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March 12, 2009

VIA HAND DELIVERY

Brian P. Dunnigan, P.E., Director
Nebraska Department of Natural Resources
301 Centennial Mall South, 4th Floor
Lincoln, NE 68509

Re: 2009 Annual Evaluation of Availability of Hydrologically Connected Water Supplies – Lower Platte River Basin

Dear Director Dunnigan:

On December 16, 2008, the Nebraska Department of Natural Resources ("DNR") issued a preliminary determination concluding that the Lower Platte River Basin ("Basin") is fully appropriated. *See 2009 Annual Evaluation of Availability of Hydrologically Connected Water Supplies*, DNR (Dec. 16, 2008) ("2009 Annual Evaluation"). Over the past several weeks, we have communicated and coordinated with you and your staff on behalf of and along with the following Natural Resources Districts ("NRD"): Lower Platte South NRD; Lower Platte North NRD; Upper Elkhorn NRD; Lower Elkhorn NRD; Upper Loup NRD; Lower Loup NRD; Papio-Missouri NRD, Upper Big Blue NRD; and Lower Niobrara NRD (collectively referred to as the "Basin NRDs").

Initially, we express our appreciation for DNR's transparency, professionalism, and partnership in working with the Basin NRDs to ensure that you have the best science available to make the final determination. It is because of this working relationship between DNR and the Basin NRDs that we are able to provide these substantive comments on the preliminary determination.

On behalf of the Basin NRDs, we are submitting comments concerning Chapter 7.0 of the 2009 Annual Evaluation, which constitutes DNR's preliminary determination that the Basin is fully appropriated. These comments consist of the following:

-Attachment A: *Technical Review of the Preliminary Fully Appropriated Determination in the Lower Platte River Basin*, Brown and Caldwell (March 12, 2009) ("B&C Technical Review");

-Attachment B: *Evaluation of Impacts to Days Needed to Meet 65/85 Requirements Under Various Scenarios*, Brown and Caldwell (March 12, 2009) (compare with Table 7-9, 2009 Annual Evaluation at 108);

-Attachment C: *Justification for the Minimal Irrigation Requirements Definition that is Incorporated in the Proposed Rule for Defining a Fully Appropriated Basin*, Dr. Ray Suppala (undated).

We ask that DNR include these materials in the administrative record and consider them in connection with developing the final decision on the availability of hydrologically connected water supplies in the Basin.

1. Summary of Preliminary Determination

The 2009 Annual Evaluation makes the preliminary determination that the Basin is fully appropriated upstream of the confluence with the Missouri River without the initiation of additional uses. According to the report, this determination is based on two factors: (1) "the current level of development will result in lag impacts such that the future water supply will be insufficient for junior surface water appropriations upstream of North Bend to satisfy the 65/85 rule completely;" and (2) "those same junior surface water appropriations are currently receiving less water than was available at the time the appropriations were granted (i.e., they have been eroded)." 2009 Annual Evaluation at 84; *id.* at 113.

2. The Legislature Gave the NRDs a Significant Role in Reviewing DNR's Preliminary Determinations.

Nebraska has faced many natural resources challenges in the past, and will continue to face similar challenges in the future. Our NRDs have a strong history of responding to our natural resources issues with local control and local solutions. Recognizing these abilities, and recognizing the partnership between the NRDs and DNR, the Legislature gave the NRDs a significant role in the fully and over appropriated determination process.

For example, the Legislature instructed the NRDs to "provide relevant data and information in their possession" to DNR for use in the annual determinations. The Legislature also set up a review system following a preliminary determination to assure the final

determination is based on the best science. The NRDs, in partnership with DNR, are to play a significant role in this review:

> Within the time period between the dates of the preliminary and final determinations, the department and the affected natural resources districts shall consult with ... water users and stakeholders as deemed appropriate by the department or the natural resources districts.

Neb. Rev. Stat. § 46-714(4). The NRDs take this role very seriously, and appreciate the opportunity to work with DNR on these important issues.

3. Overview of Comments

The majority of these comments relate to the application of the 65/85 rule, which include both scientific and legal components. The Basin NRDs are concerned that the preliminary determination is not based on the best scientific data available and, in some cases, does not comply with the agency's regulations. For these reasons, explained in detail below, the preliminary determination is not legally defensible if adopted in its current form. The Basin NRDs recommend that DNR apply the best science consistent with the agency regulations to reach a final determination. Based upon the current information available to the Basin NRDs, a determination of not fully appropriated is the necessary conclusion utilizing the best science in accordance with the regulations.

