



**2022**  
**EXCELLENCE IN RECLAMATION AWARDS**

*New Mexico Mining Association Annual Convention*  
Sandia Casino & Resort, Albuquerque  
August 25, 2022



**Todd Leahy, EMNRD Deputy Cabinet Secretary**

Good afternoon – and thank you for being here.

We thank the Mining Association for hosting the presentation of these awards – live and in person once again.

And we also offer our appreciation to the Mining Association and its members for their dedication to protecting our environment, to providing education about the importance of our state’s minerals, and for establishing life-saving mine safety procedures.

Since 1996, the Mining and Minerals Division of the Energy, Minerals and Natural Resources Department has presented its annual Excellence in Reclamation Award to recognize excellence in coal, hard rock, aggregate, and abandoned mine reclamation, and other related efforts and initiatives deserving special recognition. The complete history of award winners is posted on our website.

# NAVAJO TRANSITIONAL ENERGY COMPANY, LLC

For its project:

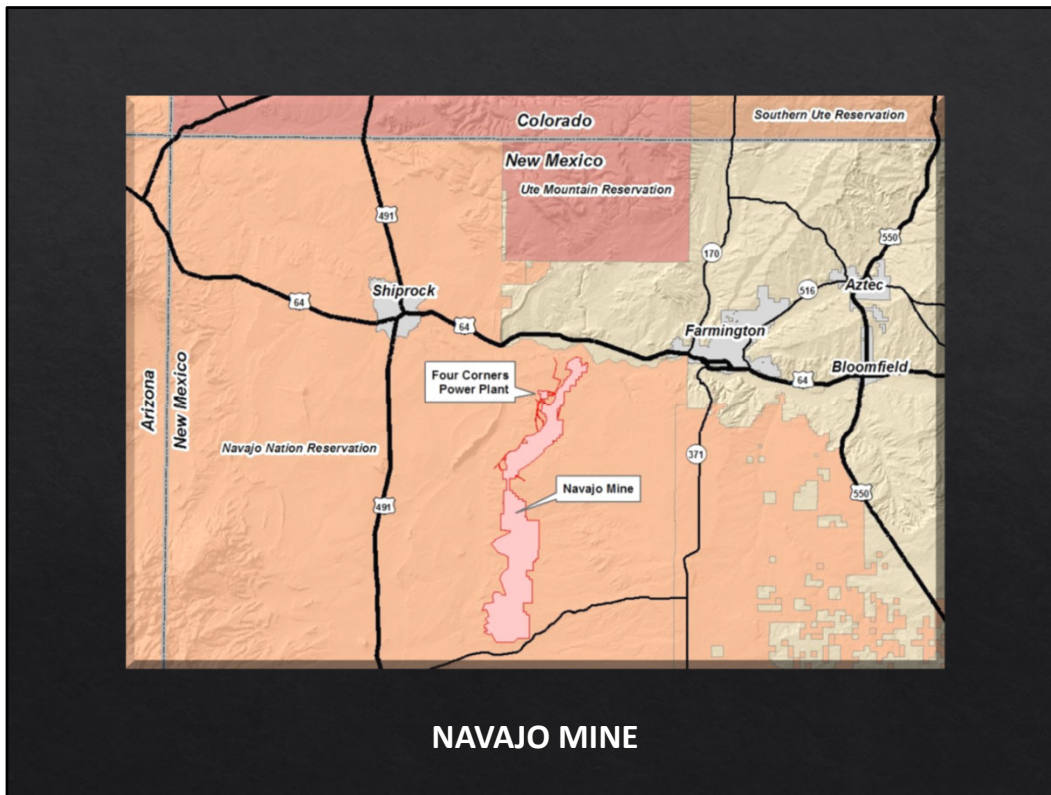
## Chinde Wash Wetland and Riparian Mitigation



This year, the Excellence in Reclamation Award is presented to Navajo Transitional Energy Company, LLC, for its Chinde Wash Wetland and Riparian Mitigation project.

This is the third award presented to NTEC for outstanding projects dedicated to preserving the land and returning thousands of acres of Navajo Nation land to a self-sustaining post mine land use, and for educational programs that cultivate interest in mining, reclamation, and STEM-related careers through education, outreach, and community service to help students and residents from the Navajo Nation and surrounding communities.

Your successful efforts are a true inspiration.



In 1957, the Navajo Nation council authorized a 24,000-acre coal lease, and Navajo Mine began operations in 1963, prior to the authorization of SMCRA in 1977.

Since inception, the mine lease increased to 33,000 acres and is currently owned and operated by the first tribally owned coal mining company, Navajo Transitional Energy Company, that serves its primary shareholder – the Navajo people.

