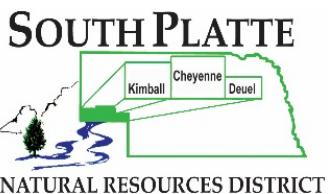


# INTEGRATED MANAGEMENT PLAN

Jointly Developed by the South Platte Natural Resources District  
and the Nebraska Department of Natural Resources



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### LIST OF ACRONYMS

|                        |  |
|------------------------|--|
| <b>AF</b>              | Acre-Feet or Acre-Foot   |
| <b>COHYST</b>          | Cooperative Hydrology Study  |
| <b>CPNRD</b>           | Central Platte Natural Resources District                            |
| <b>CREP</b>            | Conservation Reserve Enhancement Program                             |
| <b>EQIP</b>            | Environmental Quality Incentives Program                             |
| <b>ESA</b>             | Endangered Species Act   |
| <b>ET</b>              | evapotranspiration   |
| <b>ILCA</b>            | Interlocal Cooperative Agreement                                     |
| <b>IMP</b>             | Integrated Management Plan   |
| <b>INSIGHT</b>         | Integrated Network of Scientific Information and GeoHydrologic Tools |
| <b>M&amp;I</b>         | Municipal and industrial   |
| <b>NeDNR</b>           | Nebraska Department of Natural Resources                             |
| <b>Neb. Rev. Stat.</b> | Nebraska Revised Statutes  |
| <b>NET</b>             | Nebraska Environmental Trust   |
| <b>NNPD</b>            | Nebraska New Depletion Plan  |
| <b>NPNRD</b>           | North Platte Natural Resources District                              |
| <b>NRCS</b>            | Natural Resources Conservation Service                               |
| <b>NRD</b>             | Natural Resources District   |
| <b>PBC</b>             | Platte Basin Coalition   |
| <b>Post-1997</b>       | Refers to water uses initiated or expanded on or after July 1, 1997  |
| <b>PRRIP</b>           | Platte River Recovery Implementation Program                         |
| <b>SPNRD</b>           | South Platte Natural Resources District                              |
| <b>TBNRD</b>           | Tri-Basin Natural Resources District                                 |
| <b>TPNRD</b>           | Twin Platte Natural Resources District                               |
| <b>WRCF</b>            | Water Resources Cash Fund  |
| <b>WWUUMM</b>          | Western Water Use Management Model                                   |

## 1.0 EFFECTIVE DATE

This second increment Integrated Management Plan (IMP) was adopted by the South Platte Natural Resources District on August 6, 2019, and by the Nebraska Department of Natural Resources on August 9, 2019. This IMP became effective on September 11, 2019.

## 2.0 AUTHORITY

This IMP was prepared by the Board of Directors of the South Platte Natural Resources District (SPNRD or District), the Department of Natural Resources (NeDNR), and an Integrated Management Plan Stakeholder Work Group in accordance with *Neb. Rev. Stat. §§ 46-715 through 46-720*.

## 3.0 BACKGROUND

In 1993, the NeDNR (then the Department of Water Resources) imposed a moratorium on the issuance of new surface water appropriations in the Platte River Basin upstream of Columbus, Nebraska.

Prior to the enactment of LB 962 in 2004, the SPNRD had realized the need to regulate the use of groundwater. On November 7, 2002, the SPNRD Board was one of the first NRDs, under the authority of *Neb. Rev. Stat. §§ 46-701 to 46-456* (known as the *Nebraska Ground Water Management and Protection Act*), to place a moratorium on permits for new wells in the Lodgepole Creek Integrated Ground Water Management Subarea. In 2004, the Board, working with the Ground Water Advisory Committees and the public, ordered a temporary suspension of well construction for all the SPNRD, except for the Lodgepole Creek Integrated Ground Water Management Subarea. This action was later repealed because of the passage of LB 962 (2004).

On July 16, 2004, when LB 962 took effect, and pursuant to *Neb. Rev. Stat. § 46-720*, the NeDNR issued a notice of preliminary determination that the SPNRD was fully appropriated.

On September 15, 2004, the NeDNR designated the Platte River Basin above the Kearney Canal diversion as overappropriated and identified the area in which the surface water and groundwater are considered to be hydrologically connected for purposes of the overappropriated designation. A specifically defined portion of the SPNRD was included in this designation. The criteria used to make the determination included: 1) the South Platte River and North Platte River Areas within the then defined stream depletion factor line representing a cumulative depletion to stream baseflow of 28 percent of a hypothetical pumping volume in a 40-year period ("28/40" areas); and 2) to the extent not included as a result of the "28/40" areas, the integrated groundwater management subarea of the Lodgepole Creek Subbasin.

On September 30, 2004, the NeDNR issued an order of final determination that the hydrologically connected groundwater and surface water within the entire geographic area of the District was fully appropriated.

Because of the fully appropriated and overappropriated designations made by the NeDNR, stays were placed on new water uses. The stays transitioned into moratoriums on large capacity wells and expansion of irrigated acres. An additional automatic stay on the issuance of new surface water appropriations and on the use of existing appropriations to increase irrigated acres also took effect in accordance with *Neb. Rev. Stat. § 46-714* on September 30, 2004.

State statute requires that the impact of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent on streamflow due to water use initiated after July 1, 1997 (also referred to as post-1997 depletions), be addressed within ten years of the adoption of an IMP and requires that the overappropriated areas be returned to fully appropriated in an incremental manner as described in *Neb. Rev. Stat.* § 46-715(5)(d). In order to accomplish this requirement, this IMP incorporates the steps for an incremental approach to achieve the goals and objectives identified in this IMP as required under *Neb. Rev. Stat.* § 46-715(2)(a) of the *Nebraska Ground Water Management and Protection Act*.

### **3.1 First Increment Planning Development Process**

In areas that were designated as overappropriated, a first Increment Upper Platte River Basin-Wide Plan was developed and eventually adopted by the SPNRD on August 11, 2009, with an effective date of September 11, 2009. Likewise, the NeDNR issued an Order that the Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska be adopted with an effective date of September 11, 2009.

The Overappropriated Basin-Wide Stakeholders Group held meetings beginning in 2005 with the final meeting held December 16, 2008. This group was developed using the consultation and collaboration process described in *Neb. Rev. Stat.* § 46-715(5)(b) and was developed concurrently with the development of the IMP required pursuant to *Neb. Rev. Stat.* § 46-715(1)(a) and (2).

An agreement was not reached by the Stakeholder Group on the contents of the Basin-Wide Plan. Consequently, the South Platte NRD, Central Platte NRD, North Platte NRD, Tri-Basin NRD, and Twin Platte NRD (Upper Platte River Basin NRDs) and the NeDNR continued to work on the Basin-Wide Plan. Agreement between the Upper Platte River Basin NRDs and the NeDNR was reached on the proposed goals, objectives, and other components of the Basin-Wide Plan pursuant to *Neb. Rev. Stat.* § 46-715(5)(b).

The SPNRD and NeDNR jointly developed recommendations for the 1<sup>st</sup> Increment IMP that are required to sustain a balance between water uses and water supplies so that the economic viability, social and environmental health, safety and welfare of the river basin, subbasin, or reach can be achieved and maintained for both the near term and long term. This was accomplished by working with the SPNRD/NeDNR IMP Work Group, which was consistent with the consultation and collaboration requirements in *Neb. Rev. Stat.* § 46-715. The IMP Work Group held its first meeting August 26, 2004.

Initially, the SPNRD and the NeDNR jointly adopted the IMP on June 20, 2008, which became effective on July 20, 2008. At that time, the Overappropriated Area and Nebraska New Depletion Plan (NNDP)<sup>1</sup> requirements component in Rule 9 of the first increment IMP was incomplete because the Overappropriated Basin-Wide Plan had not yet been adopted. Subsequently, when the Basin-Wide Plan was completed, the SPNRD amended its Rule 9 to remain consistent with the elements of the Overappropriated Basin-Wide Plan. The SPNRD and NeDNR held a public hearing on the proposed amendment to Rule 9 and the changes, without modifications, went into effect on September 14, 2009.

The SPNRD exceeded expectations to implement measures within the first ten-year increment to offset average annual depletion rates of 150 acre-feet (AF) to the North Platte River, 400 AF to the South Platte River, and 150 AF to Lodgepole Creek for the long term of period of 2043 to 2048. The SPNRD also reached the first increment target of offsetting 13 AF in the North Platte River Basin and 213 AF in the combined South Platte River and Lodgepole Creek Basins of depletions from uses initiated after July 1, 1997.

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<sup>1</sup> The Nebraska New Depletion Plan can be found at <https://dnr.nebraska.gov/water-planning/platte-river-recovery-implementation-program>

The SPNRD's Robust Review analysis conducted in 2019, which includes management actions taken up to 2013, indicates that for 2019 the SPNRD has zero AF depletion to the North Platte River, 200 AF accretion to the South Platte River and 4,300 AF accretion to Lodgepole Creek (Table 1, in Chapter 9). The 2019 Robust Review estimates that at the end of the second ten-year increment in 2029 the balance will be zero AF depletion to the North Platte River, 200 AF accretion to the South Platte River and 4,500 AF accretion to Lodgepole Creek (Table 1). The 2019 Robust Review long-term analysis looking out 50 years indicates the SPNRD will need to maintain a balance of zero AF depletion to the North Platte River, 100 AF accretion to the South Platte River and 5,000 AF accretion to Lodgepole Creek (Table 2, in Chapter 9).

