

## Guidance for variable speed pumps

Pumps should be set to achieve required turnover rate for water quality, based on the year of pool construction. Pre-1993 pools may have had a lower turnover rate and the pipes may not be able to handle an increase in water flow.

The following are acceptable ways to determine if the pool is compliant with drain safety requirements. A Drain Safety Data Sheet is still required for each pumping system.

1. Preferred method: The flow rate for the drain cover exceeds the maximum pump flow at the highest speed or rpm setting. This is for either a dual drain (each cover must exceed the maximum pump flow), or an UNBLOCKABLE drain (usually greater than 32 inches such as a channel drain), or a single drain with a secondary method to prevent bather entrapment. A drain safety data sheet must be submitted each year. This method can be found in APSP-7.
2. The flow can be calculated using pressure and vacuum readings. If done this way, the filter needs to be backwashed before the readings are taken. All valves should be in the most open position. Pictures should be taken of the readings on both gauges and kept in the file. There is a device available which combines both gauges into one for a TDH reading which can be used, and a picture of the gauge should be added to the pool file. All pools which need a flow reduction for compliance must have a working flow meter for field verification. Pictures of the gauges as well as a drain safety data sheet must be submitted each year prior to permitting. This method can be found in APSP-7.
3. Plan review: Some very large variable speed pumps will have extremely high maximum flow rates. The piping used will reduce the flow in the system. If the flow shown on a variable speed pump curve exceeds the maximum flow for the proposed drain covers, a conditional approval can be given, but this will REQUIRE compliance with one of the methods listed above prior to permitting. A drain safety data sheet will need to be completed for the file prior to permitting.
4. For any other approval which does not comply with the above options, contact your PTSI Regional Specialist.

**Since variable speed pumps can be changed to increase or decrease the flow, all systems with variable speed pumps with maximum flows which could exceed the drain cover rating will be required to have a properly installed (per manufacturer's instructions) working flow meter.** The pool permit should be conditioned to maintain the speed setting (rpm) determined to be in compliance with drain safety.

Field verification of the drain safety data sheet must be completed at every inspection. A reading from the flow meter must be recorded on the inspection sheet during all inspections if there is a flow reduction. If the flow meter for any system with a flow reduction or a variable speed pump which could exceed the rating for the drain covers stops working, the permit should be denied or an Intent to Suspend issued. This applies to both circulation and feature pumps.

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