

AQUARIUS Recognition Program

2019 Project Compendium



A MESSAGE FROM THE OFFICE DIRECTOR

I am excited to share the project nominations for the 2019 Drinking Water State Revolving Fund (DWSRF) AQUARIUS Recognition Program. AQUARIUS' inaugural year was a success: we received nominations from 25 state DWSRF programs, representing all 10 EPA Regions.



The 2019 AQUARIUS nominations cover a wide variety of project types, including lead service line replacement, state-of-the-art treatment technology, drinking water storage, and regionalization. These projects demonstrate leadership in emerging contaminants, innovative financing, water system partnerships, and/or affordability.

Thank you to everyone who participated in planning, financing, constructing, nominating, and reviewing this year's projects. Most of all, thank you to the managers of the 51 state DWSRF programs for your continued commitment to public health protection.

I hope that you enjoy reading this compendium of 2019 AQUARIUS-nominated projects and that the projects inspire continued innovation in the DWSRF.

Sincerely,

A handwritten signature in black ink that reads "Jennifer L. McLain". The signature is written in a cursive, flowing style.

Jennifer L. McLain, Director

Office of Ground Water and Drinking Water

ABOUT THE AQUARIUS RECOGNITION PROGRAM

The Drinking Water State Revolving Fund (DWSRF) AQUARIUS Recognition Program nationally recognizes DWSRF-funded projects for exceptional focus on sustainability and protection of public health. These projects are examples of the high level of innovation possible with the DWSRF.

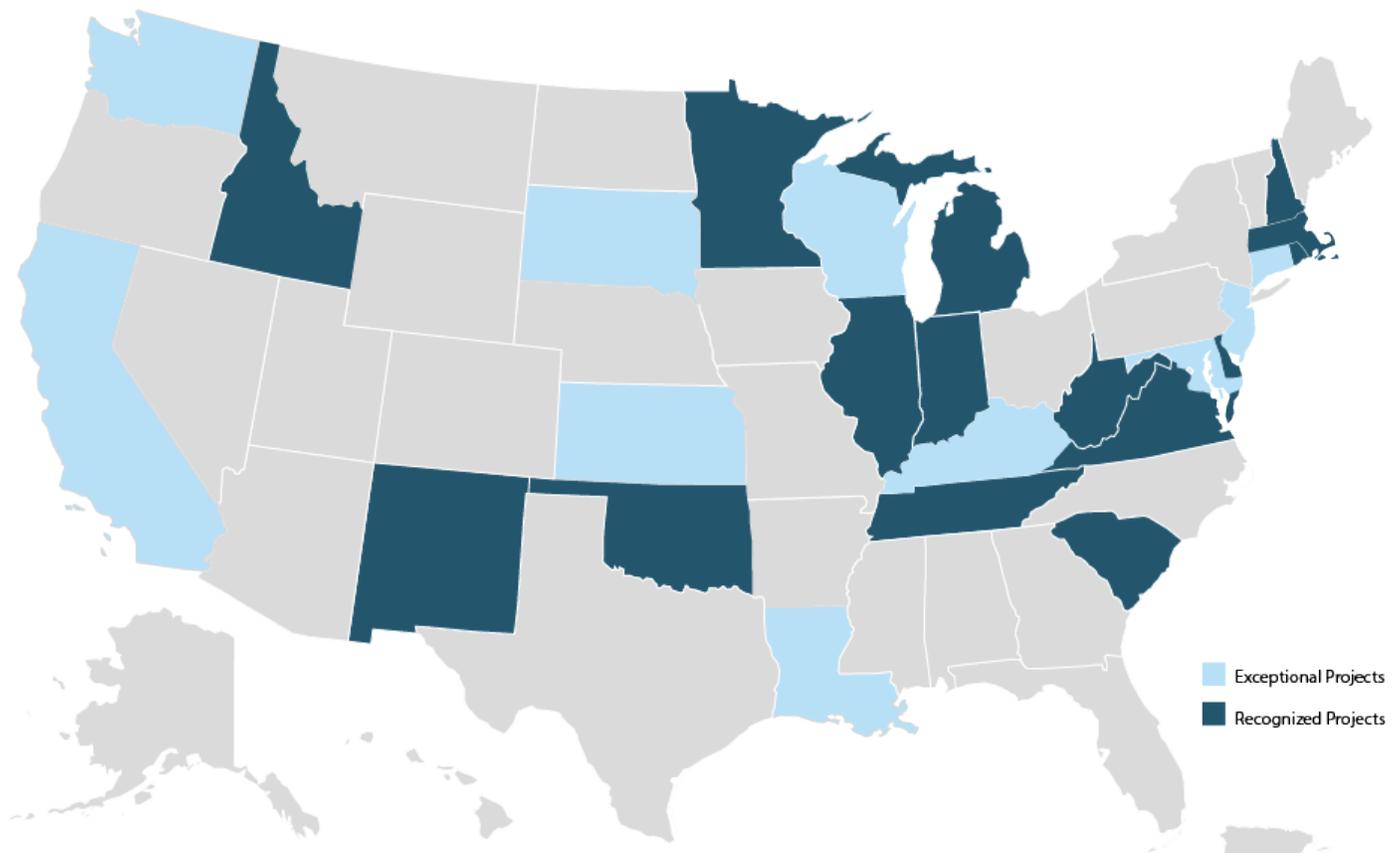
Participating states in this voluntary recognition program nominated one DWSRF project during the 2019 round. All DWSRF projects were eligible for nomination if they completed construction within the last two years. The project also needed to meet three criteria:

