

# Project Profile

*Newmont Mining Site-Low Sheep Well  
Carlin, Nevada*



## Background

In 2004, AdEdge Technologies Inc. (AdEdge) was contacted to request design and implementation questions related to the Newmont Mining site located in Carlin, Nevada. Site personnel and engineers evaluated arsenic treatment options, and eventually selected adsorption for their Low Sheep Well site. At the Carlin, Nevada location, implementation began in September, 2005 including engineering submittals and permitting by the Nevada Division of Environmental Protection (NDEP). Upon completing site preparations and construction in December 2005, AdEdge installed the new 25 gpm Adsorption Package Unit (APU) arsenic treatment system at the Low Sheep well site in January 2006. Historically, arsenic concentrations reported in the source well serving the mining site was 32 parts per billion (ppb), which is six times higher than the new USEPA arsenic maximum contaminant level (MCL). A complete water profile was obtained on the source water to assess the water chemistry and predict performance. The table below lists some of the more important water-quality parameters.



APU-25LL System – Carlin, Nevada  
Arsenic Treatment System

## System Description

AdEdge installed an APU-25 lead/lag arsenic removal system designed for up to 25 gpm maximum flow. The system utilizes Bayoxide E33 adsorption media. The small footprint system features a twin vessel configuration with automatic controls, series flow configuration, and a chlorine injection system. Due to the fact that all of the detected arsenic is in the form of arsenic III (As III), sodium hypochlorite is injected as a pretreatment. The sodium hypochlorite pretreatment step converts As III to As V prior to entering the adsorption treatment system. The AdEdge adsorption system requires no other chemicals, regeneration, and does not generate liquid or hazardous waste. Media, when spent, will be discarded as a non-hazardous solid waste. Minimal operation, maintenance, or operator attention is required for this simple automated system. Instrumentation is provided on a control panel to measure critical operating parameters. Total gallon throughput and flow rate for each vessel is measured continuously with a dedicated flow totalizing meter.

Total As **	0.032	mg/L As
As(III)	0.032	mg/L
Alkalinity	164	mg/L @ CaCO <sub>3</sub>
Hardness **	196	mg/L @ CaCO <sub>3</sub>
Silica **	36.0	mg/L SiO <sub>2</sub>
Phosphate **	negligible	mg/L P <sub>04</sub>
Sulfate **	45.0	mg/L SO <sub>4</sub>
Iron **	ND	mg/L Fe
Manganese **	ND	mg/L Mn

## Performance

The system was placed into operation in January 2006. Sustainable yield from the source wells is approximately 25 gpm. The well runs 24 hours per day with the system treating approximately 36,000 gallons per day. Initial sampling results indicate excellent arsenic removal performance (i.e., non-detect in lag vessel). The system uptime has been excellent and the APU has run at very high treatment efficiencies.

## For More Information Contact

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