

VIA ELECTRONIC MAIL ONLY

Date: December 31, 2013

TO: Governance Committee (GC) of the Platte River Recovery Implementation Program (PRRIP)

FROM: Jim Schneider, State of Nebraska's Representative to the GC  
Deputy Director, Nebraska Department of Natural Resources

SUBJECT: Nebraska Update on Continued Implementation of the Nebraska New Depletion Plan (NNDP)

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Nebraska continues to meet the terms of the Nebraska New Depletions Plan (NNDP). Based upon current estimates, the amount of accretions due to mitigation measures exceeds the amount of depletions from new or expanded uses. Details on the estimates and Nebraska's continued efforts to implement the NNDP are discussed in this memo. This memo also contains a general description of Nebraska's ongoing work to develop and utilize comprehensive tools to continue updating its assessment of all post-July 1, 1997, activities.

This update is being provided to the Governance Committee (GC) to outline Nebraska's depletive activities and mitigation measures through September 15, 2013, resulting from new and expanded uses of water as defined in the NNDP. This update utilizes information from previous memos and annual reports as well as additional information developed by Nebraska to summarize the net effect (difference between depletive activities and mitigation measures) through the end of the first increment (2019). The four sections in this update are described in detail below. If there are questions on the contents of this document please contact Jesse Bradley at 402-471-0586 or [jesse.bradley@nebraska.gov](mailto:jesse.bradley@nebraska.gov).

#### **MEMO ORGANIZATION**

The memo is organized similarly to the December 28, 2012, update provided by Nebraska to the GC. Section 1 includes updates on new or expanded permitted uses post-2005 and other new or expanded uses since July 1, 1997. Section 2 reviews the mitigation measures currently in place to offset the depletions from the activities described in Section 1. Section 3 summarizes the net effect of the combined depletions and mitigation measures from Sections 1 and 2 and the resulting effect of these activities on streamflows of the Platte River in Nebraska. Section 4 describes the continued efforts currently in process to refine assessment methodologies.

## 1.0 UPDATE ON NEW OR EXPANDED ACTIVITES

### *Post-2005 Permitted Activities*

Summarized in Table 1 are the net effects of new or expanded post-2005 permitted activities. Details on the sources of the data can be found in Nebraska’s annual reports to the GC<sup>1</sup>. Table 1 shows the total estimated depletions, mitigations, and net effects through the first 10-year increment (2019) by stream reach for permitted new and expanded groundwater and surface water uses issued between January 1, 2006, and December 31, 2012. The table also shows the total impacts of the permits and their associated mitigations through 2019. A negative value in the table represents depletion and positive represents an accretion to streamflow. The total net effects are positive, resulting in accretions to streamflow.

**Table 1:** 2006-2012 permitted new and expanded groundwater and surface water use depletions and mitigations and the impacts through 2019 in acre-feet. A negative value represents depletion and a positive value represents accretion.

Year	Upstream of Critical Habitat Reach			Within Critical Habitat Reach			Total
	Depletions	Mitigations	Net Effect	Depletions	Mitigations	Net Effect	
2006	-9	25	15	-206	4	-202	<b>-187</b>
2007	-25	66	41	-11	15	4	<b>45</b>
2008	-84	180	95	-31	38	7	<b>102</b>
2009	-190	377	187	-60	55	-5	<b>182</b>
2010	-285	522	237	-94	124	30	<b>268</b>
2011	-386	733	347	-131	159	28	<b>375</b>
2012	-509	993	484	-172	197	25	<b>509</b>
2013	-603	1146	543	-211	228	17	<b>560</b>
2014	-686	1261	575	-249	253	4	<b>580</b>
2015	-757	1353	596	-284	274	-10	<b>586</b>
2016	-818	1428	611	-316	291	-24	<b>586</b>
2017	-871	1492	621	-345	306	-39	<b>582</b>
2018	-919	1547	628	-372	318	-53	<b>575</b>
2019	-961	1595	634	-397	330	-67	<b>567</b>

<sup>1</sup> Available at this website: [http://dnr.ne.gov/PRRIP/docs/PRRIP\\_NE\\_DepletionPlan.html](http://dnr.ne.gov/PRRIP/docs/PRRIP_NE_DepletionPlan.html)

### Other New or Expanded Use Activities since July 1, 1997

Nebraska reported on changes in human and livestock population post-1997 to 2010 in the 2011 update dated January 6, 2012<sup>2</sup>. For the 2010 5-year review, Nebraska is still compiling data on industrial uses, sandpits, and small reservoirs and will present this data to the GC when it becomes available. Data on the small reservoir and sandpit uses is planned for completion in 2014. In accordance with the NNDP, no other new or expanded use activities are required to be reported at this time. Updates to all of these uses are scheduled for the next 5-year review in 2015.