### **3.2 Second Increment Planning Development Process**

A committee representing the Upper Platte Basin groundwater and surface water interests met from August 2015 through January 2016 to prepare a guidance document titled *Public Participation Plan for the Second Increment - Upper Platte Basin-Wide Plan Development*. This document outlines the process for developing the second increment Basin-Wide Plan. "It was expected that a second increment will be necessary in order to meet the goals and objectives of the Upper Platte Basin-Wide Plan and to reduce the difference between current and fully appropriated levels of development," stated Nancy Shank, PhD, MBA, and at the time, Acting Director of the University of Nebraska Public Policy Center, who facilitated the committee meetings and complied the participation plan.

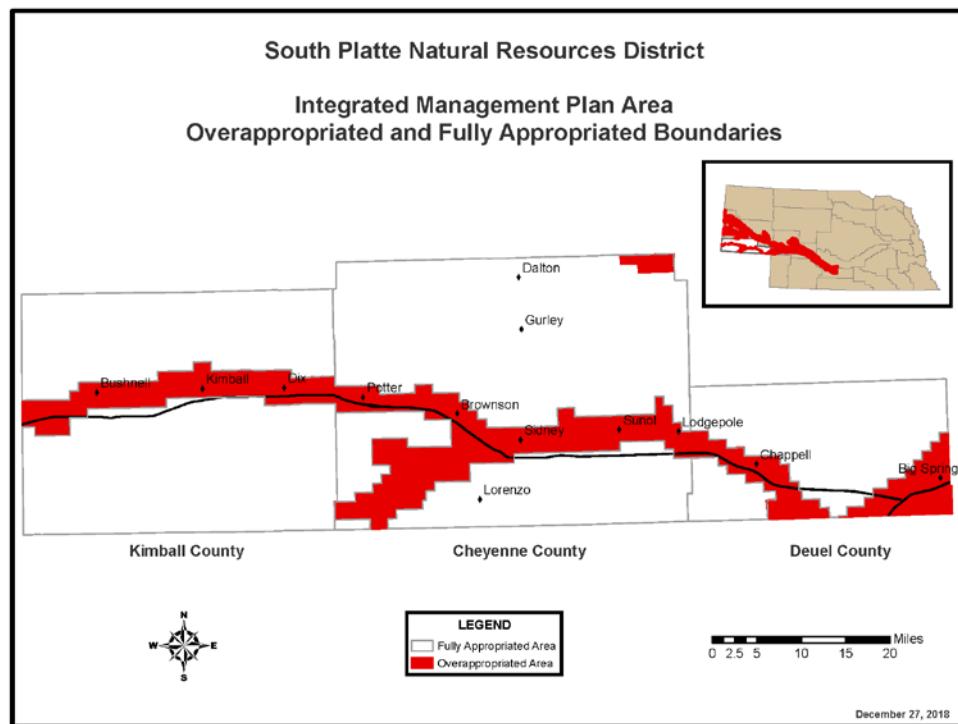
Beginning on June 16, 2016, the development of the second increment of the Upper Platte River Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin began with the gathering of the stakeholder-planning group. The group achieved nearly 100 percent consensus on the Basin-Wide Plan goals and objectives at its final meeting on September 19, 2018. An agreement between the Upper Platte River Basin NRDs and the NeDNR was reached on the proposed goals, objectives, and other components of the second Increment Basin-Wide Plan pursuant to *Neb. Rev. Stat. § 46-715(5)(b)*.

The Second Increment Upper Platte River Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska, was adopted by the SPNRD on August 6, 2019, and by the NeDNR on August 9, 2019. The Basin-Wide Plan became effective on September 11, 2019.

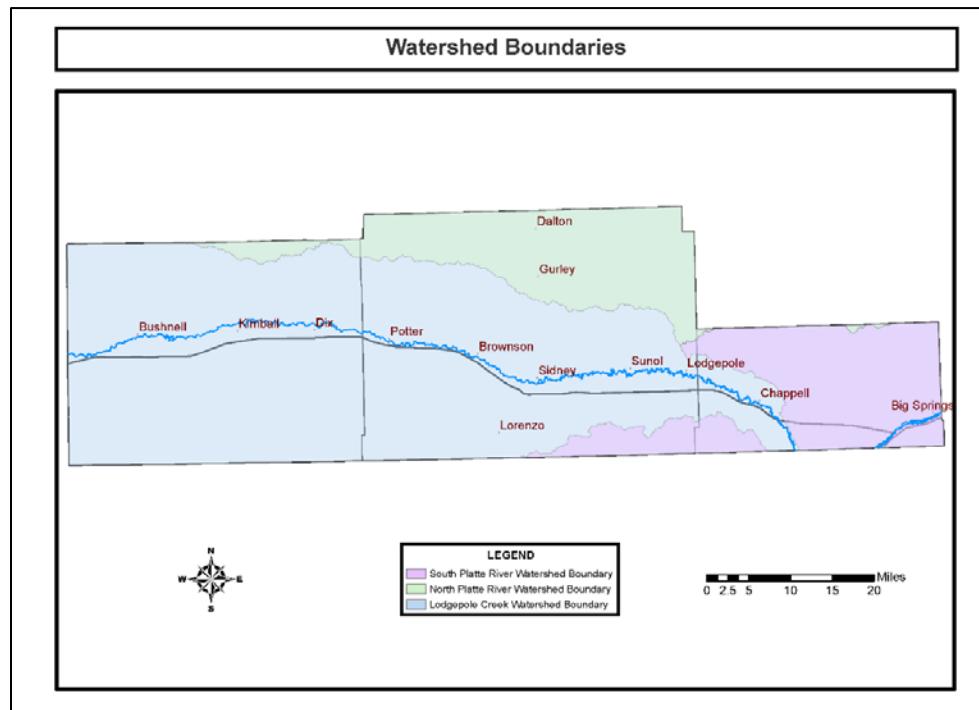
In May 2018, the SPNRD began forming the Second Increment IMP Work Group. The group consisted of stakeholders representing groups such as surface water users, municipalities, wildlife and environmental interests, economic development, financial organizations, county boards, agricultural organizations, and well drillers. The IMP goals and objectives are required to be consistent with the Basin-Wide Plan goals and objectives but tailored to meet the SPNRD's obligation toward the Basin-Wide Plan. The group met four times with the last meeting held on February 27, 2019. At the final meeting, the stakeholder group reached consensus on the draft of the IMP.

## **4.0 MAPS AND MANAGEMENT AREA BOUNDARIES**

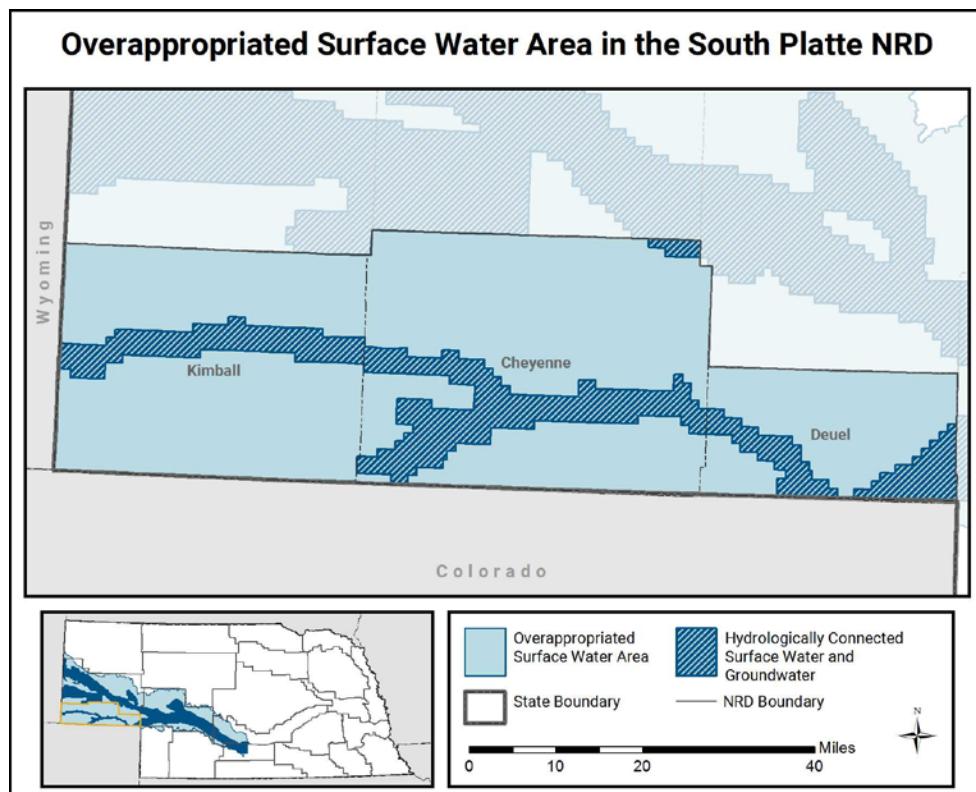
The area subject to this IMP is the entire geographic area of the SPNRD including the fully appropriated area and the overappropriated area, Figure 1. The goals, objectives, and action items described in this IMP pertain to the entire SPNRD. The stratigraphic boundaries subject to this IMP include all sediments from ground level downward through all aquifer units. Figure 2 depicts areas that drain into the North Platte River, the South Platte River, and the Lodgepole Creek. Figure 3 depicts the overappropriated surface water basin within the District.



**Figure 1.** The area subject to this IMP, including the overappropriated and fully appropriated portions.



**Figure 2.** SPNRD watershed boundaries.



**Figure 3.** The overappropriated surface water area and the hydrologically connected surface water and groundwater area within the District.

## 5.0 VISION

The overarching vision of this IMP, is to work together for the greater good of all citizens of the SPNRD to cooperatively develop and implement a local Integrated Surface Water/Groundwater Plan that has an acceptable degree of certainty of 1) maintaining a sufficient water supply for use by present and future generations; 2) maintaining, enhancing and protecting the region's agricultural economy and the viability of its cities and villages; and 3) promoting the growth of economic activities while seeking to avoid adverse impacts on the environment.

