

**TITLE 785. OKLAHOMA WATER RESOURCES BOARD
CHAPTER 46. IMPLEMENTATION OF OKLAHOMA'S WATER QUALITY STANDARDS**

SUBCHAPTER 1. GENERAL PROVISIONS

785:46-1-6. Determination of regulatory low flow

(a) General.

(1) 7Q2. The 7Q2 is calculated as a moving average of seven consecutive days for each year in a given record. These seven-day low flow values are ranked in ascending order. An order number (m) is calculated based upon the number of years of record (n), with a recurrence interval (R) of two years, as $m = (n+1)/R$, where R = two years. A value of flow corresponding to the mth order is taken as the seven-day, two-year low flow for those historical data.

(2) Seasonal 7Q2. The seasonal 7Q2 is calculated as a moving average of seven consecutive days for the applicable dates specified in Table 1 of Appendix G of OAC 785:45 in a given period of record. These seven-day low flow values are ranked in ascending order. An order number (m) is calculated based upon the number of seasons (n) specified in Table 1 of OAC 785:45 Appendix G during the period of record, with a recurrence interval (R) of two years, as $m = (n+1)/R$, where R = two years. A value of flow corresponding to the mth order is taken as the seasonal seven-day, two-year low flow for those historical data.

(b) **Primary method for determination.** If the 7Q2 or seasonal 7Q2 for a given stream or stream segment is determinable from the United States Geological Survey ~~publications~~ publication entitled "~~Statistical Summaries of Streamflow in Oklahoma through 1999~~" or "~~Statistical Summaries of Streamflow Records in Oklahoma and Parts of Arkansas, Kansas, Missouri and Texas Through 1984~~", "Statistical Summaries of Streamflow in and near Oklahoma Through 2007" or the latest version of the Water Quality Management Plan published by the Department of Environmental Quality, then that 7Q2 and seasonal 7Q2 shall be conclusive except as provided otherwise in this section.

(c) Alternative methods for determination of 7Q2 or seasonal 7Q2.

(1) In lieu of determining the 7Q2 or seasonal 7Q2 as provided in (b) of this Section, the 7Q2 for a given stream or stream segment may be determined by an affected person or the permitting authority if all of the following conditions are satisfied:

(A) A hydrological modification affecting the flow in the stream is documented to the satisfaction of the Oklahoma Water Resources Board and permitting authority;

(B) At least 10 years of daily flow data comporting with the requirements of this section are available; and

(C) Data from the entire period of record for the stream, unless a different time frame of record is approved by the Board and the permitting authority, are used in the calculation.

(2) If the 7Q2 or seasonal 7Q2 for a given stream or stream segment is not determinable as provided in (b) or (c)(1) of this Section or if additional daily flow data have been collected, then the 7Q2 or seasonal 7Q2 for that stream or stream segment may be determined by an affected person or the permitting authority using the calculations provided in (a) of this Section, provided at least 10 years of daily flow data are available for that stream.

(3) If the flow is affected by contributions from gauged tributaries or other permitted discharges, then the 7Q2 or seasonal 7Q2 for a given stream or stream segment may be determined taking those contributions at 7Q2 or seasonal 7Q2, or both, into account on a case-by-case basis if approved by either the Board or the permitting authority.

- (4) If the 7Q2 or seasonal 7Q2 for a given stream or stream segment is not determinable as provided in (b), (c)(1), (c)(2) or (c)(3) of this Section, then the 7Q2 or seasonal 7Q2 for that stream or stream segment may be determined by an affected person or the permitting authority using an estimate based upon limited data only if both the method for estimating, and the estimate itself, are approved by both the Board and permitting authority.
- (d) **Additional rules for 7Q2 and seasonal 7Q2 determinations.**
- (1) Any 7Q2 or seasonal 7Q2 determined with a period of record less than 20 years shall be invalid for any purpose except the issuance of the permit or establishment of the site specific criteria based upon and developed contemporaneously with such 7Q2 or seasonal 7Q2. Any subsequent renewal of such permit must be based upon a fresh determination of the 7Q2 or seasonal 7Q2 until the pertinent period of record equals or exceeds 20 years.
- (2) Any subsequent renewal of a permit based upon a 7Q2 or seasonal 7Q2 determined pursuant to (c)(3) or (c)(4) of this Section must be based upon a fresh determination of the 7Q2 or seasonal 7Q2 that takes into account all discharge and flow data from the time the 7Q2 or seasonal 7Q2 was previously determined.
- (3) Any subsequent renewal of a permit based upon a 7Q2 or seasonal 7Q2 determined pursuant to (c)(1) of this Section must be based upon a fresh determination of the 7Q2 or seasonal 7Q2 that takes into account whether the hydrological modification continues to exist.
- (e) **Alternative method for determination of regulatory low flow.** In stream segments where dams or other structures have substantially affected the historic flow regime of the stream segment, including but not limited to the portions of the Verdigris and Arkansas Rivers constituting the McClellan-Kerr Arkansas River Navigation System, on a site-specific basis a properly designed and implemented hydrologic study approved by the permitting authority and the Board may be used to determine the appropriate regulatory low flow.