- Safe Drinking Water Act compliance,
- Financial integrity, and
- Public health benefits.

Additionally, each project demonstrated leadership in at least one or more of the following areas: emerging contaminants, aging infrastructure, innovative financing, affordability, water loss control, efficient water and/or energy use, creative approach to project planning and implementation, or water system partnerships.

Once states submitted projects, one particularly noteworthy project from each EPA Region was designated by the EPA as an “Exceptional Project” to receive further recognition. This year, we received 25 project nominations, representing all 10 EPA Regions.

This compendium includes project descriptions of those 25 projects.



EXCEPTIONAL PROJECTS

Connecticut
New Jersey
Maryland
Kentucky
Wisconsin
Louisiana
Kansas
South Dakota
California
Washington

Woodland Summit Community Water Association
Long Beach Township
Allegany County
City of Danville
City of Ashland
St. Bernard Parish Waterworks
Public Wholesale Water Supply District No. 27
Rapid City
Valley Center Municipal Water District
Liberty Lake Sewer and Water District

RECOGNIZED PROJECTS

Delaware
Idaho
Illinois
Indiana
Massachusetts
Michigan
Minnesota
New Hampshire
New Mexico
Oklahoma
Rhode Island
South Carolina
Tennessee
Virginia
West Virginia

Town of Selbyville
Eligible local communities
Village of Cambridge
City of East Chicago
Town of Shrewsbury
City of Burton
City of Randall
Berlin Water Works
Ojo Caliente Mutual Domestic Water Consumers Association
Edmond Public Works Authority
Providence Water Supply Board
Anderson Regional Joint Water System
Town of Gainesboro
Town of Port Royal
Town of Chapmanville

EXCEPTIONAL PROJECTS

REGION 1: CONNECTICUT

STATE: CONNECTICUT

RECIPIENT: WOODLAND SUMMIT COMMUNITY WATER ASSOCIATION

PROJECT: WATER SYSTEM IMPROVEMENTS

The Woodland Summit Community Water Association (WSCWA) utilized \$280,000 in DWSRF funding, including \$70,000 in principal forgiveness, for various water system improvements. This project included replacement of the old water storage tank and iron/manganese filtration systems, removal of older pressure storage tanks, and installation of a new radon treatment system and treatment residuals disposal system. The WSCWA water system was built in 1965, prior to the Safe Drinking Water Act (SDWA), and was in poor condition due to lack of maintenance and capital investment. Groundwater wells had high levels of iron, manganese, and radon, and the filtration system had exceeded useful life and was poorly functioning. Additionally, WSCWA's 5-year-old storage tank had never been inspected and was out of compliance with the state's 10-year inspection requirement.

As part of this project, WSCWA worked with Resources for Communities and People (RCAP) to utilize Check-Up Program for Small Systems (CUPSS) software and implement a comprehensive and sustainable asset management plan (AMP). Through the AMP, WSCWA was able to plan a series of water rates adjustments to support DWSRF loan repayment and provide funding for future capital investments. Of note, WSCWA is run by volunteer leadership, who worked together to adjust water rates and spend money to improve public health protection for the community.

The WSCWA water system, which serves 216 residents, now provides customers with an adequate supply of safe drinking water.



REGION 2: NEW JERSEY

STATE: NEW JERSEY

RECIPIENT: LONG BEACH TOWNSHIP

PROJECT: PUMP STATION RECONSTRUCTION

The Brant Beach Water Treatment Plant (WTP), originally built without any flood protection, was severely flooded during Superstorm Sandy in 2012. The Brant Beach WTP took on approximately three feet of salt water, compromising the pumps and entire electrical system and resulting in decreased water quality and limited service capacity. This project utilized approximately \$1.25 million in DWSRF funds and \$500,000 in U.S. Department of Agriculture (USDA) funds to demolish and reconstruct the existing well building and generator room to comply with the 500-year flood elevation and install new equipment.