## 6.0 FUNDING

The NeDNR and SPNRD will use available funds and actively pursue new funding opportunities to cost effectively offset depletions as well as to develop, maintain, and update data and analytical tools needed to implement this plan. Funding for the regulatory and non-regulatory activities described in this plan will come from several funding sources.

The NeDNR receives funds appropriated by the Nebraska Legislature for water resources management and administration. The SPNRD has revenue sources including the occupation tax provided in *Neb. Rev. Stat. § 2-3226.05*, funds granted to the SPNRD by the State or Federal government, or the levy authority authorized by *Neb. Rev. Stat. § 2-3225*. The NeDNR and SPNRD intend to utilize qualified projects

described in *Neb. Rev. Stat. § 2-3226.04* to provide river-flow enhancement to achieve the goals and objectives of the SPNRD the requirements of the *Nebraska Ground Water Management and Protection Act* which would be funded using one or more of the revenue sources listed above. These qualified projects may also assist the State to achieve the goals and objectives of the State under the Platte River Recovery Implementation Program (PRRIP).

In addition to NeDNR and SPNRD contributions, both entities may also seek out and use grants from various federal, state, local and private partners. For example, the Nebraska Environmental Trust (NET) has been a supporter of water management activities in the Upper Platte River Basin.

Funding priorities identified in the action items include:

- Reductions in consumptive use
- Enhancement of water supplies
- Maintenance of existing projects and implementation of proposed projects to meet goals of this plan
- Data acquisition and maintenance, and model improvements for plan implementation

The ability of the NeDNR and SPNRD to implement the goals, objectives, and action items for this IMP, including their ability to meet the implementation timeline and intermediate deadlines set forth herein, may be limited by the availability of resources, including (but not limited to) funding or staff resources.

If limited resources prohibit completion or initiation of a specific management action, or if they delay the ability of the NeDNR or SPNRD to complete a task by an established deadline, such limitations and delays will be discussed by the NeDNR and the Upper Platte River Basin NRDs. If such a delay results in the need for revisions to this plan, the necessary revisions will be made following the procedures set forth in Chapter 10 of this IMP.

## 7.0 SCIENCE AND METHODS

NeDNR and the Central Platte NRD, North Platte NRD, South Platte NRD, Tri-Basin NRD, and Twin Platte NRD (Upper Platte River Basin NRDs) will use the best readily available science, data, and methods when implementing and reviewing the second increment Upper Platte River Basin IMPs. This maintains consistency with state statute and the first increment processes and methodologies. Consistency in the science, data, and methods used to evaluate water management actions across the basin is paramount to provide a consistent basis for comparison of the effectiveness of various water management actions, regardless of location. Statutes and prudent scientific practices call for clear and transparent procedures to track depletions and accretions. The NeDNR and Upper Platte River Basin NRDs will jointly develop and agree to all of the data, science, and methods used for the implementation, review, and evaluation of this IMP. The methodologies may be revised upon review of any new information, data, and science by the NeDNR and the Upper Platte River Basin NRDs. The action items in Chapter 10 reference actions outlined within this Chapter that are instrumental to the implementation and review of the IMP. This Chapter provides a brief overview of the data, science, and methods used in the first increment and describe how this will continue into the current increment.

## 7.1 Best Available Science, Methods, Data, and Tools Used in the First Increment

The first increment and associated implementation of the NNDP used the Cooperative Hydrology Study (COHYST)<sup>2</sup> model as the best available tool to both determine groundwater depletions and set mitigation targets for each Upper Platte River Basin NRD. The analysis used to determine the targets for the first increment is described in the 2008 COHYST report<sup>3</sup>. This analysis set the basis for the procedures for the Upper Platte River Basin NRDs and NeDNR to perform consistent, ongoing analysis throughout the first increment. Consistency in evaluation is crucial in order to compare the results from the analysis used to determine targets with the results of the analysis to determine how particular management actions meet those targets.

The Upper Platte River Basin NRDs and the NeDNR developed an annual protocol to evaluate IMP progress<sup>4</sup> toward the targets using analytical methods, coupled with COHYST model data, to assess annual changes in permit activity regarding changes in consumptive use and streamflow depletions. The annual protocol methods are consistent with the 2008 COHYST report to provide a valid comparison to the IMP targets. The annual process was used each year and results of those analyses can be found on the NeDNR website<sup>5</sup>.

Evaluation of the initial COHYST model led to two major areas of scientific understanding. First, the massive expanse of the COHYST model area would be best modelled as two separate areas, the Western Water Use Management (WWUM) Model area and the COHYST 2010 Model area, due to distinct and significant differences in geology, climate, land use, and water management. Second, splitting the COHYST model area required a reconstruction and rebuilding of the groundwater models. This fundamental rebuild of the models meant that neither model is currently consistent with the original 2008 COHYST report modeling analysis and results. Therefore, these models are not an appropriate tool to use as a direct comparison with the targets as described within the first increment IMP. Modifications to the original 2008 COHYST report analysis are necessary to redefine the targets for a true comparison with the newer modelling tools.

### 7.1.1 COHYST 2010

The COHYST 2010 Model includes a portion of the Upper Platte River Basin, extending westward from Chapman to the upstream end of Lake McConaughy. This model is used for the Central Platte NRD, Twin Platte NRD, and Tri-Basin NRD. The goal of COHYST 2010 is to support water management to maintain the region's extensive irrigation economy and protect river habitats used by endangered species. This goal is accomplished through reasonable and replicable model analysis to determine depletions and accretions that result from various water management actions.

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<sup>2</sup> More information on the COHYST 2010 model can be found at <https://cohyst.nebraska.gov/>

<sup>3</sup> Luckey, R.R. (2008). *Estimated Stream Baseflow Depletion by Natural Resources District in the Nebraska Platte Basin due to Gained and Lost Groundwater Irrigated Land after July 1, 1997*. [Referred to as the 2008 COHYST report] Aurora, CO: High Plains Hydrology, LLC. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>.

<sup>4</sup> The protocol document, *Basin-wide Technical Committee Guidance Document – Procedures for Annual Accounting Review and Robust Review to Assist Integrated Management Planning and Facilitate Reporting to the Platte River Recovery Implementation Program*, can be found at <https://dnr.nebraska.gov/water-planning/other-upper-platte-river-documents>

<sup>5</sup> Annual reports for the Upper Platte River Basin can be found at <https://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports>

### 7.1.2 WWUM Model

The WWUM Model covers the Upper Platte Basin from upstream of Lake McConaughy to the Wyoming and Colorado state lines. This model is used for the North Platte NRD (NPNRD) and SPNRD. It provides a detailed and holistic view of water resources in the region. The purpose of the effort is to provide a set of crop consumptive use, groundwater, and surface water modeling tools to aid in management of river, stream, and aquifer systems within the modeling area. The goal of WWUM Model is to create data centered decision support information to assist the NPNRD, SPNRD, and the NeDNR.

The revised models improve the overall understanding of basin hydrology during implementation of the first increment this IMP. The first increment 2019 Robust Review used this updated understanding and science for all aspects of the analysis. Application of these tools and understanding resulted in refined estimates of post-1997 depletions that are typically greater than the original estimates included in the first increment plan. The 2019 Robust Review also provided estimates of the first increment offsets achieved by each of the Upper Platte River Basin NRDs. A description of the 2019 Robust Review can be found in Section 8.3 of this IMP.

## 7.2 Best Available Science, Methods, Data, and Tools to be Used in Ongoing Increments

There are several basin-wide tenets regarding best available science, data, and methods that the Upper Platte Basin NRDs and the NeDNR will follow while implementing their respective IMPs. NeDNR and the Upper Platte River Basin NRDs will:

1. Maintain, improve, or acquire data and modeling tools, such as the WWUM Model, land-use, climate data, and other programs or projects needed to implement and assess the progress of this IMP.
2. Use the models or data and tools derived from the WWUM Model to analyze potential management actions, conduct an annual review of progress of the IMP, perform the next Robust Reviews, and carry out any relevant studies identified in this IMP or the Basin-Wide Plan.
3. Use conceptually consistent methods uniformly across the basin for IMP and Basin-Wide Plan compliance-based analysis, such that stream depletion estimates or calculations performed in one area of the basin are comparable to stream depletion estimates or calculations in another area of the basin. The concept “uniformly across the basin” in this IMP means using consistency in analysis, and is not intended to dictate that the same methods be used throughout the basin. Rather, the intention is to indicate methodologies must be scientifically based and proven as conceptually consistent equivalents through either the scientific literature or independent evaluation of NeDNR and the Upper Platte River Basin NRDs.
4. Use methods consistent with the analysis and tools used to develop the IMP targets when evaluating progress toward achieving current IMP targets. If necessary, new tools will be used to re-evaluate targets as well as progress toward those targets; in either case both the targets and the values estimating progress will be developed in a conceptually consistent manner so that they can be compared.
5. Maintain and expand model applications through collaboration with other model users.
6. Agree to substantial changes to the model before using those changes to evaluate the IMP and management actions. Such changes may include hydrologic properties or refinements of model grids.

7. Periodically review the accretion and depletion estimates and the methodology used in the analysis that generates these estimates. Understanding of the basin hydrology will continue to evolve as new supporting data and information are gathered and evaluated. Due to the improved data, information, and tools, it is anticipated that, through agreement by NeDNR and the Upper Platte River Basin NRDs, the values for depletions or accretions from the Robust Review may change.
8. Share advances or updates to data, models, analysis tools, or hydrological understanding with the public. Methods, tools, and data used will be made available to the stakeholders and the public, as described in the Basin-Wide Plan. The process for incorporating new information and results into this IMP and/or supporting appendices will include a public hearing, as discussed in Section 10.9 of this IMP.