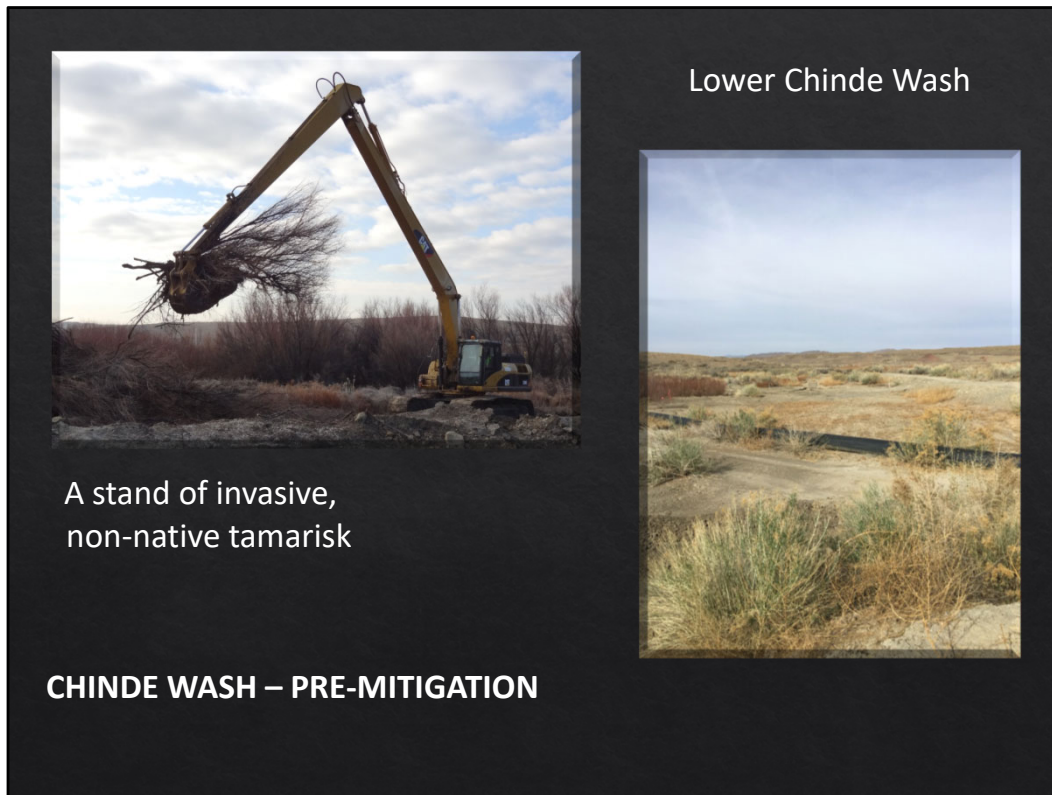
Navajo Mine is the sole supplier of fuel to the adjacent 1,540-megawatt Four Corners Power Plant (FCPP). The mine is in the Four Corners region of the southwestern U.S., approximately 13 miles southwest of Fruitland, New Mexico, and 19 miles west of Farmington. Coal is extracted from the Fruitland Formation, a shallow coal-bearing formation of the Greater San Juan Basin.



Enhancement of a portion of the Chinde Wash watershed located on the Navajo Mine lease was performed with a balanced approach of geomorphic reclamation techniques, vegetation re-establishment, head cut stabilization, wildlife management, and hydrologic inputs.

Intermittent and ephemeral streams bisect Navajo Mine and flows east to west and typically conveys water after significant storm events. The Chinde Wash sub-watershed comprises about 43 square miles (27,520 acres) of the San Juan Watershed.

Chinde Wash flows east to west for approximately three miles through the Navajo Mine lease and into Chaco River. Originally, Chinde Wash was diverted around mining operations. The upper stretch was reclaimed in 2008 using modern geomorphic reclamation techniques.



Lower Chinde Wash

A stand of invasive, non-native tamarisk

**CHINDE WASH – PRE-MITIGATION**

The Lower Chinde Wash between the haul road and the rail line was diverted in the mid-1970s to its current configuration to allow mining upstream of the haul road.

When Navajo Mine installed the rail line from Four Corners Power Plant, it required a large embankment across the western boundary of the mine lease boundary across Chinde Wash.

The construction of the rail line fill area introduced over 3.6 acres of invasive and non-native stands of tamarisk and Russian Olive trees in the wetlands and along the main channel that over time began to incise.



