



Clearwater Water District FY12 Drinking Water Project

SRF Loan #DW 1211 (pop. 90)

\$544,163

Interim Green Project Reserve Justification

Categorical GPR Documentation

1. INSTALLS NEW WATER METERS (Water Efficiency). Categorical GPR per 2.2-2a: *Installing any type of water meter in previously unmetered areas ...If rate structures are based on metered use.* (\$40,260).

Business Case GPR Documentation

2. INSTALLS NEW WELLS AND DISTRIBUTION SYSTEM ELIMINATING THE CURRENT USE OF CHEMICALS AND REDUCING CHEMICAL RESIDUALS (Environmentally Innovative). Business Case GPR per B.4.5-5a, B4.5-5b: *Projects that significantly reduce or eliminate the use of chemicals; Treatment technologies or approaches that significantly reduce the volume of residuals, minimize the generation of residuals, or lower the amount of chemicals in residuals.* (\$503,900).

1. NEW WATER METER INSTALLATION

Summary

- Installation of 46 water meters on all previously un-metered water service connections. In addition to the new water meter component, the overall project also includes drilling of two new groundwater wells and constructing a new distribution system and reservoir to provide a new potable only water distribution system.
- FY12 Loan amount = \$544,163
- GPR portion of loan (AMR) = 7% (\$40,260)

Background

- The existing water system serves approximately 90 people and 46 service connections, all of which are currently unmetered. Water use for the existing system includes drinking water, livestock watering, and irrigation. Total annual water use is estimated at 37 million gallons or 101,060 gallons per day (gpd)¹.
- The overall project addresses public health concerns associated with seasonal high turbidity levels and high levels of disinfection byproducts. The current system uses Wall Creek as its surface water source for the entire water supply and the District is unable to meet water quality standards during the spring runoff.
- Because the existing water system is not metered at individual connections, the Water District charges a flat fee for all users. Therefore, there is no financial incentive for the system users to conserve water. The District is also unable to accurately track water usage and cannot properly assess the system efficiency and leakage.

Recommendations

- The Water Study Amendment¹ recommends drilling two new groundwater wells, constructing a 20,000 gallon water storage tank and constructing a new small diameter water distribution system to provide water supply for domestic only water use. The existing water distribution system and water source (Wall Creek) will remain in place to provide water for non-domestic water use including livestock watering and irrigation.
- The new domestic-only water system will include installation of water meters on all service lines.
- The Clearwater Water District will implement a rate structure for the new domestic-only water usage.

Conclusion

- Metering of water consumption is an important conservation measure because providing a structured water rate based on usage will provide an incentive for system users to conserve water.
- Installing water meters will also allow the Water District to more accurately track water loss and leakage.
- **GPR Costs:** Installing water meters on all 46 service connections = \$40,260²
- **GPR Justification:**
 - The project is Categorical GPR-eligible (Water Efficiency) per Section 2.2-2a: *Installing any type of water meter in previously unmetered areas...if rate structures are based on metered use*³.

¹ Clearwater Water District Water Study Addendum, April 2012, TD&H Engineering

² Feb. 6, 2015 Engineer's Cost Estimate – TD&H Engineering

³ April 21, 2010 EPA Guidance for Determining Project GPR-Eligibility, Attachment 2, p. 7

2. NEW WELLS & DISTRIBUTION SYSTEM

Summary

- Two wells, a 20,000 gallon storage reservoir and distribution system will be constructed to supply the Water District with potable only water. The existing water source (Wall Creek) and distribution system will still be used to supply non-potable water such as livestock watering and irrigation. Because the existing system will no longer be supplying potable water, it will not require treatment from the existing treatment plant.
- The new process will significantly reduce the use of chemicals, chemical residuals, and the amount of product water required for backwashing.
- Loan amount = \$544,163; GPR portion of loan = 93% (\$503,900)
- Reduction in chemical use = 95%

Background

- The current water supply for the Water District is surface water via Wall Creek. An existing treatment plant, constructed in 1983, currently provides treatment by means of a mixed media pressure filter with chemical feed for coagulation along with a filter-to-waste after backwashing. The system also requires disinfection by means of a sodium hypochlorite solution.
- During the spring runoff, the District is unable to meet water quality standards due to high turbidity levels.
- The District has had instances of excessive levels of disinfection byproducts immediately downstream of the treatment plant.

Recommendations

- The Water Study Amendment¹ recommends drilling two new groundwater wells, constructing a 20,000 gallon water storage tank and constructing a new small diameter water distribution system to provide water supply for domestic only water use. The existing water distribution system and water source (Wall Creek) will remain in place to provide water for non-domestic water use including livestock watering and irrigation.
- As a result of the recommended project, the District will no longer be required to treat the water supplied by Wall Creek. The mixed media filtration plant and use of chemical injection for coagulation will not be required. Also, use of finished water for backwashing of the filter media will not be required.
- Chlorine disinfection of the existing surface water source will no longer be required since the existing system will only be supplying water for non-potable uses. The new wells that will be supplying the District's potable water will be equipped with a chlorination system, but with the use of groundwater instead of surface water, it is anticipated that the need for chlorination will be minimal. It is estimated that the chlorination requirements will be reduced by 95%.

Conclusion

- By no longer having to treat the water supply from Wall Creek, the use of chemicals, backwash requirements and chlorine disinfection at the existing treatment plan will no longer be necessary. This significantly reduces the use of chemicals and reduces the amount of chemical residuals in the system. It also reduces the amount of finished water required for backwashing the filter system.
- **GPR Costs:** two groundwater wells, storage reservoir and distribution system = \$788,040⁴
GPR-portion of costs = \$503,900
- **GPR Justification⁵:**
 - The process is Categorically GPR-eligible (Innovative) per Section 4.5-5a: *technology that significantly reduces the use of chemicals*, and by Section 4.5-5b: *technology that reduces volume of residuals, minimize the generator of residuals or amount of chemical in residuals*.

⁴ Feb. 6, 2015 Engineer's Cost Estimate of entire system, funding sources other than SRF to make up the balance – TD&H Engineering

⁵ April 21, 2010 EPA Guidance for Determining Project Eligibility, Attachment 2, p.13