### **7.3 Information Considered in Developing this IMP**

Information used in the preparation of this IMP and subsequent implementation of this IMP can be found in the resources listed below. These materials can be obtained by contacting either the SPNRD or NeDNR.

- The Order Declaring Formal Moratoriums in the Matter of the Platte River Basin above the Mouth of the Loup River, the North Platte River Basin, and the South Platte River Basin, et al.; dated July 14, 2004 (Appendix D)
- The Order Designating Overappropriated River Basins, Subbasins, or Reaches, and Describing Hydrologically Connected Geographic Area in the Matter of the Platte River Basin upstream of the Kearney Canal Diversion, the North Platte River Basin, and the South Platte River Basin; dated September 15, 2004 (Appendix E)
- The Order of Final Determination of River Basins, Subbasins, or Reaches as Fully Appropriated, and Describing Hydrologically Connected Geographic Area in the Matter of the Portion of the Platte River Basin Upstream of the Loup River Confluence, the North Platte River Basin, and the South Platte River Basin within the South Platte Natural Resources District, the Twin Platte Natural Resources District, and the Central Platte Natural Resources District; dated September 30, 2004 (Appendix F)
- The SPNRD *Ground Water Management Plan*
- The SPNRD *Districtwide Ground Water Management Area Rules and Regulations*
- The *Integrated Management Plan Jointly Developed by the South Platte Natural Resources District and the Nebraska Department of Natural Resources*; effective September 14, 2009 (first increment IMP)
- The *Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska*; effective September 11, 2009 (first increment Basin-Wide Plan)
- The proposed *Second Increment Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska*.
- COHYST, COHYST 2010, and WWUM Models
- The 2019 *Upper Platte Basin Robust Review*
- The *Upper Platte Basin Evaluation of the Difference in Streamflow Impacts Prior to and After 1997 (Total Depletions Analysis)*

- The *Upper Platte River Basin INSIGHT Analysis*
- The *Nebraska New Depletion Plan of the Platte River Recovery Implementation Program*
- Information developed by and data collected for the Platte River Recovery Implementation Program
- Applicable Nebraska Revised Statutes
- *Department of Natural Resources Rules for Ground Water, Title 456 Neb. Admin. Code*
- *Department of Natural Resources Rules for Surface Water, Title 457 Neb. Admin. Code*
- The items listed in *Department of Natural Resources Rules for Process and Procedures, Title 454 Neb. Admin. Code*
- Additional data on file with the SPNRD and the NeDNR

## 8.0 FIRST INCREMENT ACCOMPLISHMENTS

### 8.1 Studies Conducted and Information Obtained in the First Increment

The Upper Platte River Basin NRDs and NeDNR conducted several studies in the first increment, which were specifically identified by the IMPs. Large amounts of information and data were collected and used in these studies and other analyses. The purpose was to help evaluate the potential effectiveness of various strategies in achieving the goals and objectives of that IMP and to help gage progress during the first increment.

#### 8.1.1 Assessing Available Water

##### 8.1.1.1 Surface Water

A study of unappropriated surface water, its availability in time and location, was conducted during the first increment; see reports by HDR and The Flatwater Group, Inc. (2010<sup>6</sup>, 2013<sup>7</sup>). A list of existing surface water appropriations within the basin was compiled as part of the study of unappropriated surface water (HDR and The Flatwater Group, Inc. 2010). It was determined that there are times when unappropriated surface water is available in the basin for relocation or retiming projects. Specifically, the NeDNR determined that between 1954 and 2008 there were excess flows available in some years. Most excess flow events occurred in May and June, and some events were in excess of 30,000 AF. A planning tool was developed to estimate amount, duration, and frequency of excess flow by reach.

##### 8.1.1.2 Groundwater

To assist in assessing available groundwater the SPNRD certified all groundwater irrigated acres and other uses of groundwater. This data continues to be maintained in a GIS database of the certified acres that tracks transfers, retirements and other changes to certified acres.

<sup>6</sup> HDR and The Flatwater Group, Inc. (2010). *Evaluation of Historic Platte River Streamflow in Excess of State Protected Flows and Target Flows*. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>

<sup>7</sup> HDR and The Flatwater Group, Inc. (2013). *Evaluation of Historic Platte River Streamflow in Excess of State Protected Flows and Target Flows, Technical Memorandum*. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>

The SPNRD implemented groundwater metering. This data was input into the WWUM for tracking groundwater supplies and demand.

To assist in assessing changes in available groundwater, SPNRD tracked all consumptive use changes due to transfers, variances, offsets, and expanded municipal and industrial uses.

### **8.1.2 Conservation Measures Study**

#### **8.1.2.1 Phase I**

The Flatwater Group, Inc. completed Phase I of a conservation study in 2013 and provided the results in a Final Technical Memorandum<sup>8</sup>. The purpose of the Phase I study was to assess which conservation measures<sup>9</sup> the Upper Platte River Basin NRDs should consider implementing and also to assess potential methods for developing basin-wide estimates of impacts to streamflow of the conservation measures in the fully appropriated and overappropriated areas of the basin.

Phase I provided a matrix which assessed the assumed magnitude of impact to streamflow of varying intensity for each conservation measure, as well as the required resources and cost of each method. The matrix also provided information on the effect to overland runoff, recharge, and net effect on evapotranspiration (ET) of each conservation measure of varying intensity. Conservation measures assessed included structural (e.g., terraces, dams, canals, etc.) and non-structural (e.g., tillage, irrigation management and efficiency, crop rotation, soil monitoring, buffers, etc.) measures.

#### **8.1.2.2 Phase II**

From the Phase I study, two conservation measures, 1) changes in tillage practices, and 2) improvements in irrigation efficiency, were identified and were subsequently assessed in the Phase II study for their impacts on surface water and groundwater<sup>10</sup>. To analyze the effects that the two conservation measures had on both surface water and groundwater, each conservation measure was modeled and results were compared to a baseline model scenario.

Two scenarios were developed for each conservation measure, a low and high bookend of their potential effects, using historical tillage practices and low irrigation efficiencies, and using no-tillage practices and high irrigation efficiencies, respectively.

##### **A. Changes in Tillage Practices**

In the surface water model scenarios, the no-tillage scenario resulted in a reduced the net irrigation requirement (NIR), corresponding to reduced river diversions, upstream storage releases, and co-mingled pumping, but overall minimal impact on the streamflow at the Lewellen gage. In the groundwater model scenarios, no-tillage resulted in increased baseflow and increased recharge.

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<sup>8</sup> The Flatwater Group, Inc. (2013). *Final Technical Memorandum of Conservation Study*. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>

<sup>9</sup> The Final Technical Memorandum defines conservation measures as “practices designed to control or prevent soil erosion, enhance the beneficial use of precipitation and irrigation water, or reduce non-beneficial water consumption.”

<sup>10</sup> Adaptive Resources, Inc., Nebraska Department of Natural Resources, Wilson Water Group (2017) POAC Area Conservation Measures Study-Irrigation Efficiency and Tillage Strategy. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>

## B. Changes in Irrigation Efficiency

In the surface water models, the high efficiency scenario reduced NIR by approximately 30 percent, significantly increased crop consumptive use (as expected in water short systems), and reduced return flow. The increased consumptive use is often met by more efficient use of river diversions, and a significant reduction in upstream releases and co-mingled pumping. The low efficiency scenario resulted in higher streamflow due to reduced crop consumptive use and increased return flows during the non-irrigation season. The conservation measures caused the greatest impact on streamflow during dry years.

The groundwater models found that the effects of each practice varied between Upper Platte River Basin NRDs. North Platte NRD saw an increase in baseflow as a result of low efficiency irrigation, likely due to additional recharge from surface water diversions/canals along the North Platte River. The other Upper Platte Basin NRD's saw an increase in baseflow as a result of high efficiency irrigation, likely due to reduced groundwater withdrawals. High efficiency irrigation decreased recharge for all the Upper Platte River Basin NRDs.

Overall, relatively minor net surface water supply benefits result from increasing irrigation efficiency, primarily due to additional crop consumption and that in areas the reliant on surface water for delivery of irrigation supplies the increased efficiency of water delivery may have negative impacts on the water supply. High efficiency irrigation resulted in reduced groundwater pumping but also reduced groundwater recharge in all five Upper Platte River Basin NRDs. No-tillage practices resulted in reduced groundwater pumping and increased groundwater recharge in all five Upper Platte River Basin NRDs. As a result of these findings, additional ongoing efforts to evaluate the impacts of tillage practices are underway. It is expected that these updated findings will be integrated into future technical evaluations.

### 8.1.3 Conjunctive Management Study

In 2011, HDR and The Flatwater Group, Inc. published the Conjunctive Management Study<sup>11</sup>. The objectives of this study were to identify general elements, potential approaches, and constraints necessary for planning and evaluation of conjunctive management projects. Findings were then used to evaluate several hypothetical projects involving the Western Canal to illustrate the application of these concepts. Although the Western Canal, a 20-mile canal that diverts from the South Platte River, is located in South Platte and Twin Platte NRDs, the concepts from this case study are applicable basin-wide.

Conjunctive management<sup>12</sup> involves managing surface and groundwater together to maximize storage, timing, and use of the resource. For successful conjunctive management projects, identification and quantification of surface water and groundwater supplies is essential. Projects generally include three components, 1) diversion of surface water, 2) recharge facilities, and 3) use of the water. Project impacts (e.g., water yield, water quality, economics, the environment, etc.) and alternatives must be considered, as well as legal constraints. A monitoring plan should also be developed to assess project performance. All of these components were then used in a case study to evaluate several hypothetical conjunctive management projects on the Western Canal.