**Upper Chinde Wetland Pond Complex**

In 2015, NTEC began compensatory mitigation requirements under its Clean Water Act Section 404 Dredge and Fill Permits that allowed disturbance of waters of the U.S.

Two mitigation efforts involved the Upper Chinde Wetland Complex and Lower Chinde Wash Wetlands requiring a combination of wetland preservation, wetland enhancement, and establishment of additional wetland and riparian habitat of 18 acres and 43 acres, respectively.

Scores of plants and trees were planted including, cottonwood, New Mexico olive trees, native Coyote willow stems, skunkbush sumac, and rubber rabbitbrush. All plantings greatly exceeded the performance standard of 45 percent survival rate. Additionally, approximately 52 acres were seeded with a riparian seed mix.

**NOTE TO Viewer: This video  
is posted in a separate file on  
the webpage.**

**Chinde Wash – Badlands with wetlands**

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separate file on the webpage.**

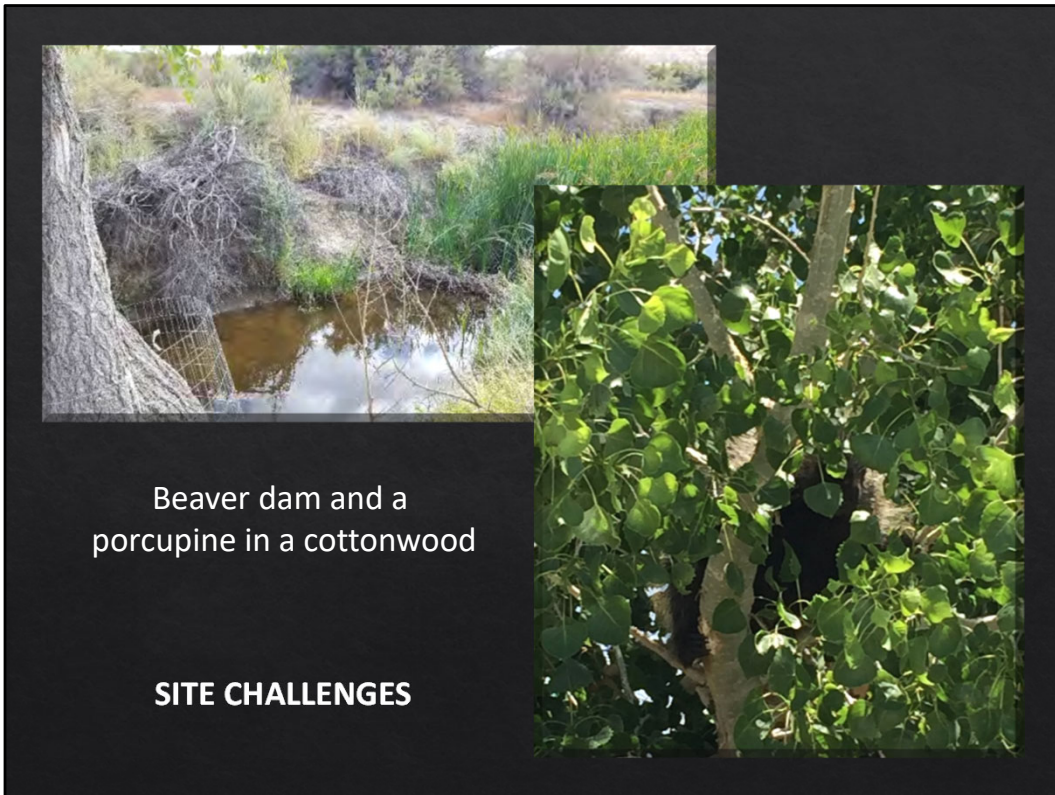
Overall, the mitigation work within the Chinde Wash project area functions as a thriving system capable of filtering tailwater from Navajo Agricultural Products Industry fields, buffering abrupt storm water flows, and supporting recently established stands of alkali dropseed, blue grama, cattails and wildrye, and groundcover of bunchgrass, wheatgrass and salt grass.



The major source of water the Chinde Mitigation project relied on was threatened in March 2017 when the **Navajo Indian Irrigation Project (NIIP)** canal ruptured, and no water was available to the agricultural fields until July 2017, resulting in dry conditions in Chinde Wash. NTEC quickly initiated emergency pumping procedures into the Upper Chinde Wetland Pond Complex to supplement and maintain the existing vegetation in the wetland and riparian areas.

Another unexpected challenge and nuance arrived during what was thought was the final stretch of the mitigation project, with the recruitment of porcupines and beavers which were first observed in the project area in 2019. Beavers were never recorded before on the mine site.