The Brant Beach WTP is now better protected against flooding and power loss. This DWSRF project was completed in December 2018 and brought the pump station into compliance with the SDWA and Federal Emergency Management Agency (FEMA) flood zone regulations.

Upgrading the Brant Beach WTP benefitted the 20,000 year-round residents and approximately 100,000 residents during summer months by providing increased drinking water quality.



REGION 3: MARYLAND

STATE: MARYLAND

RECIPIENT: ALLEGANY COUNTY

PROJECT: PRINCE ALBERT AND SUNNYSIDE WATER EXTENSION

Sixty-one (61) households in rural Allegany County had no access to the public water supply. These households received drinking water either through private wells or the local creek. However, existing conditions made these two drinking water sources unreliable and a public health threat. Historic mining activity contributed to increased iron and sulfur concentrations and led to a discolored drinking water supply. Private well testing revealed the presence of nitrates and fecal coliform bacteria. Those without private wells were taking water from the local creek, when it was not frozen or affected by high turbidity, and disinfecting the water with their own chemical supplies.

The Maryland DWSRF program partnered with USDA and the Maryland Department of Housing and Community Development to provide over \$1.6 million in assistance to this community, with approximately \$1.4 million of assistance as grants or principal forgiveness. This project, completed in March 2018, consisted of constructing 12,400 feet of polyvinyl chloride (PVC) water line and 25 hydrants to connect these unserved households to the City of Frostburg's drinking water system.

All households that desired to be connected to the public water system have been, and residents of this previously unserved community are now receiving an adequate supply of safe drinking water.



REGION 4: KENTUCKY

STATE: KENTUCKY

RECIPIENT: CITY OF DANVILLE

PROJECT: WATER TREATMENT PLANT AND RAW WATER IMPROVEMENTS

Even though the City of Danville WTP performance was steady, they undertook this capital improvements project to proactively address concerns about meeting the Stage 2 Disinfection Byproducts (DBP) Rule. The primary raw water source, Lake Herrington, is a deep lake with a modest surface area and prone to seasonal total organic carbon spikes, manganese events, and lake turnover.

This DWSRF project consisted of several components, including the following:

- re-purposing around 16,000 square feet of existing WTP facilities to incorporate new filtration, chemical feed, operations laboratories, and administration and support facilities;
- constructing a new chemical building to house nine chemicals;
- implementing six new granular filters, eight new pumps, four granular active carbon (GAC) contactors, and supervisory control and data acquisition (SCADA) improvements; and
- upgrading the 80-year-old raw water intake facility.

The challenges of this project included expanding and upgrading the WTP on the existing site while maintaining constant water production to several surrounding counties, re-purposing the existing historic structures, and incorporating cutting-edge treatment technologies. The Kentucky DWSRF program provided approximately \$12.5 million for this project, with another \$15 million from USDA. This project was completed in June 2017 and provided 60,000 residents throughout four counties with improved drinking water quality.



REGION 5: WISCONSIN

STATE: WISCONSIN

RECIPIENT: CITY OF ASHLAND

PROJECT: PRIVATE LEAD SERVICE LINE REPLACEMENT (YEAR 1)

The City of Ashland undertook a two-year private lead service line (LSL) replacement program. This program undertakes private LSL replacements at residences, schools, and daycare facilities. The City, with approximately 8,000 residents, was designated as a disadvantaged community under the Wisconsin DWSRF program. This program prioritizes LSL replacement for the following situations:

- households with children under six years old;
- households below the federal poverty level; and
- high-risk minority groups.

The City covered 100 percent of the LSL replacement cost of the lowest of two quotes from plumbers on a pre-qualified list. During Year 1 of this program, the City was given \$300,000, all as principal forgiveness, to replace 109 residential LSL. Year 1 was completed in 2018, and the City is currently utilizing an additional \$300,000 to carry out Year 2 of this program.

This private LSL replacement program is an example of innovative financing. Providing 100 percent principal forgiveness was necessary to comply with state laws, since no public debt can be incurred for costs of work done on private property. Previously, the City had been completing partial LSL replacement, which can result in an increased public health hazard. This private LSL replacement program is providing the City's residents with a safe supply of drinking water and increasing public health protection.