<sup>11</sup> HDR and The Flatwater Group, Inc. (2011). *Conceptual Design of a Conjunctive Management Project*. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>

<sup>12</sup> The Conjunctive Management Study defines conjunctive management as "the coordinated and planned use and management of both surface water and groundwater resources to maximize the availability and reliability of water supplies in a region to meet various water needs."

#### **8.1.4 Inventory of Sandpits and Small Reservoirs**

As part of Nebraska's commitment to PRRIP, the NeDNR has been charged with estimating the cumulative impacts of new or expanded, unregulated surface water activities. Therefore, in 2013, the NeDNR conducted an inventory and analysis of sandpits and reservoirs with capacity below 15 AF throughout Upper Platte River Basin<sup>13</sup>. This analysis used multi-temporal aerial imagery from 2005 and 2010, and implemented remote sensing techniques to delineate and compare the number, size, and distribution of these water bodies. Baseline data generated from 2005 imagery were compared to 2010 imagery in order to identify changes in the overall surface areas of these unregulated water bodies within the basin. Once these new or expanded water bodies were identified, the Natural Resources Conservation Service (NRCS) ET calculator was used to estimate the resulting change in consumptive use due to ET.

The inventory component of the study was extremely labor intensive and required approximately 2,500 labor hours to identify, measure, and categorize over 13,000 remotely sensed features. After comparing data from both years, the study found 94 new or expanded sandpits and 9 new reservoirs. New and expanded sand pits represented a cumulative increase in open water surface area of 728 acres and new reservoirs were responsible for a cumulative increase of 19 acres for a total of 747 new acres of unregulated surface water throughout the basin from 2005 to 2010.

Once the change in open water acreage attributed to unregulated surface water was determined, the NRCS calculator was used to estimate the resulting change in consumptive use due to ET. The results of the NRCS analysis found a pronounced decrease in consumptive use due to ET during the growing season with a modest increase in consumptive use during the non-growing season. Additionally, the NRCS analysis identified a very slight increase in consumptive use due to new reservoirs, which was consistently distributed across all months. Ultimately, the NRCS analysis estimated that the increase in unregulated surface water acreage from 2005 to 2010 resulted in a net decrease in consumptive use of 678 AF per year throughout the basin. The results of this study were presented to the PRRIP Water Advisory Committee on May 6, 2014.

#### **8.1.5 Lodgepole Creek Flow Evaluation**

The Flatwater Group conducted a flow evaluation of Lodgepole Creek for SPNRD, with assistance from NeDNR. This involved two tasks, both of which are available by request from SPNRD.

Task 1 focused on historical creek conditions and gaging stations, including a description of the point of diversion on Lodgepole Creek. Legal constraints regarding the point of diversion and the South Platte River Compact were described, particularly Article III and V. Julesburg Irrigation District ditches were also mentioned including potential stored water runs options with Peterson Ditch.

Task 2 focused on the development of a stream routing model to estimate the ability to carry water through Lodgepole Creek and the South Platte River. The modeled area included three reaches from the Ralton gage to the Julesburg gage. Gage records were compiled but were sparse, leading to several assumptions and estimates being incorporated into the model. Diversion records and estimated returns were incorporated, and estimated gains and losses for each of the three reaches. Routing scenarios were developed to allow the user to designate augmentation flows into the creek. The ultimate model output was the calculated flow at the Julesburg gage.

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<sup>13</sup>Zoller, A., K. Ajaere, and A. Pedley. (2019). *Upper Platte River Basin Consumptive Use Change from New Reservoirs and New or Expanded Sandpit Lakes; 2005 to 2010*. Retrieved from <https://dnr.nebraska.gov/water-planning/upper-platte-river-publications>

Sensitivity analysis was conducted on four parameters: 1) the percentage values for canal spills on Lodgepole Creek, with a change in this percentage making a large impact on augmentation flows reaching the Julesburg gage; 2) the loss to augmentation flows in the South Platte River, with higher loss percentages resulting in smaller amounts of augmentation flows reaching the Julesburg gage, and caution expressed to the user; 3) the capacity constraint of the culvert under Peterson Canal, which is less important in dry years and more important in wet years when there is a greater chance of the culvert running full; and 4) the Little Ditch diversion demand multiplier, with higher increases reducing augmentation flows reaching the Julesburg gage at a lesser rate.

Task 2 also provided findings on Wyoming's Crow Creek and the Platte River Recovery Implementation Program, stating there may be a level of hydrologic connectivity to the South Platte River based on historic flow analysis. A User's Guide was included for use and interpretation of the model. The Flatwater Group provided potential future projects as options for SPNRD or NeDNR.

## **8.2 Summary of Management Actions Taken in the First Increment**

The NeDNR continued the formal moratorium on all new surface water appropriations for the Upper Platte River Basin including the SPNRD. The SPNRD and NeDNR conducted a conjunctive management project in cooperation with Western Irrigation District. Excess streamflows were diverted into irrigation canals, pits, and reservoirs for groundwater recharge to retime and augment baseflows. Additionally, the following is a summary of the management actions carried out by the SPNRD:

- Required wells to have a flow meter installed.
- Facilitated groundwater users in signing up for EQIP program to retire irrigated acres.
- Required offsets for all new or expanded uses after 1997 of municipal and industrial groundwater users.
- Placed a moratorium on the issuance of water well construction permits and on new or expanded groundwater uses.
- Implemented rules and regulations that:
  - Required certification of irrigated acres.
  - Limited transfers, either in location or in purpose, of consumptive use of groundwater so that it would not cause an increase in depletions to the river or cause a negative impact to existing surface water or groundwater users.
  - Required "Large Users" to obtain a permit. Required non-municipal industrial users to obtain an Industrial/Commercial Water Usage Certification.

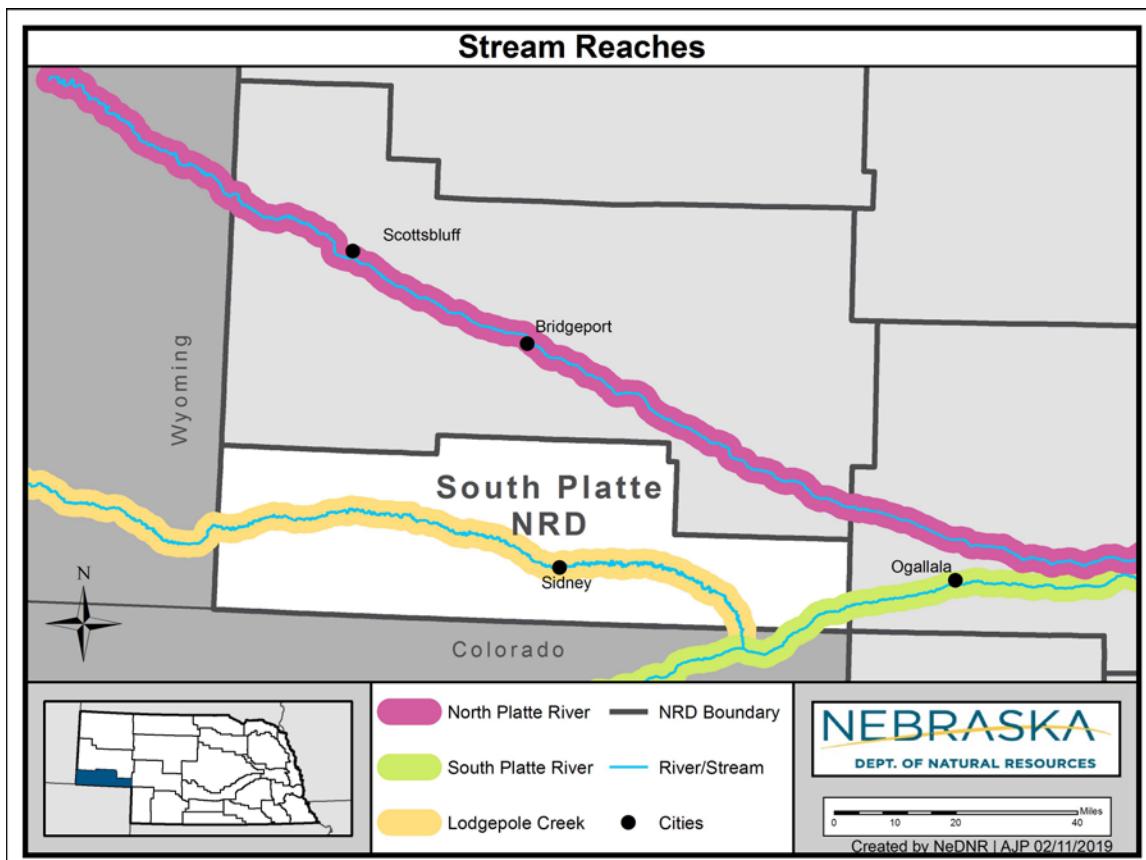
## **8.3 Assessment of the First Increment (2019 Robust Review)**

As required by statute, NeDNR and the Upper Platte River Basin NRDs conducted a Robust Review<sup>14</sup>, finalized in 2019, of the progress being made toward achieving the goals, objectives, and targets of the first increment. The previous IMP outlined the process for the Robust Review in order to compare the results of that analysis with the 2008 COHYST report (Section 7.1). The 2019 Robust Review was an update of that study. The evaluation used data and information from the annual reports and updates developed in support of Basin-Wide Plan and NNDP implementation.