Beaver dam and a porcupine in a cottonwood

### **SITE CHALLENGES**

The beaver dams began to pool water, slowing its velocity and flooding areas outside the wetland and riparian zone. The dams also raised the local water table - altering the Chinde Wash from a losing stream to a gaining stream that began receiving water from the local groundwater. The retention of water also created vigorous, tall, dense patches of cattails, bulrush and sedges which spread and colonized areas that previously supported primarily upland riparian species.

Many willow sprouts and volunteer woody species such as New Mexico Privet and Fremont Cottonwood were establishing inside the channels and in patches within the riparian/wetland zones. Coyote willow stands began gaining new height, density, and cover. Noxious weeds such as Canada thistle and whitetop responded inversely to the increased soil saturation and started dying out.



However, the benefits of the beaver dams came at a cost of damage and even death of the planted mature cottonwood trees and willows that the beavers used to construct the dams. Porcupines also started consuming the bark from select cottonwood trees resulting in extensive tree damage. NTEC began tree protection measures by installing galvanized steel mesh wire fencing around 92 tree trunks. Also, a live-trapping and relocation program was initiated with the Navajo Nation Department of Fish and Wildlife.



Live-trapping and  
porcupine- and beaver-damaged trees



One giant beaver (approximately 95 pounds) was successfully trapped and relocated to the San Juan River. NTEC salvaged the damaged trees, cutting them into firewood that was delivered to local Navajo families residing within the perimeter of Navajo Mine.

*“It is extremely difficult to establish permittee mitigation sites in the arid west climate and many of them fail due to a lack of water or the resources needed to consistently adapt to outside influences. NTEC recognized deficiencies within the initial restoration plan and consistently provided solutions to address these issues. This work demonstrates the benefits of collaboration between the industry and regulatory agencies to avoid, minimize, and mitigate impacts to aquatic resources without interrupting ongoing mining activities.”*

**U.S. Army Corps of Engineers**

Toward the end of the project, Navajo Mine experienced additional challenges, particularly with prolonged drought conditions. In 2021, the Navajo Mine region was in Extreme Drought, and remains in extreme conditions with an average rainfall total of 3.14 inches recorded in 2020 and 4.53 inches in 2021 from the three weather stations at Navajo Mine – well below the average rainfall of 5.7 inches for the last 30 years. Coupled with a new pattern of high heat indexes, NTEC has been presented additional challenges in managing and maintaining the Chinde site.

Despite the extreme weather-related challenges, NTEC recently received praise and written recognition from the U.S. Army Corp of Engineers, a regulatory partner, in this project:

*“It is extremely difficult to establish permittee mitigation sites in the arid west climate and many of them fail due to a lack of water or the resources needed to consistently adapt to outside influences. NTEC recognized deficiencies within the initial restoration plan and consistently provided solutions to address these issues. This work demonstrates the benefits of collaboration between the industry and regulatory agencies to avoid, minimize, and mitigate impacts to aquatic resources without interrupting ongoing mining activities.”*

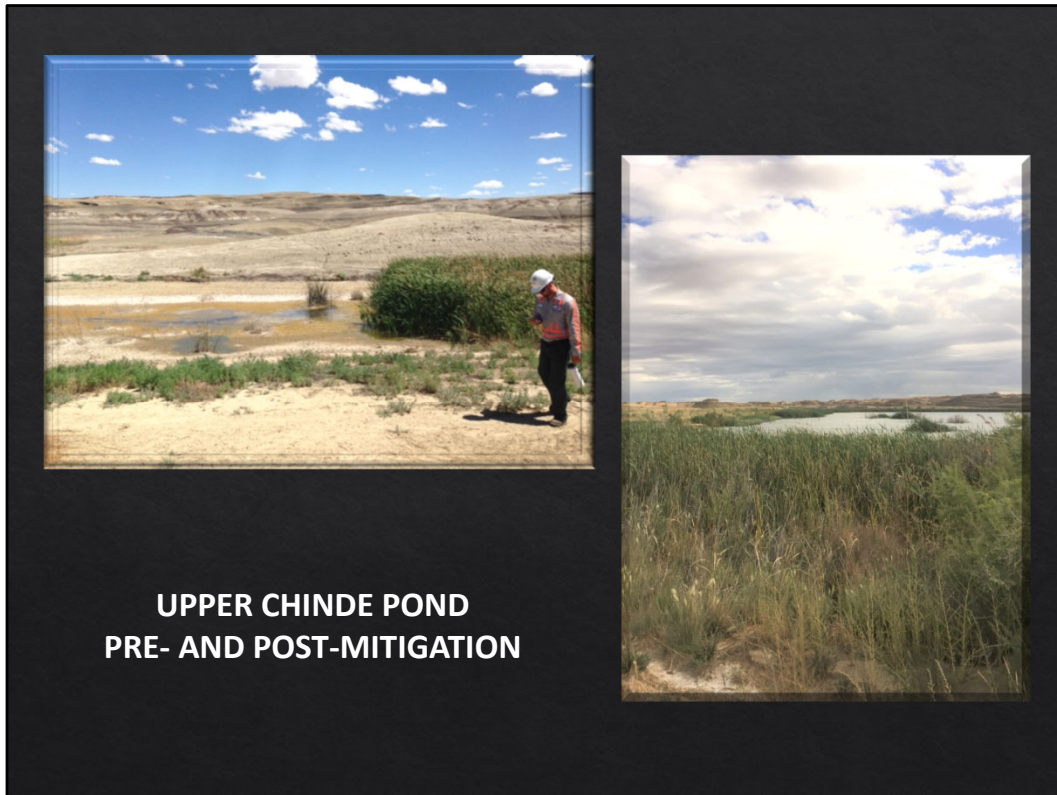
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### **CHINDE POND AND WASH**

