

NEBRASKA ADMINISTRATIVE CODE

~~Title 457—DEPARTMENT OF NATURAL RESOURCES  
—RULES FOR SURFACE WATER~~

~~Chapter 24—DETERMINATION OF FULLY APPROPRIATED BASINS, SUB-BASINS OR  
—REACHES~~

~~001—FULLY APPROPRIATED.~~ Pursuant to ~~Neb. Rev. Stat. § 46-713(3)~~ (Reissue 2004, as amended), a river basin, subbasin, or reach shall be deemed fully appropriated if the Department of Natural Resources determines that then-current uses of hydrologically connected surface water and ground water in the river basin, subbasin, or reach cause or will in the reasonably foreseeable future cause (a) the surface water supply to be insufficient to sustain over the long term the beneficial or useful purposes for which existing natural flow or storage appropriations were granted and the beneficial or useful purposes for which, at the time of approval, any existing instream appropriation was granted, (b) the streamflow to be insufficient to sustain over the long term the beneficial uses from wells constructed in aquifers dependent on recharge from the river or stream involved, or (c) reduction in the flow of a river or stream sufficient to cause noncompliance by Nebraska with an interstate compact or decree, other formal state contract or agreement, or applicable state or federal laws.

~~001.01A~~ Except as provided in ~~001.01C~~ below, for purposes of Section ~~46-713(3)(a)~~, the surface water supply for a river basin, subbasin, or reach shall be deemed insufficient, if, after considering the impact of the lag effect from existing groundwater pumping in the hydrologically connected area that will deplete the water supply within the next 25 years, it is projected that during the period of May 1 through September 30, inclusive, the most junior irrigation right will be unable to divert sufficient surface water to meet on average eighty-five percent of the annual crop irrigation requirement, or, during the period of July 1 through August 31, inclusive, will be unable to divert sufficient surface water to meet at least sixty-five percent of the annual crop irrigation requirement.

For purposes of this rule, the “annual crop irrigation requirement” will be determined by the annual irrigation requirement for corn. This requirement is based on the average evapotranspiration of corn that is fully watered to achieve the maximum yield and the average amount of precipitation that is effective in meeting the crop water requirements for the area.

The inability to divert will be based on stream flow data and diversion records, if such records are available for the most junior surface water appropriator. If these records are not available, the inability to divert will be based on the average number of days within each time period (May 1 to September 30 and July 1 to August 31) that the most junior surface water appropriation for irrigation would have been closed by the Department and therefore could not have diverted during the previous 20-year period. In making this

~~calculation, if sufficient stream flow data and diversion data are not available, it will be assumed that if the appropriator was not closed, the appropriator could have diverted at the full permitted diversion rate. In addition the historical record will be adjusted to include the impacts of all currently existing surface water appropriations and the projected future impacts from currently existing ground water wells. The projected future impacts from ground water wells to be included shall be the impacts from ground water wells located in the hydrologically connected area that will impact the water supply over the next 25 year period.~~

~~001.01B In the event that the junior water rights are not irrigation rights, the Department will utilize a standard of interference appropriate for the use, taking into account the purpose for which the appropriation was granted.~~

~~001.01C If, at the time of the priority date of the most junior appropriation, the surface water appropriation could not have diverted surface water a sufficient number of days on average for the previous 20 years to satisfy the requirements of 001.01A, the surface water supply for a river basin, subbasin, or reach in which that surface water appropriation is located shall be deemed insufficient only if the average number of days surface water could have been diverted over the previous 20 years is less than the average number of days surface water could have been diverted for the 20 years previous to the time of the priority date of the appropriation.~~

~~When making this comparison, the calculations will follow the same procedures as described in 001.01A. When calculating the number of days an appropriator could have diverted at the time of the priority date of the appropriation, the impacts of all appropriations existing on the priority date of the appropriation and the impacts of wells existing on the priority date of the appropriation shall be applied in the same manner as in 001.01A. As in 001.01A above, in making this calculation, if sufficient stream flow data and diversion data are not available, it will be assumed that if the appropriator was not closed, the appropriator could have diverted at the full permitted diversion rate.~~

~~Use of the method described in this rule is not intended to express or imply any mandate or requirement that the method used herein must be included in the goals and objectives of any integrated management plan adopted for a river basin, subbasin or reach determined to be fully appropriated under this rule. Further, nothing in this section is intended to express or imply a priority of use between surface water uses and ground water uses.~~

