



**Location:** Salida, CO

**Year:** Ongoing

**Construction Dollar Value:** Estimated at \$0.50M

**Owner:** City of Salida

**Contact:** Jack Lewis, Administrator, 719-539-4555

**Key SGM Staff:** Jerry Burgess, PE; Joe McElroy, PE; Tyler Harpel, EI

**Subconsultants and their project roles:** Mountain Engineering and Testing (Geotechnical Engineer)

## Client Benefits

- Restore the performance of a centerpiece community asset
- Provide a low-maintenance, high-performance pipeline at a reasonable cost

Originally a 1930s 'New Deal' project, the Salida Hot Springs development, transmission line, and pool facility have been a core community asset for over 75 years. Indeed, the hot water transmission line is still the longest geothermal pipeline in the country. When maintenance of the original cement asbestos pipeline became overly burdensome, a new pipeline in a new alignment was constructed in 2003 to replace the old one. Unfortunately, the new line's design did not adequately address heat loss. The resulting cooled water turned the once recreation centerpiece into a source of disappointment and frustration for the City and its citizens.

The City turned to SGM for answers. Recognizing the unique challenges critical to the project's success, SGM consulted with experts in the field of thermal pipeline design. SGM assessed multiple alternatives, including different alignments, insulation systems, and materials of construction with varying thermal properties. SGM has since recommended a cost-effective, low-temperature-loss solution for the 19,000-LF pipeline project. SGM recommended a high-density polyethylene (HDPE) pipeline running along a higher elevation alignment with minimal groundwater occurrence. HDPE was selected because it has suitable insulating properties. Furthermore, HDPE is low cost and highly durable with high joint strength. Groundwater was avoided to minimize the heat-sapping effects of water contact. Creative design approaches were required to accommodate the high operating temperature, which reduced the HDPE line's pressure rating by about 50%. The project is currently waiting for final easements acquisition before proceeding to construction.

## Challenges

- Design of a long, high-temperature, relatively high-pressure water line with multiple objectives, including minimization of heat loss, structural failure, and installation cost
- Difficult access and varied construction required consideration of including horizontal drilling and pipe bursting construction methods for selected alignment sections