



Department of  
**Environment &  
Conservation**

# General Aquatic Resource Alteration Permit Minor Water Withdrawals

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Division of Water Resources

# *Tennessee Water Quality Control Act of 1977*

## **TCA 69-3-108. Permits.**

**(b)** It is unlawful for any person, other than a person who discharges into a publicly owned treatment works or a person who is a domestic discharger into a privately owned treatment works, to carry out any of the following activities, except in accordance with the conditions of a valid permit:

- (1)** The alteration of the physical, chemical, radiological, biological, or bacteriological properties of any waters of the state;

# Individual Water Withdrawal Permit Regs

## 0400-04-07(5) Individual Permits.

**(c)** An Individual Permit is required for water withdrawals which will or will likely result in alteration of the properties of the source stream.

1. Persons proposing to withdraw water from waters of the state in a manner which will or will likely result in an alteration of the properties of the source stream, shall file an application with the Department which includes the following minimum information:

- (i) proposed withdrawal rates and volumes;
- (ii) proposed withdrawal schedule; and
- (iii) flow data of the source stream (if free flowing).

2. Where a permit for water withdrawal is required, the Commissioner shall establish permit conditions which are protective of the source stream's resource value. These conditions may include **flow levels below which no withdrawal may occur**. The Commissioner may also establish a **maximum withdrawal rate** in order to maintain the natural flow fluctuation characteristics of the source stream.

# Agricultural Exemption

## **TCA 69-3-120. Construction of part.**

(g) Nothing whatsoever in this part shall be so construed as applying to any agricultural or forestry activity or the activities necessary to the conduct and operations thereof or to any lands devoted to the production of any agricultural or forestry products, unless there is a point source discharge from a discernible, confined, and discrete water conveyance.

# Center Pivot Irrigation, Richland Creek Giles County



# General Permits

- **TCA 69-3-108. Permits.**
- *(l)* Where the commissioner finds that a category of activities or discharges would be appropriately regulated under a general permit, the commissioner may issue such a permit.
  - Withdrawals authorized by a general permit would typically include non-agricultural irrigation, hydrostatic testing, small public water supplies, or other withdrawals on large reservoirs.

# *De minimis* impact

This general permit authorizes various withdrawals of water from surface waters that represent a small or insignificant proportion (*de minimis*) of the source water.

- (4) De Minimis degradation – Degradation of a small magnitude, as provided in this paragraph.
- (a) Discharges and withdrawals
  - ... a single water withdrawal will be considered de minimis if it removes less than five percent of the 7Q10 flow of the stream.
  - If more than one [withdrawal] uses no more than 10% ...of the 7Q10 low flow, they are presumed to be de minimis.
  - Where the total of the authorized and proposed impacts uses 10% of the ...7Q10 low flow, additional degradation may only be treated as de minimis if the Division finds on a scientific basis that the additional degradation has an insignificant effect on the resource.

# No notification, hydrostatic testing, dust suppression

- a. withdrawal of a rate up to 15% of the instantaneous flow from a stream or river on a temporary, short term basis.
  - temporary, short term is defined as 30 days or less in a calendar year



# No notification, reservoir irrigation

- b. withdrawal from a reservoir of at least ten surface acres at a rate not exceeding 100 gallons per minute.