4. Background on the 65/85 Rule.

DNR adopted the 65/85 rule at the culmination of the negotiated rule-making process, which included the Basin NRDs as stakeholders. 457 Neb. Admin. Code § 24.001.01A. The purpose of the rule is to assist DNR in evaluating the sufficiency of the hydrologically connected water supplies to meet the "then-current uses of hydrologically connected surface water and ground water." DNR describes the rule as follows:

> In short, the [65/85 rule] states that the surface water supply is deemed to be insufficient if, at current levels of development, the most junior right in the basin ... has been unable to divert sufficient surface water over the last twenty years to provide 85% of the amount of water a corn crop needs (the net corn crop irrigation requirement, or NCCIR) during the irrigation season (May 1 through September 30), or if the most junior irrigation right in a basin ... is unable to divert 65% of the amount of water a corn

> crop needs during the key growing period of July 1 through August 31.

2009 Annual Evaluation at 14.

To apply the rule, DNR must have the following information: (a) the hydrologically connected area; (b) current levels of development; (c) the most junior right in the basin; (d) the NCCIR for the most junior right; (e) the most junior right's ability or inability to divert over the last twenty years; (f) the current hydrologically connected water supply; and (g) the lag effect from existing groundwater pumping in the hydrologically connected area that will deplete the water supply within the next 25 years. If any of these inputs are incorrect, the conclusion will not be accurate.

5. Concerns Relating to the Application of the 65/85 Rule.

(a) The Regulations Limit Consideration of Impacts to Wells Inside the Hyrdologically Connected Area.

DNR's regulations provide that the sufficiency of a basin's water supply to meet demand will be determined based on "the current uses of *hydrologically connected* surface water and ground water." 457 Neb. Admin. Code § 24.001. In particular, the annual evaluation must consider "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." *Id.* at § 24.002.01A. Similarly, "[t]he 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." *Id.* at § 24.002.01A.

The term "hydrologically connected area" is used consistently throughout the Nebraska Ground Water Management and Protection Act, Neb. Rev. Stat. § 46-701 to -753, and throughout DNR's regulations. The term is defined as "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." 457 Neb. Admin. Code § 24.001.02. This definition establishes what is now commonly referred to at the "10/50 area."

The 2009 Annual Evaluation for the Basin included impacts from all wells in the Basin – not just those within the 10/50 area. This approach does not appear to be defensible under DNR's regulations, and should be amended prior to issuance of the final determination.

(b) The Regulations Identify "The Most Junior Appropriator" as the Trigger for the 65/85 Rule.

The 65/85 rule requires an evaluation of whether "the most junior irrigation right" will be able to meet the 65/85 rule. 457 Neb. Admin. Code § 24.001.01A. That section also refers to "the most junior surface water appropriator" and "the most junior surface water appropriation" as the right against which the 65/85 rule should be applied.

The 2009 Annual Evaluation for the Basin did not evaluate the 65/85 rule against "the most junior appropriator." Instead, it used "a junior surface water appropriation" above the North Bend gage. 2009 Annual Evaluation at 95. The right selected has a net corn crop irrigation requirement, or NCCIR, of 27.9 days annually to meet the 65% requirement from July to August. *See* Attachment B. In contrast, the NCCIR for the most junior appropriator in the Basin equates to 18.06 days to meeting the 65% requirement. *See* Attachment B and B&C Technical Review at 1-2.

The use of *a* junior – rather than the *most* junior – does not appear to be defensible under DNR's regulations, and should be amended prior to issuance of the final determination.

(c) Consideration of 10% Downtime Is Inconsistent With Regulations.

The 65/85 rule is based on the ability of the surface water user to divert enough water to meet the NCCIR. 457 Neb. Admin. Code § 24.001.01A. This rule, however, does not include an adjustment for downtime. The concept of downtime is that, although water is available for diversion, the user cannot irrigate because of some mechanical failure or other cause.

DNR added a 10% downtime assumption to its application of the 65/85 rule for the Basin. This assumption is inconsistent with the regulations, and is irrelevant to the evaluation of whether water is available for diversion. The evaluation should focus on whether water is available – not whether the appropriator's system is able to divert otherwise available water. Stated differently, a basin should not be declared fully appropriated based on mechanical failures. This preliminary determination was very sensitive to the downtime assumption and, all things being equal, the Basin would not be fully appropriated without that assumption. B&C Technical Review at 1-3.

6. Regulatory Concerns Relating to the Erosion Rule.

DNR adopted the erosion rule in 2006 through the negotiated rule-making process. That rule is intended to prevent a basin from becoming fully appropriated through the issuance of a new surface water right that could not meet the 65/85 rule when it was granted. As such, the rule's application is limited to those scenarios where, "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," which is the 65/85 rule. 457 Neb. Admin. Code § 24.001.01C.

