



NTUA Shiprock Wastewater Treatment Plant Expansion



ABOUT THIS PROJECT:

Market Segment:
Wastewater Collection
and Treatment

Owner:
Navajo Tribal Utility
Authority

Products Used:
Xypex Admix C-500 NF

Location:
Shiprock, San Juan
County, New Mexico, USA

Concrete Producer:
Mesa Ready-Mix

Engineer:
WSP

The Navajo Tribal Utility Authority has undertaken a major expansion of the Shiprock Wastewater Treatment Plant in northwestern New Mexico to replace aging infrastructure and increase long term treatment capacity for the Shiprock community and surrounding areas of the Navajo Nation. The project is designed to double plant capacity to approximately 2 million gallons per day while improving operational reliability and regulatory compliance.

The scope of work includes construction of new headworks, influent pumping facilities, extended aeration basins, blower and sludge dewatering facilities, and upgraded administrative and operations buildings. The facility operates under U.S. Environmental Protection Agency NPDES permitting requirements, with coordination between NTUA, Navajo Nation leadership, and federal regulatory agencies.

Given the continuous exposure to wastewater and hydraulic loading conditions, WSP specified Xypex Admix C-500 NF crystalline waterproofing admixture for concrete used in the water holding and treatment process structures, including influent channels, aeration basins, and associated treatment tanks.

The integral admixture was selected to enhance durability, reduce permeability, and protect reinforcing steel throughout the concrete section. Mesa Ready-Mix of Farmington, New Mexico supplied approximately 3,000 cubic yards of concrete containing Xypex Admix C-500 NF. Added during batching, Xypex crystalline admixture reacts with water and the by-products of cement hydration in the concrete.

With water as the catalyst, it forms a non-soluble crystalline structure within the interconnected capillary pores and microcracks, blocking pathways for water and reducing permeability throughout the concrete matrix. The integral crystalline system provides permanent waterproofing and durability protection for wastewater treatment structures while supporting long term service life for essential tribal infrastructure serving the Shiprock community.