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<sup>14</sup> Platte Overappropriated Area Committee (2019). The 2019 *Upper Platte Basin Robust Review* retrieved from: <https://upointplanning.nebraska.gov/>

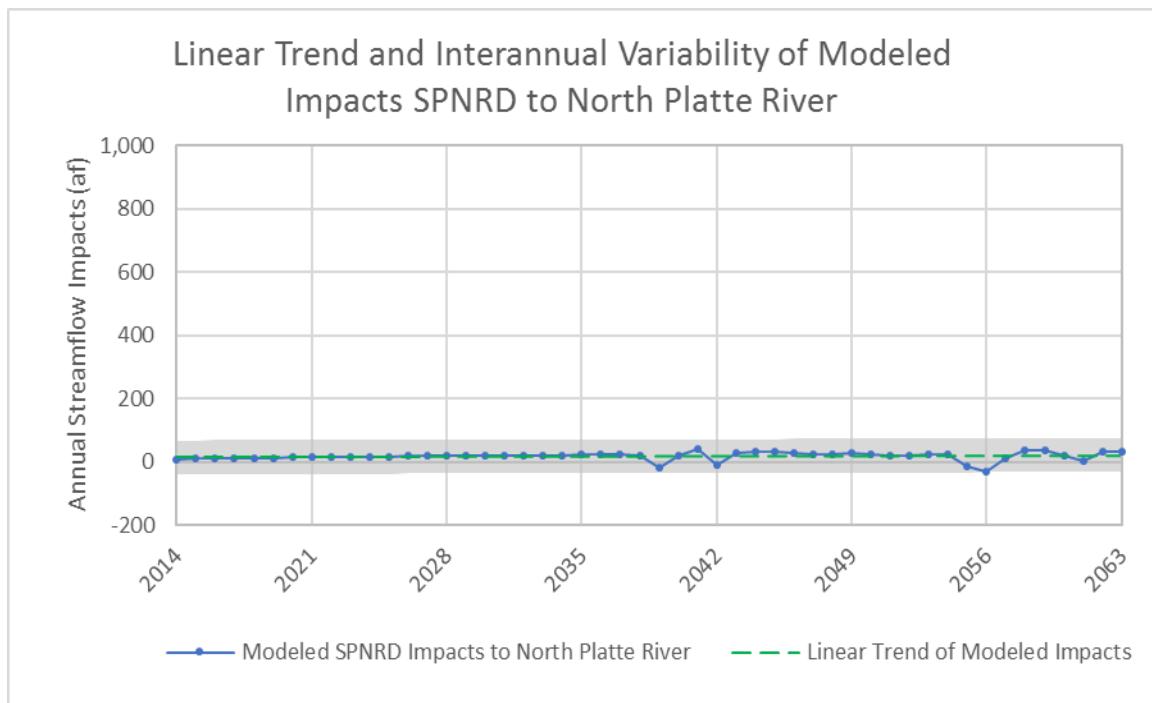
This evaluation provides summarized estimates of the streamflow impacts resulting from gained and lost irrigated land, allocations, transfers, expansion and contraction of municipal and industrial uses, managed groundwater recharge, stream augmentation, and permitted uses that occurred through 2013. The 2019 Robust Review is a synthesis of all of these efforts and provides summarized updates of new targets that will be used to guide second increment planning goals and objectives.



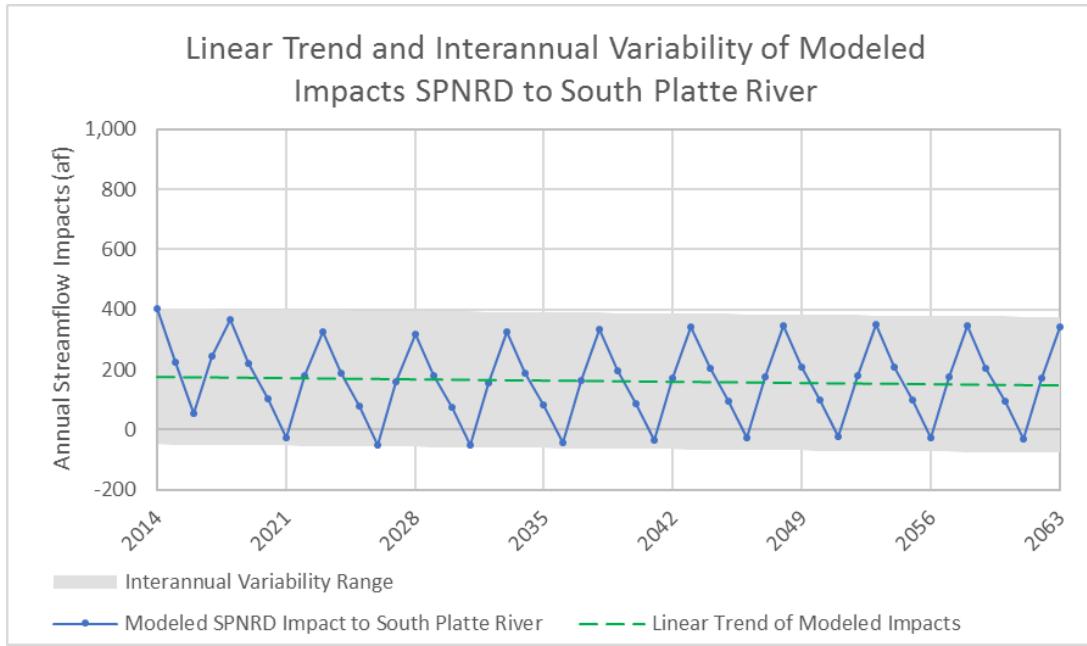
**Figure 4. Stream Reaches for Robust Review Analysis for SPNRD. The data in Figures 5-7 correspond to the stream reaches.**

The 2019 Upper Platte River Basin Robust Review Report outlines the methods, limitations, and results of the most recent Robust Review and represents the best available science to support second increment planning. The general method for conducting the Robust Review can be found in Section 10.7.3.2. Figures 5-7 below illustrate the results for the SPNRD for the period of 2014-2063 from this most recent Robust Review conducted by the NeDNR. Positive values for stream flow impacts indicate accretions and negative values indicate depletions. The charts display the modeled post-1997 impacts of groundwater-only irrigation, municipal and industrial development, allocations, groundwater irrigated acre retirements, and groundwater recharge activities within the District for each of the stream reaches impacted by the SPNRD, as shown in Figure 4. Again, the impacts of changes, activities, and actions taken through 2013 are reflected in the results but any changes, activities, or actions occurring after 2013 were not analyzed in this 2019 Robust Review and are therefore not shown in the data. A linear trend line has been added to

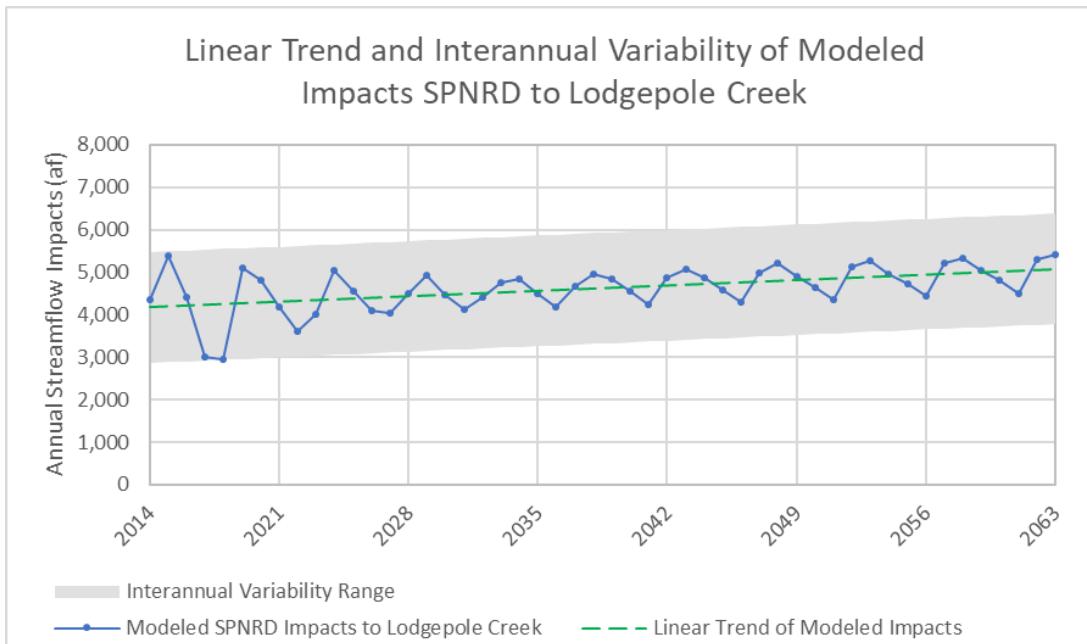
the modeled impacts from 2014 through 2063, and the interannual variability range of modeled impacts across the trend shown by the grey band.



**Figure 5.** Modeled SPNRD Post-1997 impacts to the North Platte River, the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend.



**Figure 6.** Modeled SPNRD post-1997 impacts to the South Platte River, the linear trend line of the modeled impacts from 2014-2063, and the interannual variability range of modeled impacts across the trend.



**Figure 7.** Modeled SPNRD post-1997 impacts to Lodgepole Creek, the linear trend line of the modeled impacts from 2014-2063, and the inter-annual variability range of modeled impacts across the trend.

Potential future offsets and management actions are impacted by the variability in climate, therefore the trend line is shown to smooth out the potential future effects of climate variability and the grey inter-annual variability band encapsulates a potential range of impacts.

It is recognized that while they were not analyzed during this 2019 Robust Review, several canal diversions for recharge occurred after 2013 during the first increment that would also provide accretions to the stream. Other actions, such as the continued implementation of allocations, provided additional accretions but were not part of this 2019 Robust Review analysis. This will be considered when evaluating the progress toward second increment goals and objectives in Chapter 9 and when performing the next Robust Review.

