Design Guidelines for Wastewater Pumping Stations

Protection of All Surface Waters of the State

Shellfish Harvesting Waters Protection Effective June 1, 1996
All Surface Waters Effective July 1, 2011

The Maryland Department of Environment (MDE) hereby establishes the following design guidelines for waster water pumping stations. These guidelines apply to the pumping stations being renovated to increase capacity and for proposed new pumping stations.

A.   Case I   -   The wastewater pumping station <u>does not provide</u> a telemetering alarm system, a standby pump unit, a stationary auxiliary power source, or a pump-around connection.

- **A 24-hour emergency wastewater storage capacity must be provided.**

B.   Case II   -   The wastewater pumping station <u>provides</u> a telemetering alarm system, a standby pump unit, a stationary auxiliary power source, and a pump-around connection (all four items).

      (a)   Pumping Capacity (Q_p) = or < 150 gallons per minute (gpm), or serving Equivalent Dwelling Units (EDU) = or < 200

- **No additional emergency wastewater storage is required**.

      (b)   Pumping Capacity (Q_p) > 150 gallons per minute (gpm), or serving Equivalent Dwelling Units (EDU) > 200

- **A 2-hour emergency wastewater storage is required.**

- An emergency waste water storage capacity with a detention time less than two hours may be approved for renovation of a pumping station, only if:

      (1)   There is no physical means to provide the required storage capacity due to site restriction at the premise of the pumping station and/or

      (2)   The pumping station has had excellent operation records without Overflow of wastewaters at the premise of the station in the past five years.

* MDE may approve an emergency wastewater storage with a detention time less than 2 hours, on a case-by-case basis, subject to analysis of the substantiated information furnished by the applicant.

The detention time of an emergency wastewater storage capacity is defined as:

Total Wastewater Storage Time $+$ Wastewater Traveling Time $=$ 2 Hours

(1)   The traveling time of land overflow wastewaters will be calculated at 1 foot per second (fps).

(2)   The wastewater storage time will be calculated by dividing the total storage capacity with the design average daily flow (Q_a).

$$Q_a = 0.0668 \text{ x } Q_p^{1.2}$$

Where, $Q_a =$ average daily flow, in gpm

$Q_p =$ pumping capacity, in gpm

(3)   The total storage capacity includes:

- the available excess storage in the wet well above the elevation of high water alarm to the elevation where the first sewer service connection is made or the sewer system's lowest ground elevation,

- the available storage in the wastewater collection system up to where the first sewer service connection is made or the sewer system's lowest ground elevation , and

- the storage basin provided, if necessary.