REGION 6: LOUISIANA

STATE: LOUISIANA

RECIPIENT: ST. BERNARD PARISH WATERWORKS

PROJECT: WATERLINE REPLACEMENT PROJECT (LOAN 1)

This DWSRF project at St. Bernard Parish (SBP) included the replacement of aged and deteriorated cast iron waterline segments, the addition of fire hydrants, valves, service lines, meters, fittings, and the replacement of asphalt pavement. The total length of waterline replaced or added to the system under Loan 1 was 61,050 feet. This project was in response to three Administrative Orders between 2013 to 2014 regarding inadequate chlorine residuals and confirmation by the Centers for Disease Control and Prevention (CDC) that SBP's water system tested positive for the brain-eating amoeba, "Naegleria fowleri". In 2013, this brain-eating amoeba caused the death of a four-year-old boy playing on a 'Slip-N-Slide'. Another goal of this project was to reduce and/or eliminate water main leakage and failures; this project met the EPA's 100 percent Green Project Reserve (GPR) designation. Before this project, the system was losing a large amount of water pumped (43 percent) due to leaks in the cast iron mains. SBP Waterworks, serving over 43,000 residents, now pumps less water and saves in energy costs. Loan 1 of this project, completed in February 2019, included \$11 million from the Louisiana DWSRF program and approximately \$135,000 from the Community Water Enrichment Fund (CWEF). Work under Loan 2 is currently ongoing, and SBP Waterworks recently applied for Loan 3 to finish water system improvements.



REGION 7: KANSAS

STATE: KANSAS

RECIPIENT: PUBLIC WHOLESALE WATER SUPPLY DISTRICT NO. 27

PROJECT: NEW REGIONAL PUBLIC WATER SUPPLY SYSTEM IN BROWN COUNTY

The City of Powhattan, the City of Robinson, Brown County Rural Water District No. 2, and Doniphan County Rural Water District No. 6 had consistently exceeded the nitrate maximum contaminant level (MCL) for several years and worked together to form a Public Wholesale Water Supply District (PWWS) and find a new source of water. To do this, the systems initially utilized almost \$3.8 million in DWSRF funding, including \$1.2 in principal forgiveness, to create this new public water supply (PWS) system. Of note, USDA provided long-term financing for the remaining \$2.6 million. This project included the construction of PWS wells, disinfection treatment facility, elevated storage tank, and connecting transmission pipelines. The treatment facility was constructed to allow expansion of the treatment process if nitrate removal becomes necessary. It was determined that a regionalized treatment process was more sustainable and affordable than individual treatment facilities for each original system. This new PWWS provides water that is below the nitrate MCL for the City of Powhattan, the City of Robinson, Brown County Rural Water District No. 2, and Doniphan County Rural Water District No. 6. The PWWS is actively planning to connect other area PWS systems that are trying to resolve nitrate MCL violations.

This regionalization project, completed in December 2017, provides the 1,450 residents of the four original systems with a reliable source of safe drinking water and has the capacity to expand to additional communities in need.



