

Drinking Water State Revolving Fund Green Project Reserve

- Final -



Figure 3-1: Spring Complex – View Looking South



City of Lava Hot Springs Drinking Water Project SRF Loan #DW1604 (pop. 410) \$4,400,000

Final Green Project Reserve Justification

Categorical & Business Case GPR Documentation

1. REPLACES 15,000 FEET OF AGING CAST IRON TRANSMISSION PIPING WITH NEW PVC PIPE (Water Efficiency). Categorical GPR per 2.4-1: *Projects that result from a water efficiency related assessment*; Business Case 2.4-4: *Proper water infrastructure management should address where water losses could be occurring...fix them...replacing aging infrastructure.* (\$900,000).
2. REPLACES 11,000 LINEAL FEET OF AGING CAST IRON DISTRIBUTION PIPING WITH NEW 8" & 10" DIAMETER PVC PIPE (Water Efficiency). Categorical GPR per 2.4-1: *Projects that result from a water efficiency related assessment*; Business Case 2.4-4: *Proper water infrastructure management should address where water losses could be occurring...fix them...replacing aging infrastructure.* (\$1,650,000).

1. TRANSMISSION LINE REPLACEMENT

Summary

- Replacement of 15,000 feet of old lead-jointed cast iron (CI) transmission pipe with new PVC to eliminate water loss and maintenance costs due to leakage.
- Loan amount = \$4,400,000
- Pipe Replacement portion of loan = 20% (\$900,000) (Final Installed)

Background

- In 2014 the City repaired 10 or more leaks in the transmission line. The soft lead joints fail on a regular basis. The pipe alignment crosses a creek three times and a canal, where there is potential for contamination.



Exposed Old Transmission Line

- A Water Facilities Planning Study recommended the replacement of the 8” diameter cast iron transmission line from the spring to the storage tank with 8” diameter PVC pipe.
- The new pipe eliminates substantial and numerous water leaks in the transmission line, it prevents entry of contaminated water, and the new pipe provides a more secure water supply.

Conclusion

- By replacing the 15,000 feet of transmission pipe the City is conserving water and providing a more secure water supply.
- Other benefits include reductions in unnecessary O&M expenditures and eliminating potential health hazards associated with waterborne pathogens entering the water system.
- **GPR Costs:** Replacing 15,000 feet of transmission piping = \$900,000
- **GPR Justification:**
The project is Categorically GPR-eligible (Water Efficiency) per Section 2.4-1: *Projects that result from a water efficiency related assessment*; also (Water Efficiency) per a Business Case by 2.4-4: *Proper water infrastructure management should address where water losses could be occurring...fix them...replacing aging infrastructure*¹.

¹ Attachment 2. EPA Guidelines for Determining FY11 Project GPR-Eligibility.
State of Idaho SRF Loan Program

2. DISTRIBUTION PIPE REPLACEMENT

Summary

- Replacement of 11,000 feet of older distribution pipe with new PVC pipe eliminates water losses, provides requisite system capacity, and eliminates the loss of 6.4 million gallons of water per year (MGY), equal to 11% of total system average annual use.
- Loan amount = \$4,400,000
- Pipe Replacement portion of loan = 38% (\$1,650,000) (Final Installed Cost)
- Annual water savings = 6.4 million gallons (MG)

Background

- The City's water distribution system was comprised of a network of thin walled steel, ductile iron, and PVC pipes ranging from 4 to 10 inches in diameter.
- The City's water system formerly utilized a single pressure zone that had typical pressures ranging from 50 psi to 110 psi. Older pipes and joints were susceptible to leaks with high pressures.
- Much of the system was in service for more than 30 years.

Calculated Savings by Eliminating Water Loss

- The total amount of water leakage was determined using a water balance around storage tank outflow compared to metered usage between 2010 and 2013.
- The results of this analysis show that approximately 6.4 MGY was unaccounted for (11% of the water entering the distribution system). Replacing the old distribution pipe conserves this water.

Conclusion

- By replacing the 11,000 feet of distribution pipe the City conserves 6.4 MGY. Other benefits include reductions in unnecessary O&M expenditures, and eliminating potential health hazards associated with waterborne pathogens entering the water distribution system.
- **GPR Costs:** Replacing 11,000 feet of distribution piping = \$1,650,000
- **GPR Justification:**
The project is Categorically GPR-eligible (Water Efficiency) per Section 2.4-1: *Projects that result from a water efficiency related assessment such as water audits*; also GPR-eligible (Water Efficiency) per a Business Case by 2.4-4: *Proper water infrastructure management should address where water losses could be occurring...fix them...replacing aging infrastructure*².

² Attachment 2. EPA Guidelines for Determining FY11 Project GPR-Eligibility.
State of Idaho SRF Loan Program