

Project Profile

Uranium Treatment System Barona Resort and Casino - California



Background

In mid 2007, AdEdge was contacted by Pacific Advance Civil Engineering group (PACE) to assist a Native American Tribe in Southern California near San Diego to provide a packaged treatment system for uranium removal. The Barona Band of Indians owns and operates the water system serving the Barona Resort and Casino. Water from three existing wells combines together with an average uranium concentration of over 40 ug/L, exceeding the EPA MCL of 30 ug/L. AdEdge worked closely with PACE to provide a design/build turnkey solution for the Tribe. AdEdge and PACE completed work previously at this same site providing a pre-treatment system for high iron and manganese. Both regenerative and throw away options for U removal were explored with the conclusion that the regenerative AD92 IX approach was the preferred and most cost-effective option for this site.



Treatment System

Designed to provide high efficiency removal of naturally-occurring uranium from groundwater supplies, the packaged, pre-engineered AdEdge AD92 system features a twin 54-inch vessel configuration with a design flow of 250 gpm in parallel configuration. The system included all automation to accomplish on-site regeneration of the media and automatic functions. The PLC based system was supplied with a control panel and stainless steel valve harness suitable for the ambient operating pressures over 120 psi. The system was furnished complete with a regeneration/brine system to regenerate the IX resin periodically on demand. The complete system was packaged and delivered for site installation October, 2007. AD92 IX media is a specialty strong base anion resin with high capacity for uranium removal. It provides superior removal efficiency for uranium and greater resistance to organic fouling than other media. The negatively charged uranium species binds to the anion resin as it passes through the bed and is periodically regenerated with salt brine solution periodically as the resin reaches a certain loading level. Periodic brine is permitted and approved for discharge via an onsite wastewater lagoon.

Uranium	0.045	mg/L U
Gross Alpha	> 40	pCi/L
Alkalinity	264	mg/L @ CaCO ₃
Hardness **	no data	mg/L @ CaCO ₃
Silica **	37.0	mg/L SiO ₂
Phosphate **	negligible	mg/L P ₀₄
Sulfate **	60.0	mg/L SO ₄
Iron **	< 0.2	mg/L Fe
Manganese **	< 0.03	mg/L Mn

The system was placed into full time operation in early November, 2007 running at a flow rate of approximately 220 gpm, processing roughly 80,000 gallons per day. Results to date show excellent removal of uranium consistently to below detection (2 ug/L). Results are reported by the site's State Certified Laboratory. Regeneration events are set up to be performed bi-monthly. The system is monitored regularly according to the terms of the operating permit by the site's certified operator.

Performance

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For More Information Contact

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