~~001.02 The geographic area within which the Department preliminarily considers surface water and ground water to be hydrologically connected for the purpose prescribed in Section 46-713(3) is the area within which pumping of a well for 50 years will deplete the river or a base flow tributary thereof by at least 10% of the amount pumped in that time.~~

~~002 INFORMATION CONSIDERED. For making preliminary determinations required by Neb. Rev. Stat. Section 46-713 (Reissue 2004, as amended) the Department will use the best~~

~~scientific data and information readily available to the Department at the time of the determination. Information to be considered will include:~~

~~Surface water administrative records~~

~~Department Hydrographic Reports~~

~~Department and United States Geological Survey stream gage records~~

~~Department's registered well data base~~

~~Water level records and maps from Natural Resources Districts, the Department, the University of Nebraska, the United States Geological Survey or other publications subject to peer review~~

~~Technical hydrogeological reports from the University of Nebraska, the United States Geological Survey or other publications subject to peer review~~

~~Ground water models~~

~~Current rules and regulations of the Natural Resources Districts~~

~~The Department shall review this list periodically, and will propose amendments to this rule as necessary to incorporate scientific data and information that qualifies for inclusion in this rule, but was not available at the time this rule was adopted.~~

NEBRASKA ADMINISTRATIVE CODE

Title 457 - DEPARTMENT OF NATURAL RESOURCES  
RULES FOR SURFACE WATER

Chapter 24 - DETERMINATION OF FULLY APPROPRIATED BASINS, SUBBASINS  
OR REACHES

Purpose: These rules have been promulgated to comply with *Neb. Rev. Stat. § 46-713(1)(d)* which requires the Department of Natural Resources (Department) to specify by rule and regulation the types of scientific data and other information that will be considered for making preliminary determinations of fully appropriated.

001 TYPES OF SCIENTIFIC DATA USED. Pursuant to *Neb. Rev. Stat. § 46-713(1)(d)* the Department will consider the following types of scientific data and other information for making a preliminary determination of fully appropriated.

001.01A DEFINITIONS.

Basin Water Supply - The Basin Water Supply (BWS) is the streamflow water supply estimated to be available without the initiation of groundwater pumping from high capacity wells and surface water uses of natural flow and storage. The BWS will utilize the Most Recently Available Data and is calculated by combining the following for each sub-period: gaged streamflows truncated at the five percent exceedance probability value plus Streamflow Depletions due to high capacity (greater than 50 gallons per minute) well groundwater pumping plus Consumptive Surface Water Uses plus Required Inflows minus the BWS originating upstream of the basin, subbasin, or reach.

Consumptive Surface Water Uses - The water supply needed to make full beneficial use of existing irrigation, municipal or industrial uses, taking into account limitations that may exist on the water supply available to that use (e.g., surface water administration).

Consumptive Water Demands – The water supply needed to make full beneficial use of existing irrigation, municipal or industrial uses.

Title 457  
Chapter 24

Long-Term Total Demand - The then-current uses of hydrologically connected surface water and groundwater in a river basin, subbasin, or reach that will be utilized to evaluate whether those uses will in the reasonable foreseeable future cause the conditions set forth in *Neb. Rev. Stat. § 46-713(3) (a)(b)(c)*.

Most Recently Available Data - The most recent period of years containing the best available data that will be utilized in an annual evaluation to represent Basin Water Supplies, Near-Term Total Demands, and Long-Term Total Demands for a basin, subbasin, or reach. The data shall be updated at least once every five years.

Near-Term Total Demand - The then-current uses of hydrologically connected surface water and groundwater in a river basin, subbasin, or reach that will be utilized to evaluate whether those uses cause the conditions set forth in *Neb. Rev. Stat. § 46-713(3) (a)(b)(c)*.

Non-Tributary Downstream Demand - The then-current uses of surface water under appropriation along the mainstem of the stream within a basin, subbasin or reach that are capable of making beneficial use of streamflow that exits a basin, subbasin, or reach located upstream.

Representative Period - The number of years utilized to capture long-term wet and dry cycles that may exist. The period will be determined through time-series statistical analyses of the annual Basin Water Supply using the Most Recently Available Data.

Required Inflows - The BWS necessary to flow out of an upstream basin, subbasin, or reach to meet its proportionate share of Non-Tributary Downstream Demands.

Streamflow Depletions - The modeled impacts of groundwater pumping on stream baseflows.