#### **8.4 Assessment of Fully Appropriated**

There are several factors that play a role in assessing the difference between the current level of development and a fully appropriated conditions in the Upper Platte River Basin. Identifying this difference is critical in tracking progress toward a fully appropriated condition. The *Nebraska Ground Water Management and Protection Act* requires that determination of the difference between current and fully appropriated levels of development account for: (1) cyclical supply, including drought; (2) the portion of the difference that is due to conservation measures; (3) the portion of the overall difference due to water uses initiated prior to July 1, 1997; and (4) the portion of the overall difference due to water uses initiated or expanded on or after July 1, 1997. A more complete description of all of the factors that are used to assess the difference between current levels of development fully appropriated conditions are outlined in Appendix 1 of the Total Depletions Report<sup>15</sup>. Several publications have been developed to support evaluation of these components (see Conservation Measures study, 2019 Robust Review, INSIGHT analysis) and are further described below.

##### **8.4.1 Streamflow Impacts from Uses Initiated Prior to July 1, 1997, and after July 1, 1997 (Total Depletions)**

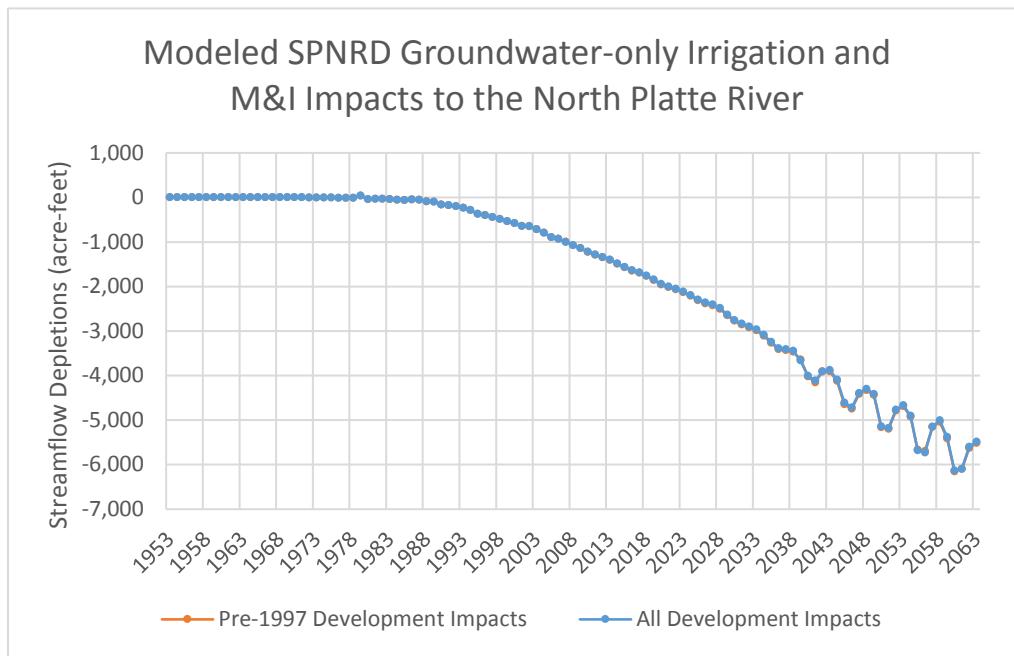
This evaluation provides summarized estimates of the streamflow impacts resulting from development of groundwater-only irrigated lands prior to July 1, 1997, and from development through 2013 within each Upper Platte River Basin NRD, for the reaches upstream of Elm Creek. The 2019 Robust Review report provides a separate evaluation of the streamflow impacts resulting from gained and lost irrigated land, controls, municipal and industrial expansion and contraction, managed recharge, stream augmentation, and permitted uses initiated or expanded on or after July 1, 1997, within each Upper Platte River Basin NRD. The projections of future stream baseflow effects will be reviewed and updated through the course of the second increment, with future evaluations guiding any necessary refinements and modifications to the planning goals, objectives, actions, and controls.

In Figures 8, 9, and 10, the modeled streamflow impacts to the North Platte River, South Platte River, and Lodgepole Creek, respectively, from all groundwater-only irrigation and municipal and industrial development within the District with offsetting management actions, including allocations, groundwater irrigated acre retirements, and recharge projects on the South Platte River, are shown. Also shown are the modeled streamflow impacts from all groundwater-only irrigation and municipal

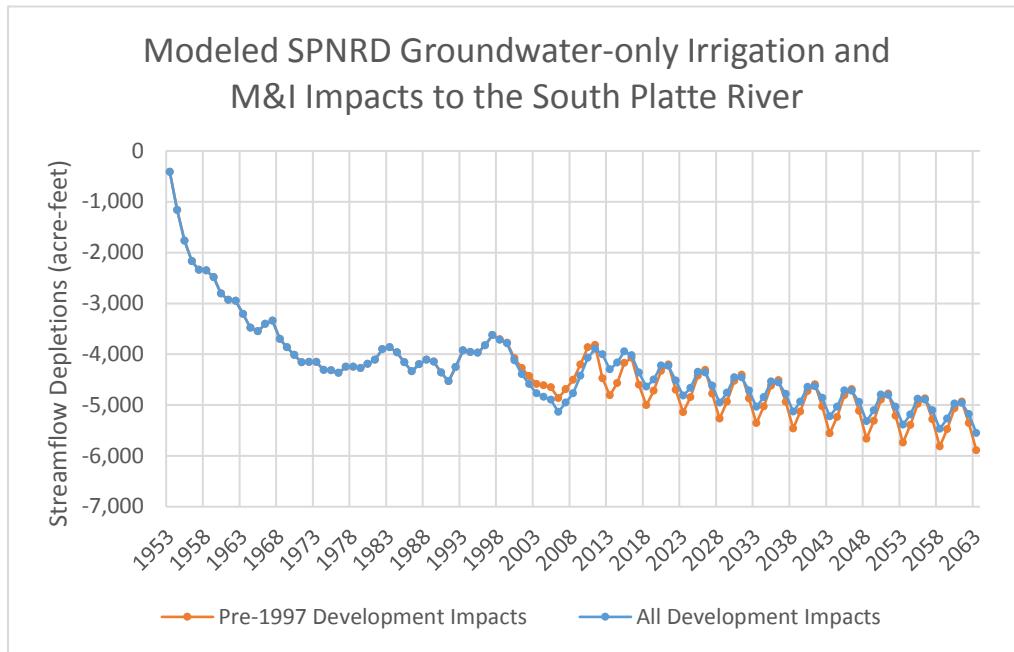
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<sup>15</sup> Nebraska Department of Natural Resources. (2019) The Upper Platte Basin *Evaluation of the Difference in Streamflow Impacts Prior to and After 1997*(Total Depletions Analysis) retrieved at:  
<https://upointplanning.nebraska.gov>

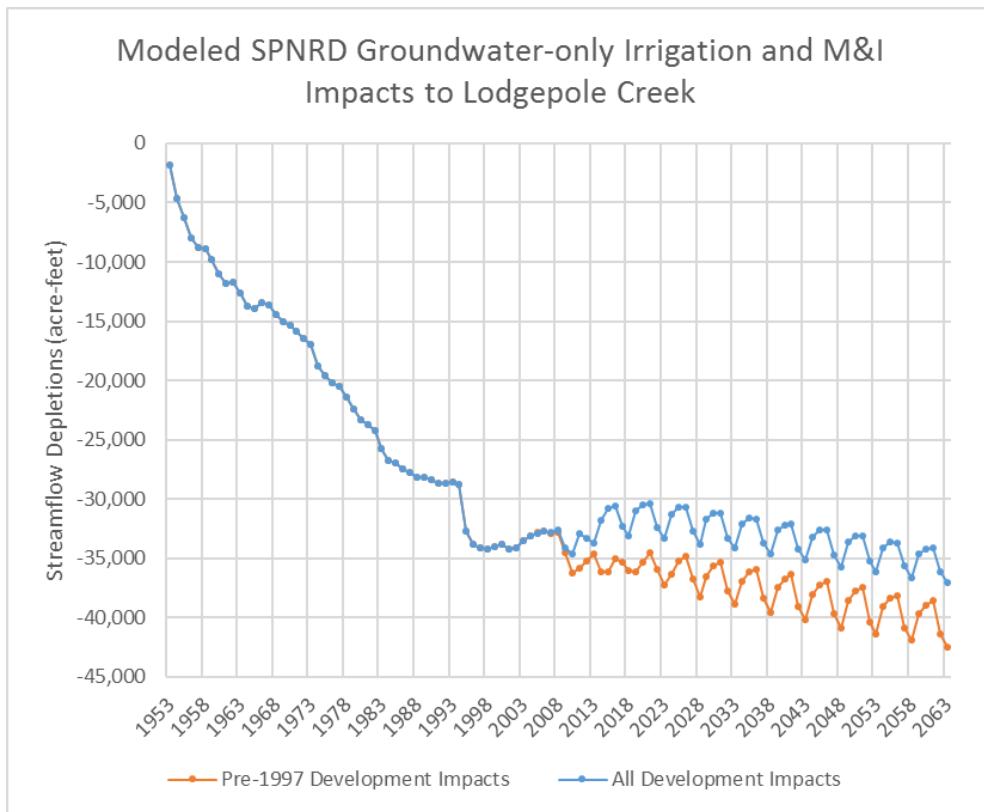
and industrial development prior to 1997. The difference between the two lines is the impact from post-1997 activities.



**Figure 8.** Modeled SPNRD streamflow impacts to the North Platte River from all groundwater-only irrigation and municipal and industrial (M&I) development with offsetting management actions and the streamflow impacts from development pre-1997.



**Figure 9.** Modeled SPNRD streamflow impacts to the South Platte River from all groundwater-only irrigation and Municipal and Industrial (M&I) development with offsetting management actions and the streamflow impacts from development pre-1997.



**Figure 10.** Modeled SPNRD streamflow impacts to the Lodgepole Creek from all groundwater-only irrigation and Municipal and Industrial (M&I) development with offsetting management actions and the streamflow impacts from development pre-1997.

