Clean Water
State Revolving Fund

SOUTHERN NEVADA WATER AUTHORITY/LAS VEGAS VALLEY WATER DISTRICT
SEPTIC-TO-SEWER CONVERSION

Emerging Contaminants:
Pharmaceuticals and personal care products (PPCPs)

Project Type:
Septic-to-sewer conversion

Routine groundwater monitoring has been conducted around areas of high septic system density in the Las Vegas Valley as a result of the partnership between the following seven entities: Southern Nevada Water Authority (SNWA), Las Vegas Valley Water District (LVVWD), Clark County Reclamation District (CCRD), City of North Las Vegas, City of Las Vegas, City of Henderson, and Clark County Regional Flood Control District (CCRFCD). In recent years, the presence of several pharmaceuticals and personal care products (PPCPs) was identified in the groundwater of these areas along with elevated nitrate concentrations. PPCPs detected include carbamazepine, meprobamate, and primidone (all medicines used to treat epilepsy and mood disorders), sucralose (an artificial sweetener), and sulfamethoxazole (an antibiotic). The presence of these PPCPs in the groundwater could be linked to failing decentralized systems in the area.

To reduce the potential for nitrate and PPCPs to leach into the groundwater from septic systems, SNWA, LVVWD, CCRD, City of North Las Vegas, City of Las Vegas, City of Henderson, and CCRFCD propose connecting houses currently using septic systems to the nearby wastewater treatment plant, Flamingo Water Resource Center (FWRC). FWRC is permitted to treat approximately 150 million gallons per day (MDG) using biological nutrient removal, filtration, and ultraviolet disinfection. Treated effluent is discharged to the Las Vegas Wash, the primary channel through which the valley's water returns to Lake Mead. A portion of the flow is further treated for reuse, including approximately 30 MGD that is treated using membrane filtration and ozone disinfection.

The Las Vegas area has approximately 17,000 septic systems, and forty parcels in this area have already been identified for voluntary septic-to-sewer conversion. This project is the first large scale septic-to-sewer conversion effort in the Las Vegas Valley. An important co-benefit of this project is increasing flow to FWRC that can in turn be treated and returned to Lake Mead, a significant source of municipal water for the surrounding area.

Because routine groundwater monitoring identified PPCPs, SNWA, LVVWD, CCRD, City of North Las Vegas, City of Las Vegas, City of Henderson, and CCRFCD are seeking to use CWSRF emerging contaminants funds to design and construct new sewer collection lines and abandon the existing septic systems. Potential future projects may include centralized sewer connections in additional areas.

Eligibilities:

Per Section 603(c)(2) of the Clean Water Act (CWA), the portion of a centralized wastewater treatment works that is associated with the collection and treatment of effluent from properties with failing decentralized systems or properties where no active treatment system is in place is CWSRF eligible. The proposed project includes constructing a collection system to replace the septic (decentralized) systems and connect the homes to a centralized POTW for wastewater treatment.

To be eligible for the CWSRF emerging contaminants funds:

1. The presence of an emerging contaminant(s) needs to be confirmed. This has been done through routine groundwater sampling which has detected low levels of PPCPs in the groundwater.

2. A capital project needs to be identified. Connecting the septic systems to a centralized treatment system qualifies as a capital project. The processes and technologies used in the centralized treatment plant are likely to address the PPCPs.

All of the above make the proposed project eligible for CWSRF emerging contaminants funds.