



NAVAJO-GALLUP WATER SUPPLY PROJECT NEWSLETTER

April 2024

COMMUNITY

Navajo Nation COVID-19 Information:

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COMMUNITY MEETINGS

Project Construction Committee (PCC)

Location: El Morro Theater
Center, Gallup, NM
May 23, 2024
9 a.m. - 12 p.m.

Reclamation celebrates Women in Construction Week

by Jeremy Wade Shockley
The Southern Ute Drum
Friday - March 22, 2024
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Weasel recognized among peers in Four Corners

Lalena Weasel, a materials engineering technician with the Bureau of Reclamation, is one of the many local women recognized

during Women in Construction Week. This national week of recognition acknowledges women working in the construction industry, held annually in March. The Bureau of Reclamation's Four Corners Construction Office in Farmington, N.M. was among the

federal entities to recognize their team members and bring everyone together for a luncheon, Thursday, March 7, honoring their women workforce on the Navajo-Gallup Water Supply Project (NGWSP).

When asked about the greatest challenges she has had to overcome in her career, Weasel stated, "Proving myself time and time again as a Native woman working in a male industry." Adding that her strong work ethic has played a large part in her success as a longtime employee for the U.S. Government.

The National Association of Women in Construction (NAWIC) held the first Women in Construction Week in 1998 and it has grown and expanded each year since. The week celebrates and promotes the role of women in the construction industry.

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Bureau of Reclamation Materials Engineering Technician Lalena Weasel; Construction Control Representative Victoria Cassidy; and Resident Engineer Hilda Castillo-Smith stand in the new pumping plant north of Gallup, N.M., Thursday, March 7. These women work together in varying roles on the Bureau of Reclamation's Navajo-Gallup Water Supply Project. Photo Credit: Jeremy Wade Shockley | The Southern Ute Drum



BUREAU OF RECLAMATION

If you would like to learn more, visit our website at: <https://www.usbr.gov/uc/progact/navajo-gallup/>



Reclamation celebrates Women cont.

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This year's theme, 'Keys to the Future,' celebrates the strength and knowledge of women and the vital role they play in shaping the future of the construction industry, according to their website.



No stranger to large scale construction projects or field work, Lalena Weasel has been working with the Bureau of Reclamation for over 20 years – her major career highlights include the Navajo-Gallup Water Supply Project in New Mexico and the Animas-La Plata Project (Ridges Basin Dam) in Southwest Colorado. Photo Credit: Jeremy Wade Shockley | The Southern Ute Drum

"Being a female in the construction industry gives me a great pride," Bureau of Reclamation Resident Engineer, Hilda Castillo-Smith said. "NGWSP has been a great part of my career. Knowing that the work that I do will have a powerful impact in the lives of many Navajo community members motivates me to stay engaged and improve my skillsets. It's an honor to be part of a project that will change people's lives."

"At the Department of the Interior, we strive to acknowledge women's everyday contributions to our

country all year long," Secretary of the Interior, Deb Haaland said in a letter to her colleagues. "As a girl, my grandmother, mother and aunts were strong role models for me. I still draw strength from the courageous women I have followed my entire life – and from the women I get to work alongside in our shared mission to build a better future. I am so proud to serve with such innovative and inspiring women as we advance the Biden-Harris administration's vision for a more just, inclusive future."

Weasel got her start in the field when construction of the Animas La Plata Project (ALP) became a reality in the spring of 2003.

were available to tribal members from the Ute Mountain Ute and Southern Ute Indian Tribes; Weasel has ties to each tribe.

The Navajo-Gallup Water Supply Project, once complete, will deliver water to the communities in the eastern section of the Navajo Nation, southwestern portion of the Jicarilla Apache Nation, and the city of Gallup, N.M., by way of roughly 300 miles of pipeline — transporting water from the San Juan River to those communities. The project also includes the construction of numerous pumping plants and water treatment facilities along the pipeline.



