



*Greater Vancouver Regional District, Annacis Island WWTP,  
Vancouver, BC*

The Greater Vancouver Regional District, Annacis Island WWTP is a secondary activated sludge plant with eight digesters receiving 72 tons of blended primary and waste activated sludge per day. Blended sludge is stabilized in three thermophilic digesters and four holding vessels before being dewatered and trucked off site.

**BYO-GON PX-109® Treatment Program**

The Annacis Island Plant began a BYO-GON PX-109® treatment program on a trial basis with the goal of improving digester performance and reducing biosolids production. The trial period extended over 12 months. Product was added into the blended sludge. During a portion of the trial period, it became necessary for the Annacis Plant to also treat undigested sludge shipped to them from a neighboring plant. This resulted in a sudden and prolonged increase in loading to the Annacis digesters.

This case study compares the performance of the digesters before, during, and after the trial period. Results are shown for a Base Period prior to treatment with BYO-GON PX-109®, the full BYO-GON PX-109® Trial Period (mid October, through August) ; the period when higher loading prevailed; and the four month Post Trial when the digesters were no longer being treated with BYO-GON PX-109®.

**Results**

Time Period	Feed Sludge Tpd	% VS Red. Across Digesters	Sludge Yield SY Tpd in/Tpd out	Normalized Yield (82.2*SY)Tpd
Base	75	55%	56%	47
Full Trial	82	59%	44%	36
High Loading	96	59%	42%	34
Post BYO-GON	90.8	52%	49%	41
<b>% Change</b>				
Base: Full Trial	10%	9%	-24%	
Base: High Loading	28%	9%	-28%	
Full Trial: Post BYO	10%	-13%	13%	
High Loading: Post BYO	-5%	-12%	18%	



Even though loading during the trial increased by up to 28% during the higher loading period, the digesters continued to treat the sludge more thoroughly than during the base or post trial period. This is supported by the greater volatile solids reduction and lower sludge yields during the trial than before or after. It is noteworthy that performance reverted towards pre-trial levels during the post trial period. Of particular importance is the fact that the digesters remained stable and maintained an improved level of treatment even with the addition of sludge from another treatment plant.

During the high loading period, stability (measured by standard deviation) was 72% better than during the base period and 17% better than during the post treatment period. Potential savings from improved treatment can be estimated by applying the difference from the normalized tons per day out achieved during the trial and non-trial periods.