The application of the erosion rule in the 2009 annual evaluation is confusing. DNR applies the 65/85 rule in Section 7.7.1, and ultimately concludes that the 65/85 rule cannot be met based on future impacts from current uses. 2009 Annual Evaluation at 105. In the following section, then, DNR applies the erosion rule. 2009 Annual Evaluation at 108. Table 7-11 demonstrates that, at the time that the junior surface water appropriation DNR evaluated was granted, flows were sufficient to meet the 65/85 rule. Under the erosion rule, that is the end of the analysis.

Nevertheless, the report goes on to conclude that "the junior irrigation rights have been eroded." This conclusion is then used as a basis for the preliminary determination of fully appropriated. 2009 Annual Evaluation at 113 ("The designation is based on two factors. ... The second factor is that those same junior surface water appropriations are currently receiving less water than was available at the time the appropriations were granted (i.e., they have been eroded)"). Read without the rule, this conclusion appears to find the Basin fully appropriated through application of both the 65/85 and erosion rules as independent factors. But they are not independent tests; either the erosion rule or the 65/85 rule applies.

DNR should rework this analysis in future annual evaluations to avoid this confusion. The first step should be whether the 65/85 rule is satisfied. If it is not, the second step is to determine whether the 65/85 rule could be satisfied when the right was granted. If it could, then that is the end of the matter – the 65/85 rule applies and whether the appropriations have been eroded does not matter. If the 65/85 rule could not be satisfied when the right was granted, *then* the erosion rule applies and whether the right has been eroded is relevant.

7. The Annual Evaluations Must Use the Best Science.

DNR must "rely on the best scientific data, information, and methodologies readily available to ensure that the conclusions and results contained in the [annual] report are reliable." As discussed in the attached technical review by Brown and Caldwell, significant concerns exist regarding whether the preliminary determination for the Lower Platte River Basin meets this requirement.

One primary concern relates to the calculation of lag impacts and baseflow depletions from the Elkhorn Loup Model ("ELM"). Brown & Caldwell notes the importance of maintaining the distinction between the basic tool, the ELM, and simulations and runs made from the basic tool. This concern relates to the simulation DNR used, not to the tool. The tool

remains the best science available to calculate the 10/50 area and streamflow depletions, but the tool must be used properly.

DNR relied on USGS's assumptions and methodology to calculate future streamflow depletions from current uses. USGS used 3.03 million acre-feet of pumping within the ELM area as the "current use" from which to predict future depletions. This assumption far exceeds the level of pumping needed for the 2.3 million acres currently irrigated in the ELM area.

Figure 16 of the ELM Phase 1 report depicts the estimated historic annual groundwater pumping for crop irrigation in the Elkhorn and Loup River Basins from 1940 to 2005. The highest estimated pumping in those 65 years occurred in 2002, at about 1.8 million acre-feet pumped from the entire ELM area. The estimates in Figure 16 exceed 1.5 million acre-feet only five times over that entire history. This information led DNR and the NRDs to make additional inquiries of USGS to explain its assumptions.

After reviewing information from USGS, the pumping assumption results from an apparent error in calculating the average effective precipitation. The average effective precipitation is important because it is used to calculate how much pumping is required to meet the weighted average crop water requirement of 25.1 inches for the ELM area. In other words, by subtracting the average effective precipitation from 25.1, one can calculate how many inches of pumping is needed to meet the weighted average crop requirement. USGS calculated the average effective precipitation for the ELM area to be 9.39 inches, causing a dramatic over-estimation of the required pumping. In reality, the ELM report data demonstrates an average effective precipitation of 19.14 inches from 1940 to 2005. Subtracting this average from 25.1 inches equals 5.96 inches of groundwater that would need to be pumped. Spread across the 2.3 million irrigated acres in the ELM area, this totals 1.15 million acre feet of pumping annually, compared with the 3.03 million acre feet of pumping used in the USGS simulation. B&C Technical Review at 3-1 to 3-4.

DNR adopted USGS's assumption of 3.03 million acre feet of pumping to calculate the streamflow depletions from the ELM area in the 2009 Annual Evaluation. This level of pumping in the ELM area does not reflect pumping from current conditions or current levels of development.

8. Conclusion.

The preliminary determination that the Lower Platte River Basin is fully appropriated is inconsistent with DNR's regulations and is not supported by the best scientific data, information, and methodologies readily available. The Basin NRDs appreciate the opportunity to provide

these comments, and will continue working with DNR to assure the final determination is based on the best available science and is consistent with the regulations.

Sincerely,

FENNEMORE CRAIG, P.C.

Jaron Bromm

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Enclosures

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