The Four Corners Construction Office has 14 women (25% of the FCCO workforce) carrying out Reclamation's mission and building and supporting the design and construction of the Navajo-Gallup Water Supply Project, Navajo Nation Municipal Pipeline, and the operation and maintenance of the Navajo Indian Irrigation Project. Photo Credit: Jeremy Wade Shockley | The Southern Ute Drum

Weasel was then able to use that opportunity to transition into a full-time position on the large-scale Navajo-Gallup Water Supply Project. The project opened four positions in 2011 under the Bureau of Reclamation, which

"This is the first year that the Four Corners Construction Office celebrated Women in Construction Week," Bureau of Reclamation Construction Engineer, Bart Deming said. "We learned about it

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Women in Construction Week cont.

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through our contracting partner, Archer Western Construction. Archer Western hosted a celebration barbecue luncheon for their staff to recognize all of the women helping to build Pumping Plants Two, Three, Four, and Seven, and invited Reclamation to participate in the event."

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together are leading those efforts. "This is a great week to recognize the hard work and contributions from all of the women helping build the Navajo-Gallup Water

Supply Project in the Four Corners Construction Office and our region," Deming said. "Though all levels of our agency, from our top leadership with our Commissioner Camille Calimlim Touton to one of our Assistant Regional Director's, Katrina Grantz, to our Fielding Engineering Division Manager, Emma Manzanares, to construction control representatives, like Victoria Cassidy, who is overseeing the heavy civil construction works in the field, (just to name a few) women are essential in carrying out our mission helping us deliver water to the Navajo and Jicarilla Apache people and improving lives. Reclamation cannot meet our mission and goals without their great leadership and hard work. We honor and thank our Women in Construction, and this will be recognized daily and especially during Women in Construction week in March."



Coordinating on the Navajo-Gallup Water Supply Project, Bureau of Reclamation Materials Engineering Technician, Lalena Weasel and Archer Western Construction Quality Control Manager, Timber Loveland stand together on-site Thursday, March 7, where construction is underway for a new pumping plant facility south of Shiprock, N.M. Photo Credit: Jeremy Wade Shockley | The Southern Ute Drum

Revegetating and restoring the NGWSP pipeline rights-of-way

By Eric Creeden
Southern Lands &
Recreation Group Chief

Revegetating and restoring the Navajo Gallup Water Supply Project pipeline rights-of-way to pre-construction conditions as quickly as possible is a major focus of the Bureau of Reclamation. Our goal is to achieve a hydrologically stable and visually appealing landscape made of native plant species that will provide a functional habitat to wildlife and opportunities for livestock grazing.



Example of successful reseeding efforts completed on the Cutter Lateral.



Ancestral Lands interns conducting preconstruction plant inventories.

Desert scrub grasslands, sagebrush shrublands and pinyon-juniper woodlands are common vegetation communities within the

NGWSP region. Smaller zones of badlands, rock outcrops, and riparian/wetland also occur. Compensatory mitigation for disturbed wetlands is required. The region is naturally arid, and precipitation is variable and unpredictable. While some vegetation communities in the NGWSP region are healthy and thriving, many are in a degraded state due to a variety of factors including ongoing drought conditions, grazing pressure, limited topsoil, and infestations of noxious weeds including, Russian thistle and halogeton in uplands, and Russian olive and tamarisk in riparian areas.

Reclamation incorporates a variety of construction mitigations and best management practices to

help revegetate disturbed areas. Topsoil is protected and stored separately during construction, and seeding is timed to occur when precipitation is most likely to occur. Seed mixes are comprised of a diverse set of native grass, forb, and shrub species. Straw mulch is often crimped into the soil following seeding to protect the newly seeded soil from water and wind erosion.

NGWSP Reaches 9-11 and 12.1/12.2 are planned to be reseeded in 2024 with Reaches 2, 3, 4A, 4B, 4C-8, and 10 planned for future years as construction progresses. Additional reseeding, weed treatment, and restoration efforts may be implemented if initial revegetation efforts are not successful.

Faces of NGWSP



Ya'at'eeh. My name is Jourdan Washburn and I am the Tse Alnaozti'i (Sanostee) Chapter Secretary/Treasurer Official. I am Bitahnii' and born for Kinyaa'aanii. My maternal grandfather is Naakai Diné and my paternal grandfather is Toaheedlini. I grew up in Sanostee, New Mexico, with my grandmother on our family's ranch farming and raising livestock most of my life.

