

## **McLaughlin, SD Green Project Business Case**

### **Green Reserve Project Type**

The city of McLaughlin, SD distribution system improvements project is being funded through the Drinking Water State Revolving Fund Loan (DWSRF) Program. The city of McLaughlin currently provides water service to approximately 660 people. The existing distribution system consists of 17,240 feet of polyvinyl chloride (PVC) pipe, 10,720 feet of asbestos cement pipe (ACP), and 7,550 feet of cast iron pipe (CIP). This project proposes to replace approximately 95 percent (17,300 feet) of the cast iron pipe and asbestos cement water lines with polyvinyl chloride pipe. Other improvements include new gate valves, service lines, curb stops and fire hydrants. Because of the age and condition of the current distribution system, and considering the average annual water loss rate of 29 percent, replacing the water lines is critical to improving the water distribution throughout the city. The project will address unaccounted for water loss rate which is higher than the industry-accepted limit of 15 percent. Replacing the water distribution system can be considered 'green' for water efficiency.

### **Documents submitted and reviewed by the State:**

1. "Facility Plan for the Water System in McLaughlin," by Helms and Associates, May 2010.
2. "Capacity Assessment Worksheets for Public Water Systems," Prepared by Lonnie Hach, McLaughlin Utilities Manager, Della Hauck, McLaughlin Finance Officer, and Marlene Knutson, Central South Dakota Enhancement District, March 24, 2011.

### **List of eligible Green Project Reserve components:**

1. Line Replacement = \$2,581,600
2. Water Tower and Other Improvements = \$1,569,450
2. Total project cost = \$4,151,050
3. Total DWSRF Loan/Principal Forgiveness = \$4,151,050/\$3,180,050
4. Total project cost eligible for Green Project Reserve = \$2,369,959

### **Green Reserve Project – Categorical Project:**

This project is not considered categorically green as defined by the *2010 Clean Water and Drinking Water State Revolving Fund 20% Green Project Reserve: Guidance for Determining Project Eligibility* (April 21, 2010).

### **Green Reserve Project – Business Case Evaluation:**

As stated in the USEPA April 21, 2010 Guidance for Determining GPR Eligibility, for traditional projects that are not categorically green, for the project, or components of the project, to be counted towards the 20% requirement, the State project files must contain documentation that a clear business case for the project (or portion) investment includes achievement of identifiable and substantial benefits that qualify as Green Project benefits. The documentation should reference to a preliminary engineering or other planning document that makes clear that the basis upon which the project (or portion) was undertaken included identifiable and substantial benefits qualifying for the Green Project Reserve.

### **Green Project Reserve Type:**

This project meets the water efficiency component of the Green Reserve guidance.

### **Technical Component Evaluation:**

The water distribution system in the city of McLaughlin needs improvement. The existing distribution system consists of 17,240 feet of polyvinyl chloride (PVC) pipe, 10,720 feet of asbestos cement pipe (ACP), and 7,550 feet of cast iron pipe (CIP). The PVC lines were installed in 2005. The city's water is supplied by five wells which are able to produce about 360 gallons per minute. Current design practice is that the water sources should be able to provide for the maximum day demand with the largest producing well out of service. This would not be the case in McLaughlin if the largest producing well was off-line. The city is exploring the option of connecting to the Standing Rock Rural Water System. This system is located in North Dakota and is currently several miles from McLaughlin. Based on water usage records from 2006 to 2009, the city of McLaughlin experienced an average annual water loss of 29 percent. This project will replace approximately 95 percent of the cast iron and asbestos concrete lines within the distribution system. Other improvements include new gate valves, service lines, curb stops and fire hydrants. This project will improve the distribution of water throughout the city and reduce unaccounted for water loss rates nearer to the industry accepted standard of 15%.

### **Financial Component Evaluation:**

The project was chosen because it will reduce unaccounted-for water losses to an acceptable level. The City pumps water from five wells and provides disinfection and fluoridation at the well houses. Water is pumped to a 60,000-gallon elevated water tower and a 300,000 gallon standpipe. In 2010, McLaughlin spent \$31,715 on chemicals and power, which is primarily due to pumping costs. Reducing the amount of lost water will result in less pumping and chemical use, thereby reducing the cost of power and chemicals. From 2006 through 2009, the city produced an average of 57,528,000 gallons of water per year. The power and chemical cost per 1,000 gallons of water produced equals \$0.55. Assuming that the project will reduce water loss from 29 percent to 15 percent the amount of water that will be recaptured annually as a result of replacing the cast iron asbestos cement lines will be approximately 8,054,000 gallons (57,528,000 gallons X 0.14). At a cost of chemicals and power of \$0.55 per 1,000 gallons, the city will realize a savings of \$4,430 per year as a result of the line replacement portion of the project.

### **Green Reserve Project – Evaluation Conclusion:**

The State has determined that this business case identifies clear and substantial technical and financial benefits in accordance with USEPA guidance. As noted above, the green portion of the project will be \$2,369,959. The State contact is Mike Perkovich at 605-773-3128 or mike.perkovich@state.sd.us.