REGION 8: SOUTH DAKOTA

STATE: SOUTH DAKOTA

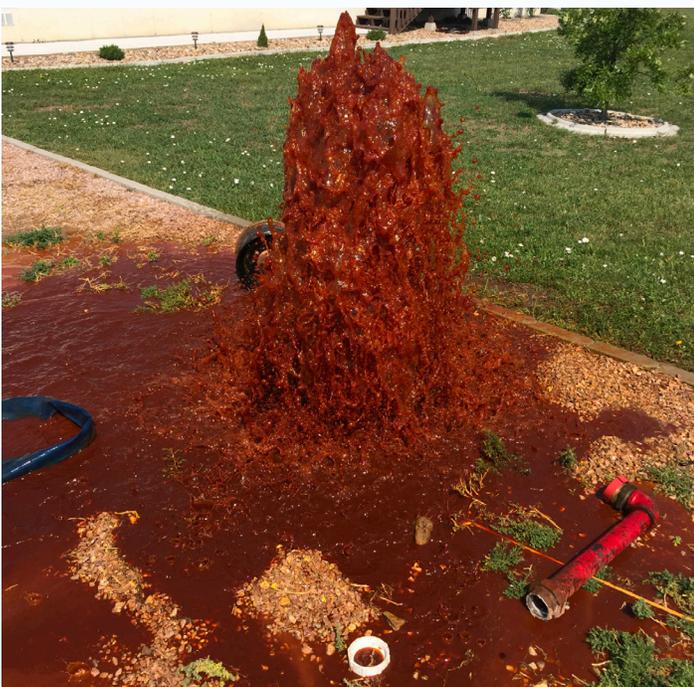
RECIPIENT: RAPID CITY

PROJECT: EAST RAPID CITY WATER EXPANSION

This DWSRF project is the largest drinking water regionalization project Rapid City has completed and included a major expansion of the municipal water distribution system to serve those located east of the current city boundaries. These residents were previously served by individual wells or small private or public water systems that suffered from various deficiencies: unreliable wells, inadequate water quantity, poor water quality, Notices of Violation, and non-compliance with drinking water quality standards. To correct these issues, the City decided to connect these users to the drinking water system while undertaking a project to extend the City's water transmission mains to the regional airport. Of note, the City worked with their legal office to develop water service agreements that would be signed by the owner of each home and purchase agreements to acquire the smaller systems in this eastern community, as a way to address expanding the drinking water system outside the current city boundaries.

This project cost over \$7.5 million, with funding coming from several sources: approximately \$5 million in DWSRF funds (\$3.4 million in principal forgiveness), \$911,000 from the State Consolidated Grant Program, and \$1.5 million from the City. Project construction included over five miles of public water mains and a master pressure reducing valve (PRV) facility.

New public water mains and a PRV facility provided an estimated 433 residents in the project area with a consistent, safe drinking water supply.



REGION 9: CALIFORNIA

STATE: CALIFORNIA

RECIPIENT: VALLEY CENTER MUNICIPAL WATER DISTRICT

PROJECT: COOL VALLEY RESERVOIR COVER/LINER REPLACEMENT

The Cool Valley Reservoir (the Reservoir) was constructed in 1975, and the Hypalon floating cover was installed in 1992. Due to wear and tear, the Reservoir's concrete liner was showing signs of movement and cracking at the expansion joints, as well as leakage through the underdrain system. The concrete liner also served as a medium for bacterial growth, increasing chlorine demand, along with chemical and operational costs. Furthermore, the Reservoir's floating cover had reached the end of its service life, and tears in the cover could no longer be repaired. Due to health and safety concerns, the Reservoir sat idle. The Valley Center Municipal Water District (the District) understood the urgency of constructing a replacement liner and floating cover, as the Reservoir constituted more than 40 percent of the total finished water storage capacity.

This project included designing and installing a geomembrane liner with a geotextile underlayment and replacing the Hypalon floating cover with a new chlorosulfonated polyethylene (CSPE) floating cover. The new liner will prevent leakage from the Reservoir and reduce bacteria by creating a barrier between the finished drinking water and the concrete liner. This will reduce chemical and energy use to maintain chlorine residuals. The new liner and cover were designed to have a service life of more than 20 years.

This project utilized \$4.2 million in DWSRF funding and provided improved drinking water benefits to the 25,000 residents of the District.



REGION 10: WASHINGTON

STATE: WASHINGTON

RECIPIENT: LIBERTY LAKE SEWER AND WATER DISTRICT

PROJECT: LIBERTY LAKE SEWER AND WATER DISTRICT — EASTSIDE LIBERTY LAKE CONSOLIDATION

In 2014, Eastside Liberty Lake (Eastside) received a \$905,000 DWSRF loan for water system improvements, including replacement of 50-year-old well pumps, booster pumps, and a reservoir. In 2016, this project was converted to a consolidation project between Liberty Lake Sewer and Water District (LLSWD) and Eastside and was then eligible for 50 percent principal forgiveness. The revised DWSRF project included transferring ownership of Eastside to LLSWD, abandoning the existing wells serving Eastside that needed major upgrades, utilizing an existing intertie as the main water source to Eastside, and conducting needed improvements to Eastside's distribution system to address leaks. The DWSRF loan was transferred from Eastside to LLSWD, with LLSWD becoming responsible for ownership, operation, and maintenance of the entire Eastside water system. A change in ownership from Eastside to LLSWD will provide long-term technical, managerial, and financial capacity for the 327 customers within Eastside and significantly reduced Eastside's Water Rates.

Water rates for Eastside customers dropped from \$50.76, which included the surcharge for the DWSRF loan, to \$18.52 upon consolidation. Consolidation was completed in August 2018.



RECOGNIZED PROJECTS

RECOGNIZED PROJECTS

STATE: DELAWARE

RECIPIENT: TOWN OF SELBYVILLE

PROJECT: METHYL TERT-BUTYL ETHER REMOVAL

Methyl tert-butyl ether (MTBE) is an organic compound that may cause unpleasant taste and odor in drinking water. The Town of Selbyville drilled a new well, but sample testing of the well showed MTBE levels above the state MCL of 10 parts per billion (ppb). The Town utilized various funding sources to drill a new well, add a transmission line to the treatment plant, and build a new treatment plant with aeration capabilities. Through this project, the Town was proactive and improved a water treatment configuration that had been in place since the 1930s.