I received my bachelor's degree in animal science from New Mexico State University and moved back to Sanostee in 2018 with my two children. The Navajo-Gallup Water Supply Project was a new project when I first became an official and now I see the progress of the project.

The NGWSP is very important to the Navajo Nation communities. The importance of providing safe drinking water, to the Sanostee community particularly, is one of the highest needs. It will be great to see the project when it is completed and feel proud that I helped my community in bringing clean, safe drinking to them.

By Paul Bergstrom
Civil Engineer
Field Engineer Division

Significant progress is being made along the Navajo-Gallup Water Supply Project. There are four pumping plants currently under construction.



Crews use a crane to lower the McKinley Surge Tank onto the foundation on Code Talkers

Tooh Haltsooi (Pumping Plant 4) and Bahastl'ah (Pumping Plant 7) are nearing completion.

The main power supply has been connected at these plants with crews finishing the electrical connections inside before testing begins. Around the buildings, the final touch-ups are being completed.

In the upcoming weeks, the commissioning process will be started. This process allows all systems of the pumping plants to be tested together to ensure that they all work together as designed.



The 42-inch steel pipe ready to be installed on Reaches 4A-4B

Construction at Tse Da'azkani (Pumping Plant 2) and To Alts'iisi (Pumping Plant 3) is underway.

The building sites have been cleared and set-up.

Major excavation was done to create the area where the underground pump-cans were installed. Large concrete blocks were installed around the piping in the excavations.

The Navajo Code Talkers Lateral of the pipeline continues to move towards completion.

Only 3 miles of pipe are left to be installed of the 17 miles. After a break for the winter, crews are resuming work on the 1.5-million-gallon water tank at Black Hat. The McKinley surge tank was recently installed.

Testing of completed sections of pipeline will start in the upcoming weeks.

Reach 4A/4B runs along Hwy 491 beginning at Pumping Plant 3 and running North.

Clearing of the right-of-way continues with almost 8 of 19 miles completed.



Inside view of 42-inch steel pipe, located at the Sanostee Chapter area Reaches 4A/4B

Pipe deliveries have been continuous over the past month. The pipe lengths are placed in their specific locations on dirt mounds as they are delivered with installation of the pipe expected to begin next month.

All the hype about the pipe on the NGWSP

By Malcolm Begay and Hubert (Chico) Quintana
Civil Engineers with the Office Engineering Division of the Four Corners Construction Office

The Navajo Gallup Water Supply Project (NGWSP) consists of over 300 miles of pipeline, nineteen pumping plants, and two water treatment plants. The project requires many different sizes of pipe, ranging from 1-inch to 42-inch pipe in the water treatment plants to the main transmission lines between reservoirs, the pumping plants, and the community water systems. The pipeline consists of different material types which vary from polyvinyl chloride (PVC) to metallic, predominantly cement mortar lined steel pipe. The different types of pipes on the NGWSP are specified by the Bureau of Reclamation to ensure the operation is sustainable.

Reclamation can explain some of the factors considered before a pipe type is selected. First off, the two main things that drive the design of a pipe is the volume and pressure inside the pipe. The volume is determined by the amount of demand needed downstream of the pipe. For example, the NGWSP is planning to supply water to 250,000 people. The demand of 250,000 people will require a large volume of water. The higher the demand the larger the pipe to ensure there is enough space for adequate flow. Second is the pressure in the pipeline. The water pressure is dependent upon the depth of water, density of water, and gravity. As the elevation increases, the depth of water is increased, causing an increase in pressure. The San Juan Lateral of the NGWSP has a large elevation change between the San Juan

River near Kirtland, New Mexico at 5,070 feet to Gallup New Mexico, at 6,700 feet, which is a difference of 1,630 feet. The higher pressure in the pipe determines the type of material needed and wall thickness of the pipe. These are the two main factors that determine what pipe size and material type is needed, but like everything else, there are other factors that need to be considered.