## **2.0 MITIGATION MEASURES FOR NEW OR EXPANDED WATER USE ACTIVITIES**

There are a number of mitigation projects implemented by Nebraska that are ongoing or that have effects to stream flow that continue throughout the first increment. These projects include:

- Groundwater Recharge Demonstration Project in the 2011 water year which diverted excess Platte River flow into existing canals before and after the normal irrigation season allowing water to seep through the canals, laterals, and ponds into the groundwater and eventually return to the Platte River<sup>3</sup>;
- Canal Conjunctive Management Projects: Cozad Canal, Thirty-Mile Canal, and Southside (Orchard-Alfalfa) Canal;
- Retirement of water use both temporarily and permanently on irrigated land using several programs including the Platte Basin Habitat Enhancement Project (PBHEP) and Federal programs such as the Agricultural Water Enhancement Program (AWEP), Conservation Reserve Enhancement Program (CREP), and Environmental Quality Incentive Program (EQIP);
- J-2 Regulating Reservoir;
- Elwood Reservoir Groundwater Recharge Project;
- Reduced groundwater withdrawals via regulatory measures that place an allocation on groundwater withdrawals;
- North Dry Creek Augmentation Project;
- Elm Creek Reservoir currently being studied to evaluate its usefulness for storing and releasing excess flows;
- Phelps County Canal Recharge Project;
- Nebraska Cooperative Republican Platte Enhancement Project Augmentation Project.

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<sup>2</sup> Schneider, J., 2012. *Nebraska Update on Continued Implementation of the Nebraska New Depletion Plan (NNDP), Memo to the Governance Committee (GC) of the Platte River Recovery Implementation Program (PRRIP)*, January 6, 2012. Available here: [http://dnr.ne.gov/PRRIP/docs/PRRIP\\_NE\\_DepletionPlan.html](http://dnr.ne.gov/PRRIP/docs/PRRIP_NE_DepletionPlan.html)

<sup>3</sup> The 2011 demonstration project report is located here: <http://dnr.ne.gov/IWM/Reports/2011RechargeTM2013.pdf>

### 3.0 SUMMARY OF DEPLETIVE ACTIVITIES AND MITIGATION MEASURES

As shown in table 2, the accretive effect from mitigation measures exceeds the depletive effect of permitted and unpermitted activities according to the estimates from the analysis. Results of the preliminary assessment indicate current and projected accretive effects from mitigation measures exceed the calculated depletions by approximately 18,000 acre-feet per year at the end of the first increment.

**Table 2:** Net effect through 2019 of depletions and accretions (acre-feet). A negative value represents depletion and a positive value represents accretion.<sup>4</sup>

Year	Net effect of permitted activities <sup>5</sup>	Depletive effect from other activities <sup>6</sup>	Accretive effect from other mitigation measures <sup>7</sup>	Net effect of permitted and other activities
2013	560	-19,700	23,100	<b>4,000</b>
2014	580	-20,000	39,600	<b>20,200</b>
2015	590	-20,200	39,700	<b>20,100</b>
2016	590	-20,400	39,600	<b>19,800</b>
2017	580	-20,800	39,500	<b>19,300</b>
2018	580	-21,300	39,500	<b>18,800</b>
2019	570	-21,600	39,500	<b>18,500</b>

### 4.0 CONTINUED EFFORTS TO REFINE ASSESSMENT METHODOLOGIES

The guidance document that outlines the general process by which a more robust assessment of all water use activities and mitigation measures will be evaluated is available at: <http://dnr.ne.gov/IWM/Reports/Guidance20120814.pdf>. This process will provide a means to temporally and spatially refine Nebraska’s assessment of the combined effects of depletive activities and mitigation measures. This approach will utilize integrated groundwater, watershed, and operations models to assess the timing, amount, and location of depletive effects and mitigation measures.

The modeling tools being developed by Nebraska are calibrated and have been peer reviewed by independent experts. Nebraska will now develop the necessary data sets and incorporate all of its compiled data on all new or expanded uses and all mitigation measures since July 1, 1997, and a comprehensive assessment will be made of the impacts on the streamflow of the Platte River and its tributaries. Nebraska’s work plan anticipates completion of the analysis in 2016.

<sup>4</sup> All Values in Table 2 have been rounded

<sup>5</sup> Values from Table 1 above, permitted activities from calendar year 2006 through 2012

<sup>6</sup> Values originally reported in Table 5 in the January 6, 2012, Update

<sup>7</sup> Includes values from Groundwater Recharge Demonstration Projects, Conjunctive Management Projects, Retirement of Irrigated Acres, J-2 Regulating Reservoir, Elwood Reservoir Recharge, Groundwater Allocations, and North Dry Creek Augmentation Project.