Since completion of the project, MTBE levels are now non-detect. This project served 2,450 residents and was completed using over \$3 million in DWSRF funding, which was provided as 100 percent principal forgiveness. The Town received an additional \$500,000 of funding from USDA.



STATE: IDAHO

RECIPIENT: ELIGIBLE LOCAL COMMUNITIES

PROJECT: IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY DWSRF LEAD ABATEMENT PROGRAM

The Idaho DWSRF dedicates \$500,000 of its annual principal forgiveness towards a Lead Abatement Program to remediate lead exposure risk. The State requires bond passage for any municipal long-term debt, which delays many capital improvement projects and may prevent timely response to public health risks. This requirement was a major factor in the State's decision to only use principal forgiveness for lead exposure remediation; this method allows the DWSRF program to get assistance to the communities as quickly as possible. So far, the Idaho DWSRF program has funded five projects, positively impacting approximately 7,400 in communities throughout the state and reducing their exposure to lead in drinking water.



RECOGNIZED PROJECTS

STATE: ILLINOIS

RECIPIENT: VILLAGE OF CAMBRIDGE

PROJECT: RADIUM REMOVAL/HYDROUS MANGANESE OXIDE FILTRATION SYSTEM

The Village of Cambridge installed a hydrous manganese oxide (HMO) filtration treatment system to aid in radium removal. This \$1.7 million DWSRF project (\$1.3 million in principal forgiveness) included several improvements: three pressure filters, a gas chlorine system, a blended phosphate feed system, piping controls, a backup generator, and necessary appurtenances. The project was necessary for the Village to reduce combined radium and gross alpha radiation below the Federal MCL. The Village has had several non-compliance issues with combined radium since 1984 and gross alpha since 1990. An Administrative Order was issued by the EPA in 2016 for exceeding combined radium levels. Prior to DWSRF funding, the Village was blending water to meet the MCL. This project was completed in June 2019 and provides a safe drinking water supply to the community.



STATE: INDIANA

RECIPIENT: CITY OF EAST CHICAGO

PROJECT: LEAD SERVICE LINE REPLACEMENT IN USS LEAD SUPERFUND SITE (PHASE I)

The City of East Chicago proactively implemented a full LSL replacement program to assist residents at the greatest risk for lead exposure from LSL leaching. The site was active from 1903 until 1985, under the ownership of Delmar Copper Refinery, U.S. Smelting Refining and Mining, and U.S. Smelter and Lead Refiners, Inc. Excavation of contaminated soils in zones immediately surrounding the facility began in 2017. The City decided to pair excavation and replacement of 18 to 24 inches of contaminated soils with LSL replacement to reduce project costs and impact to homeowners. The City targeted eligible residents using sampling results from 2014 and 2016 Lead and Copper Rule findings, as well as additional water sampling results. Phase I of this project is complete and used \$1.1 million in DWSRF funding for the replacement of 331 LSL, positively impacting the 1,350 residents surrounding the area of construction.



RECOGNIZED PROJECTS

STATE: MASSACHUSETTS

RECIPIENT: TOWN OF SHREWSBURY

PROJECT: HOME FARM WATER TREATMENT FACILITY UPGRADE

This project involved construction of a new manganese treatment facility at the Town of Shrewsbury's existing water treatment facility. Manganese concentrations in the Town's drinking water were increasing, and this project was a proactive measure to reduce manganese levels before they became too high to control through blending. To do this, the Town incorporated manganese filters into the treatment process. Three filter technologies were utilized: the first two were common media options for manganese treatment. The third was Mangazur filter media, a new technology, that is uncommon in the Northeastern region of the country. The Town's water treatment facility is now considered a "pioneer" in Mangazur filter media. This project, which was co-funded with \$12 million in DWSRF funding and a state grant, was completed in June 2019 and increased drinking water quality for the Town.



STATE: MICHIGAN

RECIPIENT: CITY OF BURTON

PROJECT: DRINKING WATER SYSTEM IMPROVEMENTS (PHASES 1 TO 5)

Over the five phases of this project, completed in January 2019, more than 19 miles of 90-year-old cast iron supply lines were replaced, bringing the City of Burton into compliance with delivery standards and extending system life. The water system struggled because of frequent line breaks and the elevated storage tank's inability to operate at full capacity to maintain system pressure. The system experienced over 200 line breaks in a 10-year period. After a 2012 incident of 10 line breaks in one week, the City hired consulting engineers to conduct a study on several factors: water loss, aging infrastructure, and more efficient system operation. The study resulted in a five-year plan to improve the City's drinking water system using almost \$22 million (\$2.8 million in principal forgiveness) in DWSRF funding. Because of this project, the City's water storage tank is now operating at standard level capacity, increasing system pressure and reliability substantially, and water losses in the system have been significantly reduced. To prevent similar water system challenges in the future, the City is actively implementing its asset management program.