SUBCHAPTER 9. IMPLEMENTATION OF CRITERIA TO PROTECT THE AGRICULTURE BENEFICIAL USE

785:46-9-3. Regulatory flows

- (a) **General.** Six regulatory flows are required for implementation of yearly mean standards and sample standards. They include stream flows, regulatory flows for lakes and regulatory effluent flows.
- (b) **Long term average flows for streams.** ~~Mean~~ The greater of 1.47 cfs or mean annual average flow, A, will be used by the permitting authority for long term average flows to implement yearly mean standards. Mean annual average flows may be obtained from the USGS publication entitled "~~Statistical Summaries of Streamflow in Oklahoma through 1999~~" or "~~Statistical Summaries of Streamflow Records in Oklahoma and Parts of Arkansas, Kansas, Missouri and Texas through 1984~~" on streams with USGS gages "Statistical Summaries of Streamflow in and near Oklahoma Through 2007". They may also be estimated on streams without gages using the Oklahoma Water Resources Board publication entitled "Estimation of Mean Annual Average Flows" (OWRB Technical Report 96-2).
- (c) **Long term average flow for lakes.** Mean annual average discharge from the lake, A, shall be used to implement the Agriculture beneficial use.
- (d) **Regulatory long term effluent flows.** If the permitting authority determines that sufficient data is available to calculate the mean annual effluent discharge, then such discharge shall be the long term effluent flow, Qel. If the permitting authority determines insufficient data is available to calculate the mean annual effluent discharge, then the design flow shall be the long term effluent flow, Qel.

(e) **Short term average flow for streams.** OAC 785:45-5-4(d) requires that short term average flow, Q_s , be used to implement sample standards. The short term average flow is determined so that short term and long term wasteload allocations are equally likely to be more stringent, depending on the historical concentration distribution for a particular segment.

$$Q_s = 0.68A$$

Q_s shall equal the greater of 1.0 cfs or 0.68 A, where A is mean annual average stream flow.

(f) **Short term average flows for lakes.** Short term average flows for lakes are also determined by the formula in OAC 785:46-9-3(e). In this case A is the mean annual average lake discharge.

(g) **Short term average effluent flows.** If the permitting authority determines that sufficient data is available to calculate the highest monthly average discharge for industrial discharges, then such discharge shall be the short term average effluent flow, Q_{es} . If the permitting authority determines insufficient data is available to calculate the highest monthly average discharge for industrial discharges, then the design flow shall be the short term average effluent flow, Q_{es} .

SUBCHAPTER 15. USE SUPPORT ASSESSMENT PROTOCOLS

785:46-15-7. Assessment of Public and Private Water Supply support

(a) **Scope.** The provisions of this Section shall be used to determine whether the beneficial use of Public and Private Water Supply or any subcategory thereof designated in OAC 785:45 for a waterbody is supported.

(b) **Toxicants.**

(1) The Public and Private Water Supply beneficial use designated for a waterbody shall be deemed to be fully supported with respect to any substance with criteria for such use listed in OAC 785:45 Appendix G if the sample concentrations from that waterbody do not exceed the criterion for that substance prescribed in OAC 785:45 Appendix G more than 10% of the measurements, or drinking water use restrictions are not in effect.

(2) The Public and Private Water Supply beneficial use designated for a waterbody shall be deemed to be not supported with respect to any substance with criteria for such use listed in OAC 785:45 Appendix G if the sample concentrations from that waterbody exceed the criterion for that substance prescribed in OAC 785:45 Appendix G more than 10% of the time measurements, or drinking water use restrictions imposed by an agency with jurisdiction in effect require closure of the water supply.

(c) **Bacteria.** The screening level for total coliform bacteria shall be 5000 colonies per 100 ml. The tests for use support shall follow the default protocol in 785:46-15-4.

(d) **Threatened water supplies.** Waters of the state designated in OAC 785:45 as Public and Private Water Supply shall be presumed to be threatened when toxicants are detected but do not exceed the applicable criteria prescribed in OAC 785:45 Appendix G, or some drinking water use restrictions have been put into effect by an agency with jurisdiction, or the potential for adverse impacts to water quality exists, or more than one such conditions exist.

(e) **Oil and grease.**

(1) The Public and Private Water Supply beneficial use designated for a waterbody shall be deemed to be fully supported with respect to oil and grease if a visible sheen or bottom deposits of oil or grease are observed on that waterbody in 10% or less of the observations, and drinking water use restrictions that require more than conventional treatment related to oil and grease have not been put into effect by an agency with jurisdiction.

(2) The Public and Private Water Supply beneficial use designated for a waterbody shall be deemed to be not supported with respect to oil and grease if a visible sheen or bottom deposits of oil or grease are observed on that waterbody in more than 10% of the

observations, or drinking water use restrictions that require more than conventional treatment related to oil and grease have been put into effect by an agency with jurisdiction.

SUBCHAPTER 19. IMPLEMENTATION OF DISSOLVED OXYGEN CRITERIA TO PROTECT FISH AND WILDLIFE PROPAGATION

785:46-19-3. Reasonable potential determination

(a) A permit limit for oxygen demanding substances is required if there is a reasonable potential that the dissolved oxygen criteria will not be satisfied. Such a reasonable potential is demonstrated whenever an existing discharger proposes to increase the concentration or load of oxygen demanding substances, a new discharge of oxygen demanding substances is created, or a receiving waterbody is reclassified to a subcategory of the Fish and Wildlife Propagation beneficial use with a more stringent dissolved oxygen criterion.

(b) The permitting authority may base its determination of the reasonable potential upon meeting the dissolved oxygen standard at the applicable regulatory low flow and at the applicable seasonal temperatures prescribed in Table 1 of Appendix G of OAC 785:45.