Title 457  
Chapter 24

001.01B For purposes of 002.01A, the cumulative Near-Term Total Demand of groundwater and surface water is calculated by summing the water demands associated with the following activities for each sub-period within a basin, subbasin, or reach: (1) Streamflow Depletions due to groundwater well pumping (only wells with pumping capacity greater than 50 gallons per minute); (2) Consumptive Water Demands for surface water uses, inclusive of consumptive uses associated with storage appropriations and the use of such stored water; (3) additional water determined to be necessary to deliver streamflows to meet consumptive surface water demands (return flows may be taken into account); (4) streamflow available to meet instream flow appropriations (accounting for all hydrologically connected development in place at such time the appropriation was granted); (5) streamflow demands for hydropower operations; and (6) the BWS necessary to meet the proportionate amount of Non-Tributary Demands downstream of a basin, subbasin, or reach. In calculating the cumulative Near-Term Total Demand no water uses developed subsequent to a fully appropriated determination or overappropriated designation shall be assigned to those fully appropriated or overappropriated basins as Non-Tributary Downstream Demands. Demands for non-consumptive uses (i.e., instream flow demands and hydropower demands) will be truncated when those demands overlap in the same basin, subbasin, or reach. This truncation will occur to the extent necessary to ensure that those overlapping demands able to utilize the same BWS are only included once in the Near-Term Total Demand.

001.01C For purposes of 002.01A, the cumulative Long-Term Total Demand of groundwater and surface water is calculated by summing the water demands associated with the following activities for each sub-period within a basin, subbasin, or reach: (1) Consumptive Water Demands of hydrologically connected groundwater well pumping (only wells with pumping capacity greater than 50 gallons per minute); (2) Consumptive Water Demands for surface water uses, inclusive of consumptive uses associated with storage appropriations and the use of such stored water; (3) additional water determined to be necessary to deliver streamflows to meet consumptive surface water demands (return flows may be taken into account); (4) streamflow available to meet instream flow appropriations (accounting for all hydrologically connected development in place at such time the appropriation was granted); (5) streamflow demands for hydropower operations; and (6) the BWS necessary to meet the proportionate amount of Non-Tributary Demands

Title 457  
Chapter 24

Downstream of a basin, subbasin, or reach. In calculating the cumulative Long-Term Total Demand no water uses developed subsequent to a fully appropriated determination or overappropriated designation shall be assigned to those fully appropriated or overappropriated basins as Non-Tributary Downstream Demands. Demands for non-consumptive uses (i.e., instream flow demands and hydropower demands) will be truncated when those demands overlap in the same basin, subbasin, or reach. This truncation will occur to the extent necessary to ensure that those overlapping demands able to use the same BWS are only included once in the Long-Term Total Demand.

001.01D The following information will be used in performing the calculations required under these rules:

1. Department records on the regulation of surface water appropriations;
2. Department databases and maps of surface water appropriations;
3. Department Hydrographic Reports;
4. Department and United States Geologic Survey stream gage records;
5. Department's registered well database;
6. Technical hydrogeological reports and publications subject to Department peer review;
7. Department reviewed groundwater models and resulting model outputs;
8. Certified irrigated acres provided by the natural resources districts;
9. Water use information provided by other state agencies, natural resources districts, irrigation districts, reclamation districts, public power and irrigation districts, mutual irrigation companies, canal companies, municipalities, and other water users; and
10. Any other information deemed appropriate by the Department for the purpose of conducting the determination

001.01E In the event that water demands are for a beneficial use other than irrigation, municipal, industrial, instream flow, or hydropower, (for example aquifers dependent on recharge from streamflow, induced recharge, flood control, aquaculture, etc.) the Department will evaluate such use and if necessary determine a methodology to incorporate such demand into any relevant analysis.

Title 457  
Chapter 24

002 FULLY APPROPRIATED. Pursuant to *Neb. Rev. Stat. § 46-713(3)* a river basin, subbasin, or reach shall be deemed fully appropriated if the Department determines based upon its annual evaluation and information presented at hearings subsequent to a preliminary determination of fully appropriated that then-current uses of hydrologically connected surface water and groundwater in the river basin, subbasin, or reach cause or will in the reasonably foreseeable future cause (a) the surface water supply to be insufficient to sustain over the long term the beneficial or useful purposes for which existing natural flow or storage appropriations were granted and the beneficial or useful purposes for which, at the time of approval, any existing instream appropriation was granted, (b) the streamflow to be insufficient to sustain over the long term the beneficial uses from wells constructed in aquifers dependent on recharge from the river or stream involved, or (c) reduction in the flow of a river or stream sufficient to cause noncompliance by Nebraska with an interstate compact or decree, other formal state contract or agreement, or applicable state or federal laws.