RECOGNIZED PROJECTS

STATE: MINNESOTA

RECIPIENT: CITY OF RANDALL

PROJECT: RANDALL WATER SYSTEM IMPROVEMENTS FOR NITRATE AND ARSENIC

Since the early 2000's, the nitrate concentration in one of the City of Randall's wells continued to increase. In 2015, this well exceeded the nitrate MCL and was taken offline, leaving only one remaining well. A location for a low nitrate well was found, but the analysis of the water from the test well showed higher concentrations of arsenic, iron, and manganese. This project consisted of the construction of a new 125 gallon per minute (gpm) water treatment plant designed to remove arsenic, iron, and manganese, along with the construction of a new drinking water well. The City determined that arsenic, iron, and manganese treatment was more cost-effective than nitrate treatment and provided better drinking water quality to its 650 customers. Recent sample results for arsenic and nitrate leaving the treatment plant are below detection limits, and the City has returned to compliance. This project used \$776,000 in DWSRF funds and a \$600,000 state grant and was completed in June 2018.



STATE: NEW HAMPSHIRE

RECIPIENT: BERLIN WATER WORKS

PROJECT: WATER MAIN REPLACEMENT

This \$2 million DWSRF project, completed in spring 2018, included the replacement of high-failure cast iron water mains from 1890 to 1935 and installation of hydrants to improve water main flushing. Water service lines were lowered and insulated to prevent freezing during the winter months. Approximately 31,000 feet of water main was replaced throughout 47 City of Berlin streets; looping was also completed, where possible, to eliminate dead ends in the distribution system. These system improvements resolved many public health and safety issues, including the following: significant water loss, chronic water main breaks, discolored water, and reduction in fire flow. This project better allows the City of Berlin to serve its customers, including schools, hospitals, health care facilities, and prisons.



RECOGNIZED PROJECTS

STATE: NEW MEXICO

RECIPIENT: OJO CALIENTE MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

PROJECT: OJO CALIENTE URANIUM TREATMENT

This DWSRF project included the installation of an ion exchange uranium treatment system, construction of transmission lines from two wells, and rehabilitation of the wells to reduce the amount of uranium in the system's drinking water. The Ojo Caliente Mutual Domestic Water Consumers Association (the Association), serving 415 residents, was under an Administrative Order for exceeding the uranium MCL (30 ppb), with concentrations between 34 to 44 ppb. Upon project completion in November 2017, the Association began submitting quarterly test results, and the uranium levels are still below the MCL. The filter media is expensive to change and remove, and the Association is balancing not overworking the media but continuing to maintain compliance. The Association entered into an agreement with a licensed waste disposal facility to remove the water treatment plant waste containing uranium. In addition to \$744,000 (75 percent as principal forgiveness) in DWSRF funds, the Association also received two State-based planning grants (\$100,000) and two capital outlay awards from the State legislature (\$180,000).



STATE: OKLAHOMA

RECIPIENT: EDMOND PUBLIC WORKS AUTHORITY

PROJECT: WATERLINE FROM EDMOND PUBLIC WORKS AUTHORITY TO THE TOWN OF ARCADIA

This project, completed in September 2018, involved the installation of 17,600 linear feet of waterline so Edmond Public Works Authority (PWA) could provide drinking water to the Town of Arcadia. In 2006, the Town constructed a water system, including two wells, to serve its residents. However, analyses indicated that the water from the wells exceeded arsenic, selenium, and uranium MCLs. The wells could not be used by the Town for drinking water. Edmond PWA is a nearby larger water system that could provide the Town with water that meets Federal drinking water standards. Edmond PWA and the Town have both completed their portions of the connections, and the Town has begun receiving water from Edmond PWA. The Oklahoma DWSRF provided this project \$2.5 million, all as principal forgiveness, as a regionalization incentive, and Edmond PWA provided an additional \$500,000.



