

2009 Summerside Pollution Control Annual Report



Figure #1 Aeration tank of Biological Nutrient Removal (BNR) System.

The year 2009 with a full year of operation went well. We have had some growing pains with the new plant but it is working well and giving great results with the bio-solids production and the effluent discharge.



Figure #2 Widescreen of Biological Nutrient Removal System.

The new facility took the treatment process one step further. A Biological Nutrient Removal (BNR) System was added after the primary clarifiers. A BNR is basically a series of tanks containing cultivated bacteria, specifically grown to remove 90-99% of the waste (organic matter, ammonia, nitrates and phosphorus) in the incoming wastewater. The cultivated bacteria are separated from the wastewater by gravity settling in the last of the series of tanks and are returned to the start of the BNR to start the process again. The last process before the wastewater is released to the bay is disinfection by ultraviolet lights, instead of chlorination. Ultraviolet lights changes the DNA of the pathogenic bacteria, so they can not reproduce.

Our effluent is required to meet certain regulations. Our effluent is not allowed to exceed 25 milligrams per litre of total suspended solid material, 25 milligrams per litre of (CBOD) Carbonaceous Biological Oxygen Demand and a fecal coliform count of 200 MPN per 100 millilitre, as a five day average, with a maximum of 400 MPN per 100 millilitres.

The treatment plant exceeded effluent quality expectations! The average total suspended solids for 2009 were **4.8** milligram per litre. The carbonaceous biological oxygen demand averaged less than **10** milligrams per litre for 2009, while our effluent fecal coliform count averaged **28** MPN per 100 millilitre for the year.



Figure # 2 Summerside Water Pollution Control Biosolids Facility.

The second part of the Treatment Plant is septage receiving station and a biosolids processing/handling facility (N-Viro process). 2009 was the last of dumping raw sewage on land. It must be taken to treatment plants for processing. We have been seeing a large increase in septage haulers using the treatment facility. The biosolids facility treats all of the septage receiving material and the wastewater treatment solids and produces an agricultural fertilizer with the finished stabilized product. The biosolids are first dewatering using Fournier presses, then lime and cement kiln dust are added to the biosolids to dry it further and increase the pH above 12. Once all of the additives are mixed in, the biosolids are passed through a large furnace to destroy all of the pathogens and dry the product further. The finished pile is allowed to cure for 12 hours before being moved. We have approximately 6 months storage capacity for our finished product. The biosolids plant produced approximately 2200 metric tones of finished product in 2009.