includes testing all video and audio to ensure that the volume is appropriate for the whole audience.

Do multiple dry runs of the presentation with at least one person who can critique your language and delivery. Hone your language and delivery to focus on the core message.

“There are two types of speakers. Those who get nervous and those who are liars.”
- Mark Twain

Personal or Official Capacity?

- Potential ethics issues exist with either alternative
- Use of official time and service in an official capacity not the same
 - it may be appropriate to permit the use of official time, official capacity
- Management should clearly decide at the outset service as an officer or on a board is in an official capacity
- Service in an official capacity requires a waiver USC 208
- Service in a personal capacity is subject to statutory/regulatory ethics restrictions
 - Conflict of interest 18 USC 208
 - Representational limitations 18 USC 203/5

This slide is not a visual aid, it is a wall of text.

Construction of General Rule

- “The term ‘discriminate against a qualified [individual] on the basis of disability’ includes...not making reasonable accommodations to the known physical or mental limitations of an otherwise qualified individual with a disability applicant or employee, unless...the accommodation impose an undue hardship....” or “denying employment opportunities to a job applicant or employee who is otherwise qualified individual with a disability, if such based on the need...to make reasonable accommodation the physical or mental impairments of the employee applicant....” 42 U.S.C. §12112(b)(5)(A)

Avoid text-heavy slides like this one.

Travel Budget

Presented by
Gloria Shaw



RECLAMATION

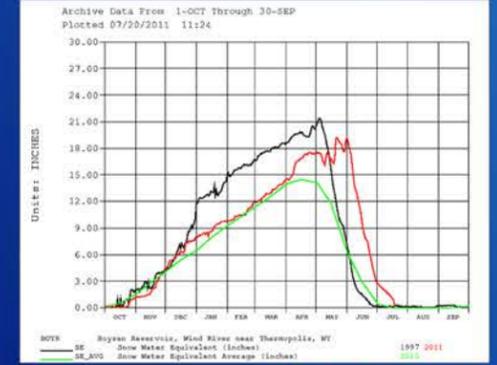
Aim for something like this simple slide.

Be nimble and read the crowd. Be able to move through certain parts the group understands and expand on other parts to open dialogue and understanding.

Dress for your audience. Business casual attire works for most office and classroom presentations, but dress professionally for presentations to leadership and partners.

Use examples to make your topic relatable to the audience. Anecdotes and stories help bring the subject to life and make it relatable.

Snowpack above Boysen Reservoir



RECLAMATION

Before example - the slide isn't terrible, but it can use more visual enhancement to sell your point.

Rocky Mountain Snowpack

100%

230%



Average Year



2011

RECLAMATION

After example - more engaging and entices the audience, while showing the snow pack level is larger than average.

For Video Conference presentations, make sure to spend equal time addressing the audience on the Video Conference as well as the audience in the room.

Make sure your color choices offer good contrast. Consider if the colors will work for all audiences. Red & green have poor contrast and can be difficult to differentiate for the color blind.

Use high quality graphics to support your message. Avoid clip-art and graphics of unknown origin found on the Internet.

Each slide of a presentation should use visuals to enhance the message. Do not overload a slide with text and keep sounds and animations to a minimum. Use them to enhance your message, not distract from it.

People can read. Do not parrot your slides.

Reclamation's Visual Identity program has PowerPoint templates for employees to use, make sure to visit the VI site and download the newest templates for your presentation.

Snowpack

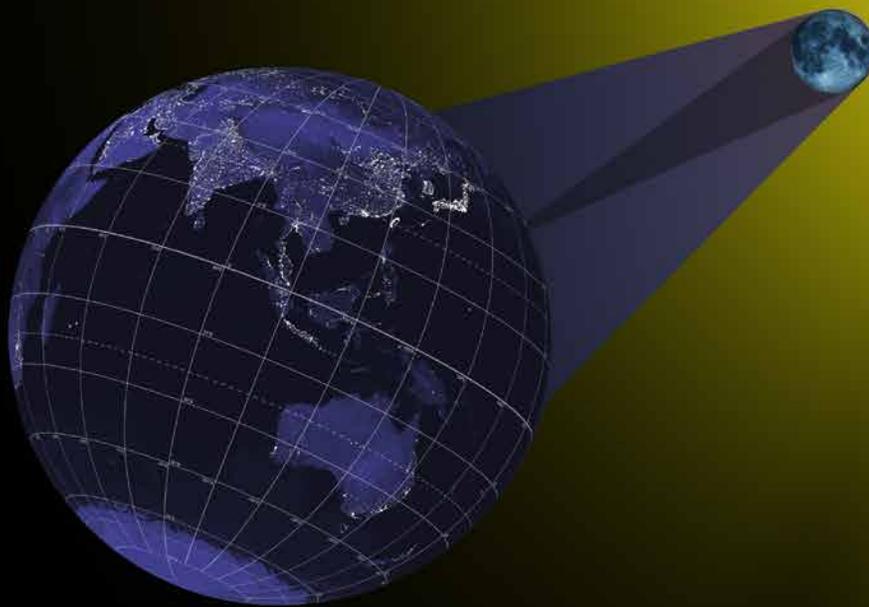


Beartooth Pass
Near Yellowstone Park

RECLAMATION

After example - more engaging and further presents the idea of a larger than normal snow pack level.

Solar Eclipse August 21, 2017



The total eclipse path across Great Plains Region states

Wyoming and Nebraska are prime GP Region locations to view the total eclipse. Other areas of the Region will see at least a 60 percent eclipse.

This will be America's first total solar eclipse since 1979. The next, visible in the central United States, will be in 2024.

