

How is wastewater treated?

Wastewater management

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

Generally, wastewater treatment involves the following steps:

1. Wastewater flows from the sewer system into the wastewater treatment facility.
2. Large debris, trash and grit are screened out and taken to the landfill.
3. Most of the remaining solids (organic) settle to the bottom of the tank and are removed for separate treatment. (Primary treatment)
4. The resulting partially clarified liquid is often treated with microbes to break down any remaining organic solids. (Secondary treatment)
5. The secondary treated wastewater may be disposed of directly into the environment through an approved outfall, or filtered and disinfected and used for non-drinking uses. (Tertiary treatment)

Biosolid management

1. One option for treatment for organic solids is gasification to produce heat and syn-gas. Gasification, properly controlled, reduces complex pollutants to more simple substances, but heavy metals, as an example, still remain in the ash of the process. In addition, lighter pollutants must be prevented from exiting the process in the flue gas to protect the air environment. Syn-gas can be burned to generate electricity.
2. A second option for organic solids treatment is bio-digestion. This option takes the remaining organic solids and breaks them down in a digester, resulting in disinfected biosolids that will still carry pollutants such as heavy metals. Digestion produces biogas, which can be burned to generate power.
3. Treated biosolids from bio-digestion usually have most water removed (squeezed, thermally dried) in preparation for other uses like soil conditioners or fuel pellets.
4. Dewatered biosolids can be transported to a waste to energy facility, further dried, mixed with non-sewage garbage or excess kitchen scraps and utilized as fuel in integrated waste management systems, e.g. gasification.

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Wastewater treatment types

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 in partnership with core municipalities have been operating a Regional Source Control program since 1994.

Preliminary treatment (screening) removes coarse solids (rocks, rags, plastics, etc.) which are then sent to landfill.

Primary treatment screens wastewater, and performs some rudimentary treatment to remove sand and gravel and skim off some amount of grease, oil and fat.

Secondary (or biological) treatment is the federal minimum standard for water bodies and marine discharge after 2020. It removes dissolved oxygen-demanding organic substances by using bacteria to convert degradable organic matter into bacterial cells. The wastewater is then filtered by separating

treated liquid from grown bacterial cells. Secondary treatment can also reduce some pharmaceuticals and chemicals of concern from wastewater.

Tertiary treatment includes enhancing the quality of treated water in a variety of ways after the wastewater treatment process, including nutrient removal, membrane filtration, and ultra violet disinfection.

How do we currently treat wastewater in the core communities?

Preliminary treatment 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 and the screened material is trucked to the Hartland Landfill.



The blue boundary indicates the boundary of the westside communities partnership.

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