Background

- The St. Mary and Milk Rivers are international transboundary waters shared by the United States and Canada. Their apportionment is currently overseen by the International Joint Commission (IJC).
- This project considers a potential water conveyance option via a pressurized pipeline to transport water from the St. Mary River to the Milk River.
- Figure 1 illustrates that the United States received significantly less than their water entitlement, and Canada has received more than their allocated water entitlement [1].

Intake & Pumphouse

- Frequency analysis to estimate the St. Mary River 100-year flood flow rate.
- HEC-RAS model with floodplain map to determine inlet structure location.
- Intake structure is located on an outside curve of the river to minimize the disruption of natural flow.
- Pumphouse is set back 100 m from the river to avoid the 1-in-100-year floodplain.

Pipeline Path

- Pipeline pathways modelled in QGIS.
- Pipeline pathways aimed to avoid:
  - Existing roadways
  - Existing buildings
  - Existing bridges
  - Existing utilities
  - Wetlands
  - Elevation changes
  - Horizontal turns

Pipeline Specifications

- Diameter: 1.42 m (54”)
- Length: ~21 km
- Material: Cement mortar lined steel

Outfall Structure

- Energy dissipation structure needed at outlet to minimize damage to discharge channel.
- The most effective means of dissipating the excess energy is in a stilling basin designed for a hydraulic jump [2].

Pump Specifications

- Franklin Electric - FPS Model 30FMC 1170
- 1170 RPM
- Four Stages
- Four in Parallel

Treaty Impacts

- The pipeline will not impact the treaty water entitlements as outlined in the 1921 Order or the 1991 and 2001 Letters of Intent.
- Figure 9 below depicts the treaty impact of operating at the maximum designed flow rate of 3.5 m3/s on the percent of water entitlement received.