002.01A For purposes of *Neb. Rev. Stat. § 46-713(1)(b)*, the Department shall reach a preliminary conclusion that a river basin, subbasin, or reach is fully appropriated if based on the Department's annual evaluation, it is determined that the cumulative Near-Term Total Demand and/or the cumulative Long-Term Total Demand of hydrologically connected groundwater and surface water exceeds the cumulative Basin Water Supplies (BWS) that occur in either of the two sub-periods within the year when summed over the Representative Period of record used in the annual evaluation. The two sub-periods within the year are June 1 through August 31, inclusive and September 1 through May 31, inclusive.

002.01B Pursuant to *Neb. Rev. Stat. §46-713(1)(d)* the Department shall rely on the best scientific data, information, and methodologies readily available to ensure that the conclusions and results contained in the annual evaluation are reliable. Prior to May 1<sup>st</sup> of each year, the Department shall provide notice in a paper of statewide circulation indicating the location of available documentation of the data, information, and methodologies that will be used to reach its conclusions in that year's evaluation. The documentation will specify the data, information, and methodologies utilized in the annual evaluation to represent the BWS, Near-Term Total Demand, and Long-Term Total Demand such that those conclusions could be independently replicated and assessed. Prior to July 1<sup>st</sup> of each

Title 457  
Chapter 24

year, any person may provide data, information, or suggested methodology changes to incorporate such data or information into that year's evaluation. The Department will determine if such data and information will or will not be utilized. If the Department does not utilize the data or information, a written description as to why the data or information was not utilized will be included in the annual evaluation.

002.01C Use of the method described in this rule is not intended to express or imply any mandate or requirement that the method used herein must be included in the goals and objectives of any integrated management plan. Further, nothing in this section is intended to express or imply a priority of use between surface water uses and groundwater uses.

002.02A For purposes of *Neb. Rev. Stat.* § 46-713(3), the Department shall deem a basin, subbasin, or reach as fully appropriated if such preliminary determination is reached pursuant to 002.01A and if information provided at a subsequent hearing pursuant to subsection (4) of *Neb. Rev. Stat.* § 46-714 does not indicate that the criteria set forth in 002.02B or 002.02C apply or unless the Department finds based on written or oral testimony and evidence concerning the appropriation status for the river basin, subbasin, or reach, that a final determination of fully appropriated is not warranted at that time.

002.02B For any basin, subbasin, or reach preliminarily determined to be fully appropriated pursuant to 002.01A in which information was presented at the hearing under *Neb. Rev. Stat.* § 46-714(4) that integrated management plan(s) have been initiated by all Natural Resources Districts within the hydrologically connected area, the Natural Resources Districts within that same hydrologically connected area have designated a management area for which a purpose is the integrated management of hydrologically connected groundwater and surface water, and the Natural Resources Districts and Department have not taken more than three years to complete such integrated management plan(s), upon completing a review of such information, the Department may reach a final determination that such basin, subbasin, or reach is not fully appropriated at that time.

002.02C For any basin, subbasin, or reach preliminarily determined to be fully appropriated pursuant to 002.01A in which information was presented at the hearing under *Neb. Rev. Stat.* § 46-714(4) that integrated management plan(s) have been completed by all

Title 457  
Chapter 24

Natural Resources Districts within the hydrologically connected area, the Department will review the contents of such integrated management plan(s) to ensure that appropriate limitations on new water uses are included in such integrated management plan (s), inclusive of controls on such new uses pursuant to *Neb. Rev. Stat.* § 46-739(6)(b), and such integrated management plan(s) includes a plan to monitor water uses in a manner consistent with 002.01A, upon completing a review of such information, the Department may reach a final determination that such basin, subbasin, or reach is not fully appropriated at that time.

002.03 The geographic area within which the Department preliminarily considers surface water and groundwater to be hydrologically connected for the purpose prescribed in *Neb. Rev. Stat.* § 46-713(3) is the area within which pumping of a well for 50 years will deplete the river or a base flow tributary thereof by at least ten (10) percent of the amount pumped in that time.

EFFECTIVE DATE: \_\_\_\_\_, 2015