

HASTINGS AQUIFER STORAGE AND RESTORATION PROJECT

STATE PROGRAM: Nebraska Department of Environment and Energy

ASSISTANCE RECIPIENT: City of Hastings, Nebraska

ASSISTANCE AMOUNT: \$2.8M



PROJECT DESCRIPTION

Drinking water wells in the City of Hastings contained high concentrations of nitrate and uranium. Hastings Utilities faced a difficult decision, as constructing a traditional water treatment plant would cost more than \$100 million and severely increase community utility rates. Instead, Hastings Utilities chose to proceed with an Aquifer Storage and Restoration project to treat highly concentrated nitrate water and inject it back into the aquifer to provide a clean drinking water source. Hastings received \$2.8 million in CWSRF assistance towards this \$6.7 million project.

The project involves extracting groundwater upgradient of the Hastings municipal water supply wells. A dual pump system is utilized to extract groundwater having higher nitrates found near the top of the aquifer and lower nitrate water found at the bottom. The high nitrate groundwater is treated using a reverse osmosis system. Afterwards, it is blended with the low nitrate groundwater to produce a stable injection water and then injected back into the aquifer through a network of restoration wells. The average monthly injection volume is 90 million gallons of potable water, with the Reverse Osmosis Facility operating at a third of its capacity. Initial signs of the project's effectiveness have been shown through decreased contaminant concentrations in water tests of extraction wells and dedicated monitoring wells. This project demonstrated an economical engineering solution for providing treated drinking water to the city's residents.

To read more about this case study, please visit <https://www.epa.gov/system/files/documents/2023-04/pisces-2022-compendium.pdf>.