

## 12VAC5-590-10. Definitions

"Source water capacity" means the maximum amount of water that the Department of Health and the Department of Environmental Quality determines to be available for withdraw from a surface water before any treatment. See 12VAC5-590-830.

## 12VAC5-590-830. Surface water sources; quantity; quality; development structures.

A. A surface water source includes all ~~tributary~~ streams, ~~rivers, and drainage basins, natural lakes, and~~ other bodies of natural or impounded waters, and the tributaries thereto, artificial reservoirs or impoundments above the point of water supply intake.

B. The source water capacity shall:

1. Be adequate to supply the water demand of the service area;
2. Provide a reasonable surplus for anticipated growth; and
3. Be adequate to compensate for all losses, including evaporation, seepage, flow-by requirements, etc.

C. Waterworks that have an operation permit with an effective date on or before [INSERT THE EFFECTIVE DATE OF THE REGULATIONS]; the ~~The~~ Department determined the safe yield of the surface water source ~~was shall be determined~~ as follows:

1. Simple intake (free-flowing stream): ~~The safe yield was defined as~~ the minimum withdrawal rate available during a day and recurring every 30 years (30 year - one day low flow or 1Q30). To generate a 1Q30 ~~the~~ report ~~for this~~, data ~~was is to be~~ used to illustrate the worst drought of record in Virginia since 1930. If actual gauge records ~~were are~~ not available for this, gauges ~~could are to~~ be correlated from similar watersheds and numbers ~~would are to~~ be synthesized; and
2. Complex intake (impoundments in conjunction with streams) ~~;~~ The safe yield was defined as the minimum withdrawal rate available to withstand the worst drought of record in Virginia since 1930. If actual gauge records ~~were are~~ not available, correlation ~~could is to~~ be made with a similar watershed and numbers synthesized in order to develop the report.

~~Note: Local governments may request this aid from the State Water Control Board (SWCB) by contacting either the Health Department's Office of Water Programs or the SWCB's headquarters office in Richmond.~~

D. For waterworks seeking a construction permit or operation permit after [INSERT THE EFFECTIVE DATE OF THE REGULATIONS]; the Department shall determine the source water capacity on any applicable withdrawal limit in a Virginia Water Protection permit pursuant to 9VAC25-210 and § 62.1-44.15:20 of the Code of Virginia.

E. If a Virginia Water Protection permit does not exist, and the Department of Environmental Quality certifies that such permit is not required pursuant to § 62.1-44.15:20 of the Code of Virginia, then a waterworks shall demonstrate its source water capacity in accordance with guidance jointly created by the Department and the Department of Environmental Quality. The Department shall incorporate the guidance document into this Chapter as appropriate following input from the Waterworks Advisory Committee and other

appropriate stakeholders to address all situations where a permit pursuant to 9VAC25-210 and § 62.1-44.15:20 of the Code of Virginia is not available. The guidance document shall, at a minimum, address the following topics:

1. The safe yield calculated by a licensed professional engineer in connection with a waterworks operation permit issued or applied for prior to [INSERT THE EFFECTIVE DATE OF THE REGULATIONS];
2. The safe yield from a water supply plan submitted and approved in accordance with 9VAC25-780-10, et. seq.;
3. The intake capacity of an intake structure in place before July 1, 1989;
4. Water withdrawal amounts excluded from the Virginia Water Protection permit requirements pursuant to 9VAC25-210-310 after July 1, 1989;
5. A hydrologic evaluation of source water capacity prepared by a Virginia licensed professional engineer to include as appropriate:
  - a. Actual gauge records to determine base flow (average and peak), including historic low flows, low flow of record, and synthesized and correlated flows from the watershed when actual gauge records are not available;
  - b. An appropriate safety factor to address risk to the watershed and source water capacity;
  - c. Relevant and current withdrawals to assess cumulative impacts from domestic, municipal, industrial, and agricultural withdrawals;
  - d. Flow requirements for other waters of interest to protect habitats, including seasonal limitations for withdrawals to protect spawning seasons of fish and wildlife;
  - e. The ability to independently operate components of complex systems that include multiple intakes from streams or impoundments;
  - f. Effects on groundwater;
  - g. Recharge rates for impoundments, reservoirs, aquifers, including impoundment surface area, watershed area, surface permeability, runoff transmission, evaporation rates, annual rainfall, seasonal variations of rainfall, storage volume of impoundments (bathymetric measurements), reservoir seepage rates, and analysis of climate data;
  - h. Tidal fluctuation and its impact on water quality; and
  - i. Other facts and information as the Department, the Department of Environmental Quality, or the Waterworks Advisory Committee determines necessary.

F. Nothing herein, including the calculation of safe yield or the source water capacity, shall be construed as applying to the determination of any existing riparian rights nor the waterwork's responsibility to obtain authorizations from other state agencies for water withdrawals, including the preservation of instream flow from surface water sources in accordance with the State Water Control Law, Chapter 3.1 of Title 62.1 of the Code of Virginia.

G. The owner shall conduct, or have conducted, a sanitary survey and a study an assessment of the factors, both natural and man-made, which that will affect the quality of the water at the source and quantity of the surface water source-water. The results of the sanitary

~~survey assessment shall be submitted to the division department with the design. Such survey and study~~ The assessment shall include, but shall not be limited to:

- ~~1. Obtaining samples over a sufficient period of time acceptable to the department, commissioner,~~ to assess the bacteriological, physical, chemical, and radiological characteristics of the surface source water source;
- ~~2. Determining future uses and effects of impoundments or reservoirs;~~
- ~~3. Determining the degree of control over the watershed that may be exercised by the owner; and~~
4. Locating potential sources of pollution within 5 miles upstream from the surface water intake; and
- ~~45. Assessing the degree of hazard to the source by possible spillage surface water source water resulting from a potential release of materials that may be toxic, harmful, or detrimental to treatment processes.~~

H.G. Intake Surface water intake structures shall provide for:

- ~~1. Withdrawal of water from at least three levels in impoundments or reservoirs. Withdrawal of water from more than one level may be required in run-of-the-stream intakes if the quality varies with depth;~~
- ~~2. Separate facilities for release of less desirable water held in storage at impoundments or reservoirs;~~
- ~~3. Screens on intake ports with provisions for adequate cleaning. Screen opening size and velocity may be restricted by federal or state permit;~~
- ~~4. Prevention of flooding of access walkways and control valves of intakes on multiple purpose reservoirs; and~~
- ~~5. Velocity of flow through~~ Flow velocity through the inlet structure such so that frazil ice will be held to a minimum.

~~D. A detention reservoir is a structure into which water is stored for pretreatment to improve water quality prior to other treatment. Where a detention reservoir is required, the development shall assure that:~~

- ~~1. Water quality is protected by controlling runoff into reservoir;~~
- ~~2. Dikes are structurally sound and protected against wind action and erosion;~~
- ~~3. Point of influent flow is separated from the point of withdrawal; and~~
- ~~4. Sufficient detention time is provided in the reservoir as recommended by the designer and approved by the division.~~

~~E. In order to protect the public health and guarantee a supply of pure water, terminal reservoirs shall not be utilized for body contact recreation and boats powered by gasoline engines. Large terminal reservoirs may be used for body contact recreation and boats powered by gasoline engines provided a buffer zone acceptable to the division and water purveyor is furnished. Site preparation shall include but not be limited to the removal of brush and trees to the high water elevation, and protection from floods during construction.~~