

Executive Summary

The Pigeon Lake development area is growing and lakeshore use is intensifying creating increased wastewater demands and environmental risks. The area municipalities and Alberta Environment have made positive strides in recent years prohibiting land spreading and encouraging (in some cases requiring) termination of on-site disposal practices. This has increased awareness that additional municipal wastewater capacity is required to deal with the additional truck disposal demand. A watershed basin wide (regional) wastewater solution is required to provide a suitable level-of-service to area users and ultimately assist to protect lake water quality.

The Pigeon lake Regional Wastewater Planning Committee (the Committee) retained Associated Engineering Alberta Ltd. (AE) to complete this Preliminary Design for the Regional Wastewater System, as recommended by the Pigeon Lake Wastewater Strategy and Master Plan (AE, October, 2007).

The objectives of the report were to:

- determine regulatory and permitting requirements
- determine a preferred transmission pipeline alignment
- conduct hydraulic analysis and determine transmission line sizing and lift station configuration
- determine necessary treatment upgrades
- develop preliminary cost estimates for transmission, treatment, and non-construction costs.
- development of a project staging plan

The preliminary design recommends a regional wastewater system design basis consisting of the following:

- a South Transmission pipeline approximately 26 Km long, with 3 lift stations;
- a North Transmission pipeline approximately 11 Km long, with 2 lift stations;
- a metering facility to monitor flows ; and
- Treatment upgrades, including immediate increased storage, and future additional facultative and anaerobic capacity.

The total estimated cost to implement in current day dollars is \$23.2 Million, which would be implemented in the following basic sequence:

- Stage 1 - \$11,100,000:
 - Pipeline and Lift Stations \$6,900,000
 - Metering and Treatment \$2,750,000
 - Engineering and Administration \$1,350,000
- Stage 2 - \$4,000,000:
 - Pipeline and Lift Stations \$3,300,000
 - Engineering and Administration \$ 700,000

- Stage 3 - \$8,200,000
 - Pipeline and Lift Stations \$3,500,000
 - Treatment \$3,500,000
 - Engineering and Administration \$1,200,000

Provincial funding (up to 90%) may be provided for these regional components of the system under the Alberta Municipal Water and Wastewater Partnership (AMWWP) Water for Life grant program.

The regional transmission systems could be developed at any time to lower truck haul distances and provide a future connection point for local collection systems.

Treatment and regional pipeline systems would be developed and operated by the responsible municipalities on a shared basis, likely with some type of regional governance structure. The Committee plans to continue governance discussions to further define future administrative and operational details as the project proceeds.

The key recommendations for the preliminary design are:

- The Committee adopts the design criteria as presented in the report for the detailed design.
- The Committee adopts the proposed North and South preliminary pipeline alignments for implementation.
- The Committee request grant funding approval through the AMWWP Water for Life Program.
- The Committee proceeds with the detailed design, tendering and construction of the pipelines, metering facility, and wastewater treatment upgrades when funding is available.
- The Committee continue to define the future governance and operations structure and work with the Pigeon Lake First Nation to formalize the partnership.