

DRAFT – INTERIM WORK PRODUCT

January 30, 2003 – 1:00

DNR after consultation with NRDs in the area decide that an area had reached full appropriation/over appropriation and implement temporary moratorium for three years during which a management plan would be developed.

The charge is to develop proposals that will clarify and develop standards for determining when a stream is over appropriated.

Define area of DNR investigation:

Start with basin – then go smaller if there are hydrologic characteristics that justify. May not be hydrologic but management related? (this is larger than a stream)

Items to consider:

Hydrograph of gauge as compared to precip

Groundwater levels

Number of registered wells

Number of calls for regulation on the river in any year

Anticipation for new development

Usage of conservation practices

Stream depletion factor

Other relevant factors

Consumptive use

Factors to consider:

Existing levels and types of water use, including both surface water and hydrologically connected groundwater.

Hydrogeology of the {area of interest?}, including the distribution of physical characteristics of surface water features and aquifer properties.

Availability of water supply, including precipitation, groundwater supplies, stream flows, surface water storage, and recharge.

Where appropriate, expected or potential changes in future water use, hydrogeology, or available water supply. (this may exceed our mandate)

Such other factors as may be appropriate.

Minimum level of methods

Is this a level of detail you are looking for?

1. Use of SDF tables (15,000 dayline for example) or other means to estimate groundwater impacts on stream flow.
2. Evaluate availability of surface water using a comparison of the hydrograph as compared to precipitation, the number of calls for regulation on the stream segment and other relevant factors.

3. Evaluate potential future development that is anticipated (may be over the line)
4. Availability of groundwater supplies and comparison of groundwater levels over time

Questions:

Comments:

The trigger point would be different according to the basin

Will the Department be issuing the decision per basin at one time or over the period of the year?

Department needs data gathering system/process for all the unappropriated basins.

In a proactive mode there would be a greater amount of unappropriated water for future development

The amount of unappropriated water would be established by the basin.

What is the area of the moratorium?

- a. Groundwater moratorium decided by NRD, surface water moratorium decided by DNR.

Questions on area?

15,000 dayline?

or basin boundary?

Factors to consider:

- Existing levels and types of water use, including both surface water and hydrologically connected groundwater.
- Hydrogeology of the [area of interest?], including the distribution of physical characteristics of surface water features and aquifer properties.
- Availability of water supply, including precipitation, groundwater supplies, stream flows, surface water storage, and recharge.
- Where appropriate, expected or potential changes in future water use, hydrogeology, or available water supply.
- Such other factors as may be appropriate.

WHITE PAPER ON UNAPPROPRIATED/OVER APPROPRIATED WATER

Background

The Department of Natural Resources has declared moratoriums on new water appropriations in several areas across the state. A summary of such moratoriums is attached.

Several natural resources districts have declared moratoriums on drilling new ground water wells. A map showing such areas is also attached.

Natural Resources District Triggers for Management

Little Blue NRD - spring levels in 80 percent wells decline past 50 percent of "reasonable acceptable decline" for two years = level two of management. Spring levels in 80 percent wells decline past "reasonable acceptable decline" for two years = level three of management.

Lower Platte South - 30 percent of monitoring wells fall below a specified percent of saturated thickness = level 2. 50 percent of monitoring wells fall below a specified percent of baseline saturated thickness = level 3.

North Platte NRD - average decline of one foot per year over 10 years, or other problems.

Upper Big Blue NRD - declines below two foot above 1978 level = level 2. Declines below 1978 level = level 3.

Upper Republican - critical townships where decline greater than one-fourth of one percent of saturated thickness.

Court Decisions on Unappropriated Water

In Central Platte Natural Resources District v. Wyoming, the Nebraska Supreme Court gave some guidance on determining unappropriated water.

1. In the definition of unappropriated water, the phrase "subject to an existing appropriation right" refers to the appropriation right measured by the beneficial use limit.
2. In determining the amount of unappropriated water available for an instream flow appropriation, the director must account for water which may be diverted by two types of senior appropriators whose rights are not reflected in the historic flow records; pending senior applications and approved-but-unconstructed senior applications.
3. To the extent that ground water will be withdrawn in the future, this ground water remains, at the present, unappropriated water; ground water which has not been removed also constitutes unappropriated water.
4. To be available, a water supply does not need to be perfectly reliable. To be available in a practical sense, the supply of water must be fairly continuous and dependable.
5. A determination regarding water availability cannot and should not be divorced from the applicant's purpose.
6. 46-2115(1) does not require the director of the Department of Water Resources to consider future ground water depletions.

In Nebraska Game and Parks Commission v The 25 Corporation, the Supreme Court said:

1 Unappropriated water is that water which is available for appropriation because it is not subject to an existing appropriative right.

2. Absolute dependability of a water supply is not required in order to justify an appropriation; the supply need only be fairly continuous and dependable.

In Re Application A-15738, the court stated:

1. Unappropriated water is that water which is available for appropriation because it is not subject to an existing appropriation right.
2. Although there may be some unappropriated water available at a proposed diversion point, the existence of a dependable water supply is essential to the success of any irrigation project and where, on the average, but an insignificant supply of water in relation to the maximum demand of the proposed appropriator is available, there is not a source of unappropriated water at the proposed diversion site.
3. For a quantity of unappropriated water to be available at a proposed diversion point, it must be available in a supply which is fairly continuous and dependable.

Department of Natural Resources Determination of Unappropriated Water

The Department first determines what the amount of water requested is, and during what time period the water will be used. The Department then will look at the gaging records nearest the point where water is requested. Historical data will be used for the period of record available, or at least for a period of record long enough that includes both drought and a period of wet weather. The historical data may have to be massaged, depending on several possibilities. For example, when looking at the Platte River historical flow data for the North Bend Gage, the period of record included a time when the Calamus Project was not in existence, and a period of time when it was. Calculations were made and the data was changed to reflect what would have occurred, had the project been in place for the whole period of record. If a project had gone off line, the same type of data change would occur.

The Department needs to also calculate what part of the water is available for use, or what part is needed downstream for existing uses.

Based on the historical record, the department can assess whether there will be a fairly continuous and dependable supply available.

Items for Discussion on Fully Appropriated and Over Appropriated -WE SHOULD REMEMBER THAT THIS IS THE FIRST BROAD SWING OF THE AX, NOT THE FINAL STUDY

1. For certain areas, you can look at the Department's records on water administration and determine on a daily basis when administration was occurring, for what appropriation (priority), determine how many cfs were closed above, determine whether the appropriation calling for administration received its full appropriation, and come up with cfs/days for a certain point on the river. By doing this historically, you can come up with an exceedance curve. This will not work in some areas where administration rarely occurs even though there are known shortages.
2. By looking at a specific gage, or gages within a basin, and looking at the hydrograph over time in relation to the precipitation over time, determine whether there is a decline in stream flow occurring that is not in relation to the precipitation.
3. Based on historical averages of stream flow at specific gages, compute a daily exceedance table. Some states then have specified minimum flow requirements for sections of rivers that you are trying to maintain.
4. Model using SDF to calculate new well development impacts over time. Need to come up with what percentage of impact we are managing for.
5. Reporting mechanism to find where conflicts are occurring, and what type of conflicts.
6. Compile water table maps to determine where changes are occurring as it relates to ground water feeding surface water or surface water feeding ground water.
7. How broad an area do we want to determine? Are we talking major river basins, sub-basins, the whole Platte system?

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