

Absorption Requirements



The amount of water that a drain field must be capable of absorbing is specifically defined by the Municipality of Anchorage (MOA) as 150 gallons per day, per bedroom, of the serviced residence. This corresponds to the following absorption requirements:

- 2 bedroom house: 300 gallons per day
- 3 bedroom house: 450 gallons per day
- 4 bedroom house: 600 gallons per day
- 5 bedroom house: 750 gallons per day

It is important to note that the septic system must be capable of *absorbing* the required volume and not just *accepting* it. In other words, the ability to introduce 450 gallons into a drain field serving a 3 bedroom house does not mean that the system is adequate. The engineer must confirm that the water is being absorbed at an adequate rate.

Monitoring Tube



In order to perform the SAT, a functional monitoring tube must be present in the drain field. The monitoring tube allows the field engineer to measure the liquid level in the drain field. If a monitoring tube is not present then arrangements must be made for a contractor to install one. A list of the typical costs associated with this can be found in our [cost list](#).

Septic Tank and/or Drainfield Pumping



If the septic tank has not been pumped in the last 12 months it will be necessary to have it pumped in order to obtain a municipal [Certificate of On-site Systems Approval](#). Even if the tank has been pumped in the last 12 months, it may be necessary to pump the tank in order to safely run the SAT and/or ensure the property owner the maximum chance of passing the SAT.

The advantages of pumping the septic tank immediately prior to performing the SAT are summarized as follows:

- **SO THE BASEMENT WON'T GET FLOODED!:** During a SAT, a considerable amount of water is added to the drain field. If it is overfilled, it may back-up into the septic tank. If the septic tank is empty, the water will merely collect in the tank. However, if the septic tank is full (not pumped), the back-up from the drain field
- May result in flooding the residence. When there is a significant drop in elevation from the house to the septic tank and/or drain field, it may be physically impossible to cause a back-up. In such cases, it may be feasible to avoid pumping the septic tank. In most situations, there will be a potential for backing-up water into the

house; therefore, the engineer will require that the septic tank be pumped. Under no circumstances should the drain field be pumped, simply because it will reduce the chances of the drain field passing an adequacy test (see next section).

- **PROPERTY OWNER CAN RESUME NORMAL WATER USAGE:** After the drain field is filled with the required amount of water, the field engineer may need to monitor (for up to 24 hours) the recovery of the drain field. If the septic tank is empty, the property owner will be able to use water in the residence normally since wastewater will merely flow into the empty septic tank and not reach the drain field. However, if the tank is full (not pumped), any water used in the residence will flow into the drain field and adversely affect the results of the adequacy test. In short, if the tank is not pumped, the resident may need to severely restrict water usage for up to 24 hours.
- **PROPERTY OWNER SAVES MONEY!:** The engineer will usually want to inspect the drain field before the septic tank is pumped so that the normal operating level can be observed. In some cases, the engineer can visually determine that a drain field is failed (operating with an excessive amount of water in it) without having to run the adequacy test, saving the property owner money. If the tank and/or the drain field are pumped prior to the engineer's inspection, the liquid levels will be artificially low, leading the engineer to believe an adequacy test is justified. Consequently, he/she will proceed with the test on a system that is certain to fail to meet the necessary absorption requirements.
- **PUMPING THE SEPTIC TANK PREMATURELY OR PUMPING LIQUID OUT OF THE DRAINFIELD CAN REDUCE THE CHANCE OF A SYSTEM PASSING THE ADEQUACY TEST:** A drain field fails progressively over its life of operation (see [Failed Septic System?](#)). This progressive failure causes the liquid level in the field to rise into the uncontaminated drain rock, where the liquid can be absorbed into surrounding soils. This rising liquid level also increases the pressure below the water line, increasing the absorption rate. This progressive failure occurs until the system becomes so full that it eventually backs-up into the residence or overflows onto the ground. When a drain field is pumped, the liquid level is lowered to a level where the drain rock and soil interface is more contaminated and the absorption rate is less. In short, the level in the drain field will have been lowered into the failed portion of the system. If the engineer is not aware of this condition, he/she will not introduce enough water into the drain field to get it above the normal operating level and into the cleaner portion of the system where water can be more easily absorbed. This same condition occurs when a septic tank is pumped in the week prior to an adequacy test. During the time the septic tank is re-filling (after being pumped), no water will reach the drain field. This will allow for the liquid level in the drain field to drop down into the failed region. In order to maximize the chance of passing an adequacy test, water should be added to a drain field that is operating at its normal liquid level, so that it can be filled into the uncontaminated portion of the system.

Septic Adequacy Test



The septic system adequacy test is performed as follows:

- The liquid level in the drain field monitoring tube/s is measured
 - A hose and flow meter are connected to an outside faucet
- The water is turned on and introduced into a drain field clean-out or monitoring tube
 - The amount of water introduced and the rise in the liquid level are recorded throughout the filling period. This information is used to calculate the gallons per inch of rise.
 - Once the required amount of water has been introduced, the flow is stopped.
 - The drop in the liquid level is monitored for as long as 24 hours and the total absorption rate calculated.

The engineer then evaluates the data and determines whether the system meets municipal absorption requirements. The MOA considers the data from the adequacy test to be valid for up to two (2) years. Consequently, they will issue a Certificate of On-site Systems Approval based upon the data for up to two (2) years after the testing date. If the system is deemed to be failed, an upgrade is usually the recommended course of action.

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