

Penn West Intake

Penn West Petroleum Ltd.

The Penn West Lobstick Cardium Water Intake System is located on the North Saskatchewan River in Brazeau County, approximately 15 kilometers outside of Drayton Valley. Penn West was experiencing low infiltration rates at their water intake system due to build-ups in the intake system's piping and at the intake piping slotted perforations. Sameng was retained to re-establish the original system capacity and utilize the full draw volumes licensed to Penn West at the location.



Location

Brazeau County, AB

Key Team Members

Alex Petrosky,
E.I.T.

Nico Wyngaarden,
P. Eng.

The primary objectives of the project were to:

- Assess existing infrastructure conditions due to reduced water infiltration rates;
- Provide improvement recommendations;
- Perform preliminary & detailed engineering designs of the proposed work;
- Tender period & construction period engineering services.

After evaluations of the existing infrastructure was completed via pump testing and river water elevation data analysis, the recommendation was to rehabilitate the existing system under existing Alberta Environment licenses.

The following tasks were completed prior to construction:

- Sameng completed bathymetric river bed surveys to assess the river flows and depths to accurately determine system infiltration limits & flood elevations (for construction purposes);
- System rehabilitation preliminary design ideas were created. Pipe material, bedding material, bed area limits and other variables were incorporated into the engineering designs;
- Sameng obtained all regulatory approvals on behalf of the client:
 - Navigable Waters Protection Act, DFO, Water Act and Tourism and Provincial Parks Act.
- Bid documents and construction specifications were created for contractor bidding and procurement.

Project construction included the following items:

- Sheet-pile cofferdam construction and removal;
- Pipe end sections (as per excavation limitations) were replaced with new perforated steel pipes;
- Remaining pipe sections per excavation limitations were 'reamed' out to re-establish original design inner diameters. Following the reaming, pipe sections were re-lined with plastic piping to reinforce pipe sections and lower pipe friction levels.

Additionally, construction period engineering services were performed, including on-site construction engineering and management. Lastly, post-construction engineering services, including as-built drawing preparation and payment finalization recommendations were performed by Sameng.