organizations have been created to help with the design of piped systems. The American Society for Testing and Materials (ASTM), American Welding Society (AWS), American Water Works Association (AWWA), American Society of Mechanical Engineers (ASME), International Organization for Standardization (ISO), National Sanitation Foundation (NSF) and Plastic Pipe Institute (PPI) have all provided codes and guidance on



Photo from the Reach 12.1 Construction Site – 30-inch pipeline install

Those factors include reliability, cost, constructability, sustainability, climate, strength, maintenance, corrosion, environmental conditions, and safety. The complexity of selecting the type of pipe and material have increased dramatically but luckily Reclamation has a team of engineers, consultants, and resources to help determine the best pipe to be used for the NGWSP. The complexity of selecting these materials can be overwhelming, so over time

selecting the best materials possible for any project in the United States. Knowledge from all these organizations is put into practice on the NGWSP.

Project Participants assist Reclamation with the review of the pipe design. This includes help from the Navajo Nation Department of Water Resources (NNDWR), Navajo Nation Environmental Protection Agency (NNEPA), Navajo Tribal Utility Authority (NTUA), City of Gallup,

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New Mexico Interstate Stream Commission (NMISC), Bureau of Indian Affairs (BIA), United States Environmental Protection Agency (USEPA), Souder Miller and Associates, and WSP Global, Inc. During the design review process, all Project Participants can make suggestions and recommendations to the design of the project. These recommendations improve the quality of the design of the project.

All these factors determine the type of pipe to be used on the NGWSP. The most visible of which are the large pipes being installed along the road, but the smaller pipes inside the water treatment plants, pumping plants, and community water systems also play a vital role of on how the overall NGWSP operates. Lastly, contractors bidding on the various features of the NGWSP through market competition choose which pipe types from the Project list of pre-approved materials mentioned earlier and suppliers to use.

One example is the steel pipe that meets the ASTM and AWWA standards for the main transmission line being installed in Reaches 4A/4B in the Sanostee Chapter area. This steel pipe has a cement mortar lining and protective outer coating made by the Northwest Pipe Company, who was chosen by the contractor, SJ Louis Construction, to supply pipe for that contract. The size of the pipe for these Reaches will be 42 inches in diameter with some pipe lengths being 50 feet long. One 50-foot pipe section can weigh up to 7,640 pounds! The steel pipes used for these reaches are of a high-quality material that is very

strong and can handle the internal high pressures of the water system, external loads such as the soil backfill and surface traffic and have a long life expectancy when protected.



Photo from inside Pumping Plant 4

The only problem with steel is that it can be corrosive if the pipe is exposed to natural conditions. The Northwest Pipe Company builds their pipes to meet AWWA standards which includes multiple levels of protection to keep drinking water safe. The inside of the steel pipes is lined with a cement mortar. Cement mortar linings in pipes has been used for decades and is proven to be safe for drinking water. The cement mortar forms a barrier between the steel wall and the water to greatly reduce any type of internal corrosion process. The outer protective coating for these steel pipes is a spray-on polyurethane coating called LifeLast DuraShield 110. This coating is comparable to wearing gloves, as it is a layer of protection between the steel pipe

and the soil. The polyurethane coating keeps the pipes protected against corrosive soils, bacteria, abrasions, and any nearby electrical currents. Lastly, the pipes are protected by a cathodic protection system. The cathodic protection system is another way to help mitigate the corrosion process. This process basically uses electrical current flows through the pipe to transfer any type of corrosive activity to another type of material that is not part of the pipe. The cathodic protection system has been a very effective process for many Reclamation projects in the United States. The combination of all these protective barriers ensures the water is safe to drink and increases the life expectancy of the pipes to over 50 years.

The Northwest Pipe Company has been manufacturing pipes for over 50 years and has multiple factories in the United States. Their product is used in many urban and rural water transmission projects throughout the country. These pipes have shown to be safe and sustainable for the community water systems constructed or rehabilitated.

HELPFUL LINKS

Drinking water standards:

- www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations
- www.epa.gov/sdwa/secondary-drinking-water-standards-guidance-nuisance-chemicals
- <https://navajopublicwater.navajonnsn.gov/NNPDWA>