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The biodiversity from pre-reclamation to post-reclamation of the Chinde wetlands has accelerated into a thriving sustainable ecosystem where originally the Upper Chinde wetland complex consisted of badlands with sparse to no vegetation and minimal existence of water bodies, and the Lower Chinde Wash comprised deteriorating riparian areas overwhelmed by invasive trees and plants. The site now supports suitable, native riparian grasses, forbs, trees and shrubs.

This shift also led to increased wildlife habitat and ecosystem through the surprising recruitment of large rodents including the previously mentioned beavers and porcupines. The beaver dams created habitat niches for amphibians and smaller mammals that, in turn, attracted more predators such as badgers, coyotes, bobcats, and foxes that arrived in great numbers and now prey on small rodents that survive off the lush vegetation along the channel.



This project expanded to areas not included in the original mitigation plans once benefits were realized. The wildlife habitat and niches were gradually created and flourished a growing population of breeding birds including Canada Geese and Western Kingbird during the fall season. It also served as a corridor for the Loggerhead Shrike, Blue Grosbeak and Black Phoebe migratory birds, particularly during prolific drought conditions.



**LOWER CHINDE WASH – POST-MITIGATION**

In support of its overarching goal of returning the land to its original steward, the Navajo People, NTEC is excelling in using a balanced approach to reclaiming mined land with stunning results despite the challenges beyond their control.

The Chinde Wetland and Riparian Wetland Mitigation project demonstrates the long-term beneficial impacts of planting native riparian species in a diminished open water system; establishing and preserving riparian systems and existing wetlands; rehabilitating reclaimed ephemeral channels; and preserving existing wetlands.

NTEC continues to honor its stewardship responsibilities to protect the natural resources using effective wetland and riparian restoration techniques coupled with geomorphic approaches to increase the overall ecological value for continual use.

## 2022 EXCELLENCE IN RECLAMATION AWARD

Presented to

**NAVAJO TRANSITIONAL ENERGY COMPANY, LLC**

For its project:

“Chinde Wash Wetland and Riparian Mitigation”  
that further demonstrates its commitment to offset mining impacts  
through responsible actions and practices to restore land, water, and  
natural resources to a balanced state for future beneficial use

While this presentation can only offer a brief overview of this amazing project, we offer our sincere congratulations to Navajo Transitional Energy Company, LLC, and with pleasure we award NTEC the 2022 Excellence in Reclamation Award for its project:

“Chinde Wash Wetland and Riparian Mitigation”  
that further demonstrates its commitment to offset mining impacts through responsible  
actions and practices to restore  
land, water, and natural resources to a balanced state for future beneficial use

Accepting the award are several NTEC staff:

Vern Lund, NTEC CEO; Rick Ziegler, NTEC COO; Dragen Bogonovic, Navajo Mine General Manager; Shawn Smith, Navajo Mine Environmental Manager; and Terri Lameman-Austin, Navajo Mine Environmental Permitting Supervisor.

Please feel free to say a few words, if you'd like. Then we will step aside for a picture.





Again, our congratulations to Navajo Transitional Energy Company, and our thanks for their conscientious work and their successful efforts on behalf of reclamation, preservation, environmental awareness, and preparing and inspiring the next generations to continue this restorative work.

We look forward to receiving another round of worthy entries from across the New Mexico mining community for the 2023 awards.

Thank you.