Reference Guide to Wastewater Treatment Terminology

Proper management of wastewater ensures the protection of public health and the environment. Treatment can encompass a number of steps to clean wastewater from start to finish.

Source control focuses on the reduction or elimination of contaminants before they enter the sewer system rather than treating them after they have been mixed with other wastes. The CRD has been delivering a Regional Source Control program since 1994.

Preliminary treatment removes grit (sand and gravel) and screens out coarse solids (rocks, rags, plastics, etc.) which are then sent to landfill. Preliminary screening is currently in effect at the CRD's Clover Point and Macaulay Point pump station and outfall facilities, where wastewater is screened down to six millimetre sized particles. The screened wastewater is discharged through two deep ocean outfalls into the marine waters of Juan de Fuca Strait.

Primary treatment is a physical process where gravity is used to settle solids from wastewater, and grease, oil and fat are skimmed off.

Secondary treatment removes dissolved oxygen-demanding organic substances from wastewater by using bacteria to convert degradable organic matter into bacterial cells. The wastewater is then filtered by separating treated liquid from grown bacterial cells.

Tertiary treatment is a final process to improve the quality of the effluent discharged after the wastewater treatment process. Membrane filters are often used for tertiary treatment. Advanced oxidization or UV systems can further reduce levels of pharmaceuticals and chemicals commonly found in wastewater.

Anaerobic digestion is the digestion of organic solid materials in wastewater in the absence of oxygen. The anaerobic digestion treatment process also produces biogas, which can be used as a fuel source.

Gasification is a process that converts organic materials such as wastewater sludge, wood waste and kitchen scraps, into carbon monoxide, hydrogen and carbon dioxide. This is achieved by reacting the material at high temperatures without combustion, with a controlled amount of oxygen and/or steam, to produce a gas mixture called syngas.