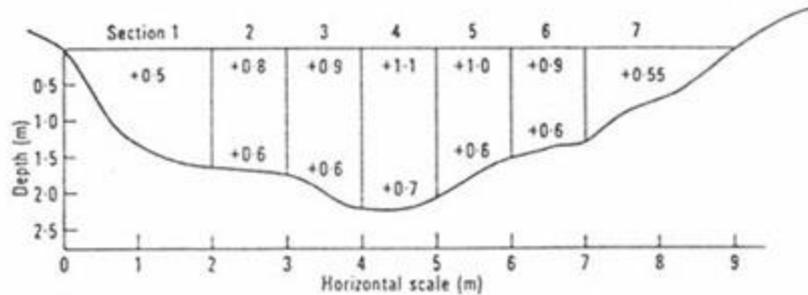
# Measuring instantaneous flow

- The permittee shall demonstrate that instantaneous flow of the source water can be accurately measured or determined for the purpose of compliance with the terms and limits of this general permit.
  - For un-gaged wadeable streams, the instantaneous flow may be measured using the float method (also known as the cross-sectional method)  
<https://archive.epa.gov/water/archive/web/html/vms51.html> or other recognized scientific methodologies that can be reviewed by the Division.
  - The instantaneous flow of certain gaged streams may be determined using the United States Geological Survey (USGS) web-based Current Conditions for Tennessee: Streamflow at <https://waterdata.usgs.gov/tn/nwis/current/?type=flow>.

# Determining instantaneous flow

**FIGURE 22**

Estimating the flow in a stream from measurement with a current meter. The calculations for this example are shown in Table 2.



**TABLE 2**  
Calculation of streamflow from current meter readings

Section	Flow velocity (m/s)			Depth (m)	Width (m)	Area (m <sup>2</sup> ) 5 x 6	Flow (m <sup>3</sup> /s) 4 x 7
	0.2D	0.8D	Mean				
1	-	-	0.5	1.3	2.0	2.6	1.30
2	0.8	0.6	0.7	1.7	1.0	1.7	1.19
3	0.9	0.6	0.75	2.0	1.0	2.0	1.50
4	1.1	0.7	0.9	2.2	1.0	2.2	1.98
5	1.0	0.6	0.8	1.8	1.0	1.8	1.44
6	0.9	0.6	0.75	1.4	1.0	1.4	1.05
7	-	-	0.55	0.7	2.0	1.4	0.77
<b>TOTAL</b>							<b>9.23</b>

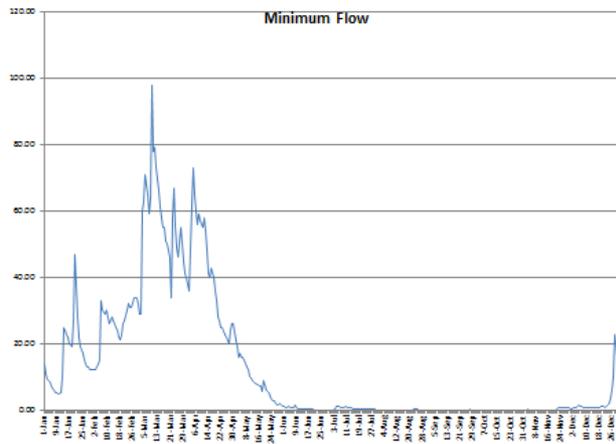
D is the depth of the stream at the mid-point of each section.

# Drought considerations

- Withdrawal is prohibited from a stream or river in a county or region during severe (D2), extreme (D3), or exceptional drought (D4) as indicated by the The National Drought Mitigation Center website  
<http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?TN>

# Notification – written coverage

- a. withdrawal of a rate of less than 5% of the 7Q10 flow (the 7Q10 lowest 7-day average flow with a 10-percent probability of occurring in any given year) on a long term basis.
- b. withdrawal from a reservoir of at least 4000 surface acres at a rate not exceeding 1500 gallons per minute (2.2 million gallons per day).



# Determining 7Q10

- The 7Q10 flow shall be determined using the United States Geological Survey (USGS) web-based Geographic Information Systems (GIS) application for streamflow statistics:  
<http://water.usgs.gov/osw/streamstats/tennessee.html>.

# General prohibitions

- Minor water withdrawals are not permitted in streams designated as Outstanding National Resource Waters.
- Minor water withdrawals are not permitted in any stream on the Division of Water Resources' 303d impaired waters list for hydrologic modification.
- Minor water withdrawals are not permitted in stream segments listed as Exceptional Tennessee Waters because of exceptional biological diversity or stream segments with outstanding ecological, or recreational value as determined by the Department (Rule 0400-40-03-.06(4)6.-7.)