RECOGNIZED PROJECTS

STATE: RHODE ISLAND

RECIPIENT: PROVIDENCE WATER SUPPLY BOARD

PROJECT: LEAD SERVICE LINE AND WATER MAIN REPLACEMENTS

Over the past 13 years, the City of Providence has received \$100 million in DWSRF funding, including a \$16.3 million loan in 2017 for LSL replacement. Of the City's 74,000 connections, an estimated 12,300 have LSL. The City proactively replaced public-side LSL and offered zero (0) percent interest loans to homeowners for private LSL replacement during the same time the utility was replacing distribution lines in the area. This proactive approach reduced costs by actively marketing LSL replacements and utilizing the "dig once" approach, which tried to coordinate public and private LSL replacements at the same time. This project was completed in March 2019.



STATE: SOUTH CAROLINA

RECIPIENT: ANDERSON REGIONAL JOINT WATER SYSTEM

PROJECT: WATER TREATMENT PLANT ADVANCED OXIDATION PROCESS UPGRADE

Anderson Regional Joint Water System's (ARJWS) source water, Lake Hartwell, started experiencing algal blooms in 2013, and the water utility began receiving hundreds of complaints of musty-smelling and bad-tasting water. ARJWS installed a state-of-the-art advanced oxidation system, which also adds treatment capacity for addressing emerging contaminants in the future. The new treatment system was put online in July 2018, and at the start of the algal bloom season, the system was measuring non-detect in the outlet. According to ARJWS Director Scott Willett, since the installation of the system, the water utility has not received water quality complaints for taste, odor, or color. ARJWS utilized approximately \$13 million in DWSRF funding and improved the drinking water quality for several thousand residents.



RECOGNIZED PROJECTS

STATE: TENNESSEE

RECIPIENT: TOWN OF GAINESBORO

PROJECT: WATER LOSS CORRECTION

The Town of Gainesboro had average water loss of 54 percent, and through this project, reduced water loss to 28 percent, which is below the Town's initial goal of 35 percent. This project was financed with approximately \$650,000 in DWSRF funding (\$162,000 in principal forgiveness) and \$525,000 from Community Development Block Grant (CDBG). This project included replacing problem water and service lines, implementing district metered areas, and installing a radio read meter system. In 2015, the Town was cited by the State for an insufficient fund balance. An aggressive rate increase ordinance was implemented over the next several years, allowing the Town to create a \$75,000 surplus, resulting in a financial turn-around for the Town. This project, completed in October 2018, has significant estimated savings—over 4.3 million gallons water (monthly) and \$26,000 (annually). It will also reduce pumping and chemical costs, staff drive time, and carbon emissions, and it will increase meter reading efficiency.



STATE: VIRGINIA

RECIPIENT: TOWN OF PORT ROYAL

PROJECT: WATER TANK/METERS/
DISTRIBUTION SYSTEM REPLACEMENT

This project originally began with discussions regarding whether the Town of Port Royal should sell their water system to a private company or keep it and undertake the necessary capital improvement projects. The Town decided keeping the system was in the community's best interest. The Town reached out to several organizations, leading to collaboration among several Federal/state/technical assistance entities. This \$1.4 million project received funding several sources—\$990,000 from the Virginia DWSRF program (\$594,000 in principal forgiveness), \$429,000 from USDA, and \$30,000 from Southeast Rural Community Assistance Project (SERCAP). Additionally, the Town received free technical assistance from SERCAP, the Community Engineering Corps, and the Virginia Office of Drinking Water.

Project components included demolition of the elevated water storage tank, installation of a 26,000-gallon above-ground storage tank, construction of housing for booster pumps, and installation of over 5,000 linear feet of waterline and 100 water meters. These capital improvements helped the Town comply with current state regulations and eliminated deficiencies identified in previous sanitary surveys and records. There were many benefits of this DWSRF project: substantially decreased water loss, increased system efficiency, and affordability for the Town's 126 residents.



RECOGNIZED PROJECTS

STATE: WEST VIRGINIA

RECIPIENT: TOWN OF CHAPMANVILLE

PROJECT: PHASE II WATER SYSTEM UPGRADE

The Town of Chapmanville underwent replacement of approximately 3.2 miles of old distribution line in three areas the system operator identified as the worst in the system, representing about 35 percent of the Town's water mains. The primary goal of this project was to correct high water loss levels; nearly half of the purchased water was lost through water system inefficiencies. By decreasing water loss, the Town can invest the savings into future system upgrades and increase infrastructure resiliency and drinking water quality for approximately 300 residents. This project, completed in February 2019, used approximately \$1 million from the WV DWSRF and \$1.5 million from the Small Cities Block Grant program.



United States Environmental Protection Agency
Office of Ground Water and Drinking Water
Infrastructure Branch

www.epa.gov/dwsrf

Office of Water, November 2019

EPA Publication: 816-R-19-010

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participants.

