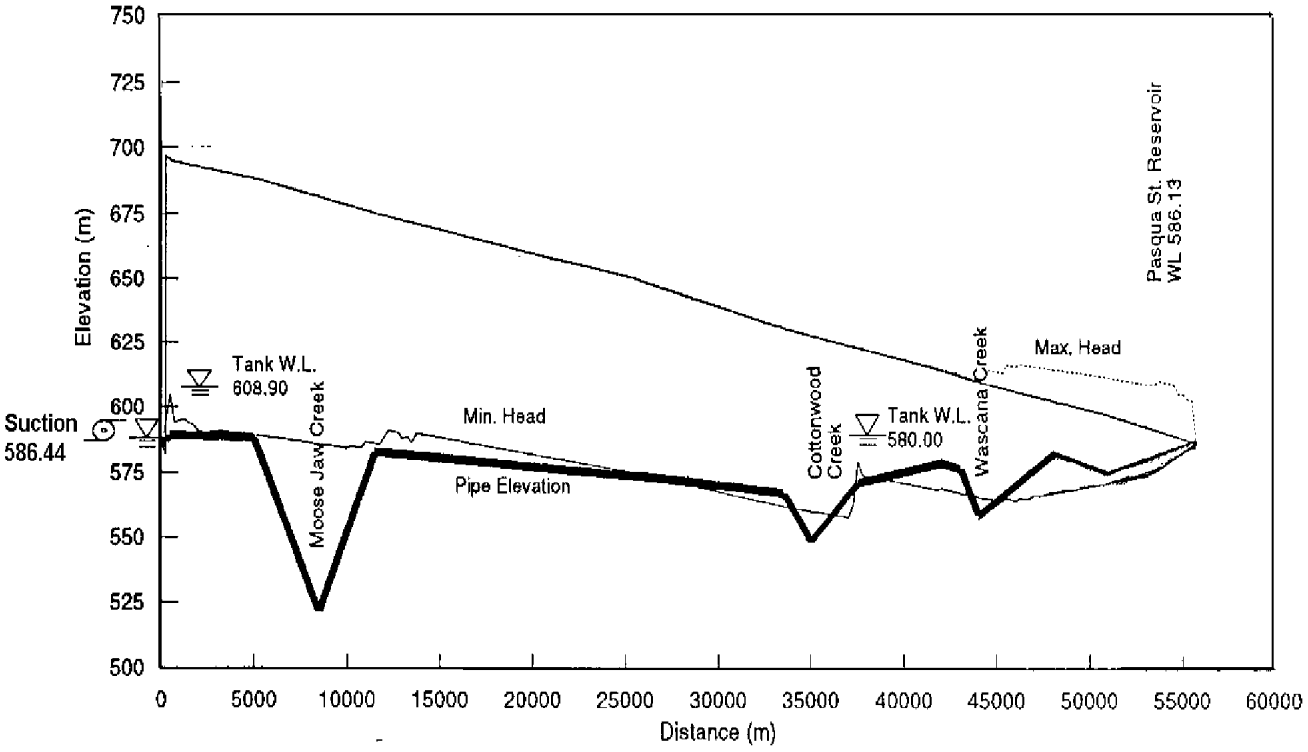
Environmental Hydraulics Group	Project:	Water Transmission Line from Buffalo Pound to Regina – HT	1995-085
Hydraulic Transients (HT) - Water & Sewage	Location:	City of Regina, Saskatchewan	
	Client:	Associated Engineering Ltd.	
	Completed:	January 1996	

Description: In 1988, EHG was retained to conduct a transient analysis for a 56 km water transmission line. This was later upgraded to convey flow from the existing 1200 l/s to the ultimate 2600 l/s, with the replacement of a new 1050 mm pipeline beside the existing 900 line. EHG analyzed the existing (1988) condition and the upgrade (1995). Detailed surge analysis was conducted for the ultimate condition.

Benefit to the Client:

1. The Buffalo Pound water pipeline did not experience high upsurge pressure problems.
2. In the absence of surge control devices, vapour pressure and large cavities along the whole line may have been caused by emergency pump trip-out (due to power failure).
3. The two existing one-way surge tanks (7.92 m diameter and initial water level 608.9 m) inside the WTP were adequate to control the downsurge transient for the existing (1995) and the proposed (1996) condition; however, for the ultimate design condition, an additional surge tank with 5 m diameter, 15 m^3 capacity and 580 m initial water level needed to be installed at Stn. 38+750 m.
4. The WTP surge tank outlet valve needed to be closed 5 minutes after pump trip-out in order to prevent dewatering.
5. For good engineering practice, one-way acting air valves had to be placed at the high points (5) along the line.
6. For the existing air valve installation, the vacuum breaker component had to be isolated during the pump operating period. At the time of the pipe refilling or cleaning period, the isolator could be removed to let air in.
7. During the normal pump shut down condition, the pumped discharge control valve had to be closed in less than two minutes.



600 Cochrane Drive, Suite 500, Markham, Ontario, Canada L3R 5K3.
www.ehg-inc.com
www.genivar.com