

Packaged Solution

ClearLogic® MBR System



CASE STUDY

Location: Farmington, New Mexico
Owner: Navajo Tribal Utility Authority
Engineer: Water Works Engineers
Contractor: McCarthy Building Companies

In January of 2012, the Navajo Tribal Utility Authority opened the new Northern Edge Navajo Casino (NENC). Complete with gaming areas, restaurants, and shops, the NENC is the newest state-of-the-art gaming resort in the Four Corners area. The NENC is located near the beautiful San Juan River Valley and sacred mountains, Dibé Nitsaa, in New Mexico.

Operating 24 hours a day on weekends, the NENC needed an inconspicuous but reliable wastewater treatment system. The high elevation and close proximity to national parks created design challenges such as site layout constraints, discrete technology needs, maintaining minimum process temperature, and meeting effluent requirements in minimal treatment steps.

Equipment Selection

Working in conjunction with the Navajo Tribal Utility Authority (NTUA) and WaterWorks Engineering since 2010, WesTech was selected to provide the heart of treatment for the casino. WesTech supplied a ClearLogic® Membrane Bioreactor (MBR) system.

ClearLogic® MBR	
Quantity	2 modules
Configurations	Single stack
Average Flow	30,000 gpd
Instantaneous Peak Flow	42 gpm
Filtration Area	3,316 ft ²
Temperature	55-77 °F

Membrane technology was selected because of the compact footprint and the ability to meet the dischargeable limits in fewer steps. Effluent from the treatment plant is disinfected via UV and is discharged directly to a creek wash, requiring strict effluent requirements. WesTech's MBR produces Title 22 certified effluent in a compact footprint, making it an ideal choice for the NENC. To keep the wastewater treatment facility discrete and maintain an ideal temperature for treatment, the operation tank was covered and insulated. WesTech customized its standard MBR to meet the needs of the NENC, providing the highest level of wastewater treatment.

WesTech's MBR provides clear advantages over other membrane bioreactor technologies with a PVDF flat sheet membrane, low trans-membrane pressure (TMP), even flux distribution, and full CIP recirculation. The unique feature of the gravity-operated membrane is that it operates with an exceptionally low TMP, up to ten times lower than hollow fiber membranes and one-third less than other flat sheet membranes.

In addition to low TMP, WesTech's ClearLogic® MBR promotes an increased usable life relative to other membranes. The unique design of the chemically resistant PVDF allows for full CIP recirculation. Reduced fouling, even cleaning, and less frequent cleaning lengthens the life of WesTech's MBR and can be a specifiable design feature.

Water Quality		
	Influent	Effluent
BOD ₅	400 mg/L	<2 mg/L
TSS	400 mg/L	<1 mg/L
TN	50 mg/L	<10 mg/L
Turbidity		<0.5 NTU 100% of the time