

November 21, 2019

Attn: Valley WasteWater

**Re: Canadian Wastewater Solutions Package Treatment Plants – Cold Weather Alberta Environmental Conditions**

Dear Sirs,

This letter outlines the use of Canadian Wastewater Solutions package sewage treatment plants in severe Alberta winter conditions.

It is recognized that Alberta winter environmental conditions include extended periods of extreme cold. Typical northern Alberta ambient environmental minimum temperature criteria are approximately  $-45^{\circ}\text{C}$ .

The Canadian Wastewater Solutions package treatment plants are similar to many other aerobic treatment plants intended for onsite applications. As with all package treatment plants it is important to consider cold weather effects. The Canadian Wastewater Solutions package treatment plants are no more sensitive to these conditions than other package treatment plants. Neither do they have any special capabilities that obviate the need for careful planning and construction to deal with these effects.

The tank(s) must be buried with sufficient depth to avoid frost penetration. This depth should be determined by consultation with local building authorities. Similarly, piping must be buried at sufficient depth to avoid frost penetration. Where this is not possible the piping must be insulated and/or heat traced.

Riders and lids should be insulated to avoid excessive cooling through the riser and lid.

The aerobic plants use air that is compressed and injected into the process. The source location of the air should be chosen to avoid injecting cold air into the process which will slow the biological processes and potentially freeze or damage the package treatment plant.

This note does not address issues associated with the design, construction and operation of effluent disposal systems including ground disposal.



Dr. Stephen Ramsay P.Eng.