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

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~~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.~~

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~~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 percent 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 Report~~
~~Department and United States Geologic 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~~

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~~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.~~

~~EFFECTIVE DATE: December 4, 2006~~

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001 FULLY APPROPRIATED. Pursuant to *Neb. Rev. Stat.* § 46-713(3) a river basin, subbasin, or reach shall be deemed fully appropriated if the Department of Natural Resources (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.

001.01A 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. The length of the representative period of record will be determined through statistical analyses of the annual BWS as the set of years, extending back in time from the most recently available data, which captures long-term wet and dry cycles that may exist.

001.01B For purposes of 001.01A, the 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 is calculated by combining the following for each sub-period: gaged streamflows truncated at the 5% exceedence flow probability value plus streamflow depletions due to high capacity (greater than 50 gallons per minute) well groundwater pumping plus consumptive surface water uses minus the BWS originating upstream of the basin, subbasin, or reach.

001.01C For purposes of 001.01A, 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 that have not previously been represented as a non-tributary downstream demand: (1) streamflow depletions due to high capacity (greater than 50 gallons per minute) well groundwater pumping; (2) consumptive water demands for surface water uses, inclusive of consumptive uses associated with storage appropriations and the use of such stored water; (3) any additional water (accounting for return flows) determined to be necessary to deliver streamflows to meet consumptive surface water demands; (4) streamflow available to meet instream flow appropriations (accounting for all development in place at such time the appropriation was granted); (5) any additional streamflow demands for hydropower operations not accounted for in the instream flow water demands; and (6) the BWS necessary to meet the proportionate amount of non-tributary demands downstream of a basin, subbasin, or reach. The non-tributary downstream demands of a basin, subbasin, or reach will be proportioned in accordance with that basin, subbasin, or reaches BWS relative to the total basin BWS. In calculating the cumulative near-term Total Demand no water uses developed subsequent to a fully appropriated designation or overappropriated designation shall be assigned to those fully appropriated or overappropriated basins as non-tributary downstream demands.

001.01D For purposes of 001.01A, 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 that have not previously been represented as a non-tributary downstream demand: (1) consumptive water demands for hydrologically connected high capacity (greater than 50 gallons per minute) groundwater well pumping; (2) consumptive water demands for surface water uses, inclusive of consumptive uses associated with storage appropriations and the use of such stored water; (3) any additional water (accounting for return flows) determined to be necessary to deliver streamflows to meet consumptive surface water demands; (4) streamflow available to meet instream flow appropriations (accounting for all development in place at such time the appropriation was granted); (5) any additional streamflow demands for hydropower operations not accounted for in the instream flow water demands; and (6) the BWS necessary to meet the proportionate amount of non-tributary demands downstream of a basin, subbasin, or reach. The non-tributary downstream demands of a basin, subbasin, or reach will be proportioned in accordance with that basin, subbasin, or reaches BWS relative to the total basin BWS. In calculating the cumulative long-term Total Demand no water uses developed subsequent to a fully appropriated designation or overappropriated designation shall be assigned to those fully appropriated or overappropriated basins as non-tributary downstream demands.

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.

001.01F 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.

001.01G 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 the release of the annual evaluation the Department shall provide sufficient documentation of the data, information, and methodologies used to reach its conclusions such that those conclusions could be independently replicated and assessed. The documentation will specify the specific data, information, and methodologies utilized in the annual evaluation to represent the BWS, near-term Total Demand, and long-term Total Demand.

001.02A 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 001.01A-G 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 001.02B or 001.02C apply or unless the Director finds based on written or oral testimony and evidence concerning the appropriation status for the river basin, subbasin, or reach, that a final designation of fully appropriated is not warranted at that time.

001.02B For any basin, subbasin, or reach preliminarily determined to be fully appropriated pursuant to 001.01A-G in which 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) the Department may reach a final determination that such basin, subbasin, or reach is not fully appropriated at that time.

001.02C For any basin, subbasin, or reach preliminarily determined to be fully appropriated pursuant to 001.01A-G in which integrated management plan(s) have been completed by all 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 001.01A-G. Upon the Department completing this review the Department may reach a final determination that such basin, subbasin, or reach is not fully appropriated at that time.

001.03 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.

002 INFORMATION CONSIDERED. For making preliminary determinations required by *Neb. Rev. Stat.* § 46-713 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:

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 data base;
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

EFFECTIVE DATE: DATE, 2013