#### 8.4.2 Conservation Measures

As previously noted in Section 8.1, significant effort has been focused on developing an approach to assessing the impacts of conservation measures. The first phase of this work focused on identifying conservation measures thought to be most impactful on water supplies and use. This phase resulted in the development of a matrix which assessed the assumed magnitude of impact to streamflow of varying intensity for each conservation measure, as well as the required resources and cost of methods that could be used to support further quantification. The matrix also provided information on the effect to overland runoff, recharge, and net effect on evapotranspiration (ET) of each conservation measure of varying intensity. Conservation measures assessed included structural (e.g., terraces, dams, canals, etc.) and non-structural (e.g., tillage, irrigation management and efficiency, crop rotation, soil monitoring, buffers, etc.) measures.

The second phase of this effort focused on further quantifying the impacts resulting from changes in tillage practices and irrigation efficiencies. The results of this work were presented to the basin-wide stakeholders with the general conclusions as follows:

- Relatively minor net water supply benefits result from increasing efficiency, primarily due to additional crop consumption and that in areas the reliant on surface water for delivery of irrigation supplies the increased efficiency of water delivery may have negative impacts on the water supply.

- Increased implementation of minimum tillage practice can reduce on-farm ET and increase recharge, but will likely result in decreased runoff contributions to streams. Overall increasing the practice of minimum tillage can have a net water supply benefit of approximately 1-3 inches per acre depending on the location and existing farming practices.

As a result of the second phase findings additional ongoing efforts to evaluate the impacts of tillage practices changes are underway. It is expected that these updated findings will be integrated into future technical evaluations.

#### **8.4.3 Evaluation of Cyclical Supplies and Demands (INSIGHT)**

The INSIGHT methodology is an approach to assessing the balance between water supplies and water demands within a basin. INSIGHT consolidates data from several sources, including NeDNR, the United States Geological Survey, the United States Bureau of Reclamation, and local NRDs. That hydrologic data is used to conduct an analysis of the following items at the basin- and subbasin-level:

- Streamflow water supplies available for use,
- The current amount of demand on these supplies,
- The long-term demand on these water supplies due to current uses,
- The balance between these water supplies and demands.

The overall concept was to examine basin water supplies and total water demands to estimate the water availability within the basin. The INSIGHT analysis<sup>16</sup> used data from 1988-2012 and took into account basin water supply, total demands, and the effects of timing of uses, lag impacts, and water storage.

A balance in the basin occurs when water supply equals water demand. There are times when supply exceeds demand, and when demand exceeds supply. If demand exceeds supply, there may not be enough water supply to sustain demands over the long term.

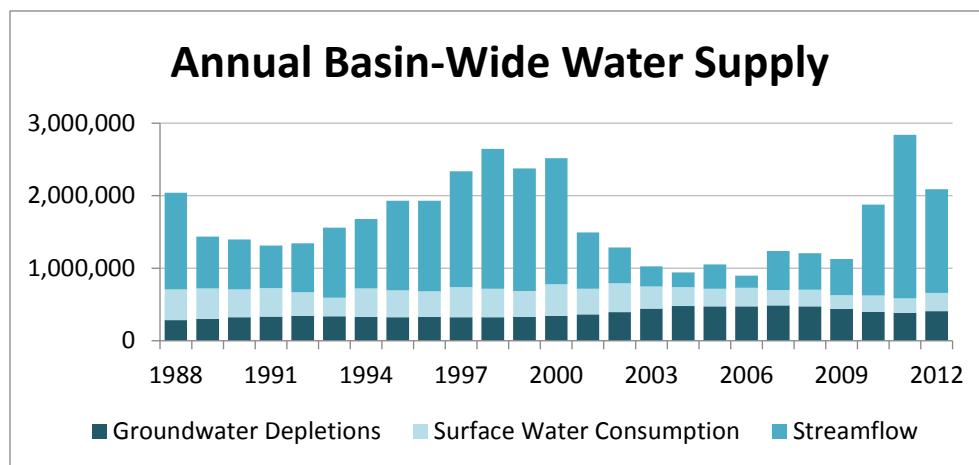
Basin Water Supply is the amount of water available in the basin before any human use occurs. This is represented by adding streamflow, surface water consumptive use, and streamflow depletions caused by groundwater pumping. This supply fluctuates according to wet and dry years and also varies throughout the year

Total demand includes surface water and groundwater demands for irrigation and municipal and industrial uses, net surface water loss (also called canal seepage), and non-consumptive demands such as instream flows or hydropower. These demands vary throughout the year.

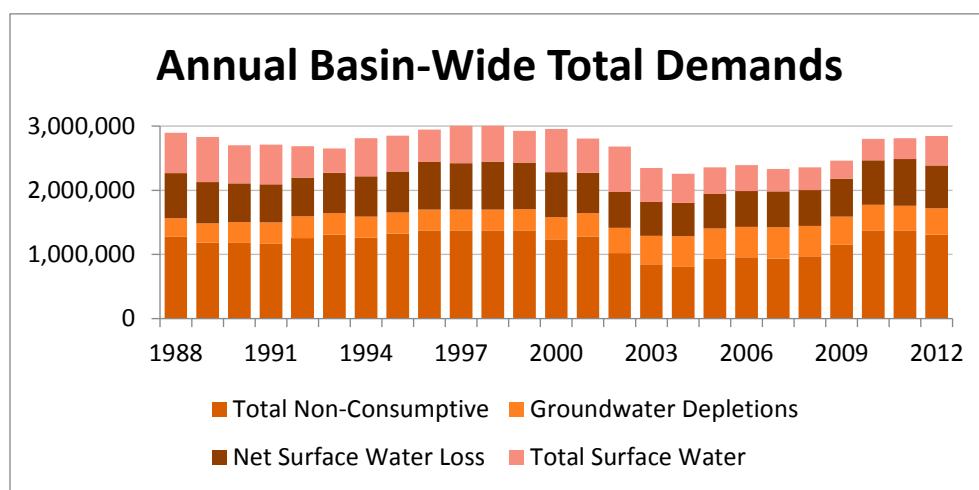
Figures 11 and 12 below show the basin water supply and total demands for the period of 1988-2012 for the entire Upper Platte Basin, upstream from Odessa, NE. Each component of the supply and demand is shown on the charts. The final chart (Figure 13) shows the annual balance, which is the supply minus the demand. When all demands in the basin are considered, the demands outweigh the supplies in most years. This means that there are times when the supplies are not adequate to meet all the demands.

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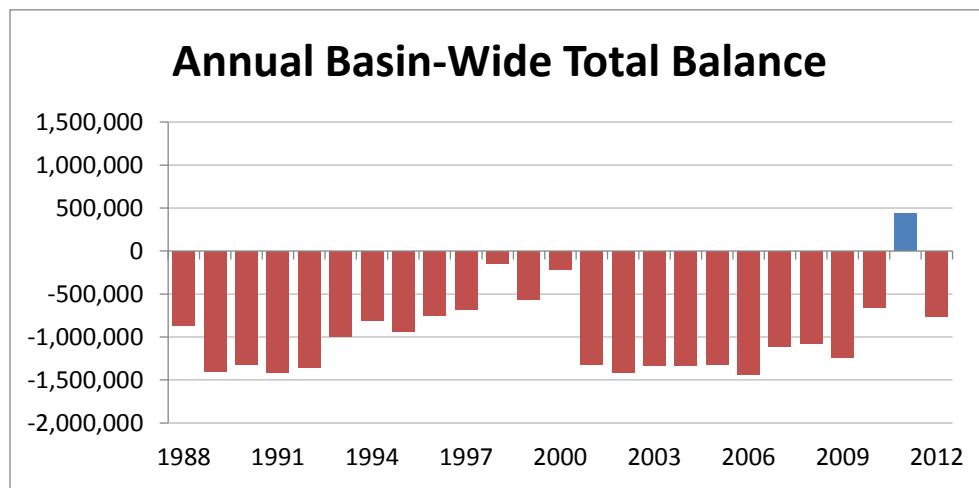
<sup>16</sup> HDR (2019). *Upper Platte INSIGHT Analysis*. Retrieved at: <https://upointplanning.nebraska.gov>



**Figure 11.** Upper Platte River Basin Annual Basin-Wide Water Supply before any human use occurs.



**Figure 12.** Upper Platte River Basin Annual Basin-Wide Total Demands for surface water and groundwater



**Figure 13.** Upper Platte River Basin Annual Basin-Wide Total Balance (supply minus demand).

## **8.5 Basin-Wide Coordination in the First Increment**

The first increment IMP called for the development of a list of criteria to evaluate the potential to use available surface water and groundwater supplies as management projects to meet the goals and objectives of the IMP. In order to create a unified approach across the basin the NeDNR and the Upper Platte River Basin NRDs established an interlocal cooperative agreement (ILCA).

### **8.5.1 Interlocal Cooperative Agreement (Platte Basin Coalition)**

The Platte Basin Coalition (PBC or Coalition) is the ILCA the Upper Platte River Basin NRDs and the NeDNR established. The Coalition serves as a venue for obtaining funding, project evaluation criteria, and technical support, in order to assess incentive programs aimed at reducing consumptive use within the overappropriated portion of the Upper Platte River Basin.

#### **8.5.1.1 Protocols**

Through the Coalition, the Upper Platte River Basin NRDs and NeDNR have developed a protocol to follow when evaluating potential projects, including the retirement of water uses and the implementation of other offset projects. This protocol provides a means to evaluate potential projects to assess the appropriate amount of funding to allocate toward that project from the Coalition. The evaluation incorporates data from the COHYST 2010/WWUM models and other tools, which include consideration of cyclical water supplies, to evaluate the potential impact of the project on streamflows. Projects with a greater or quicker impact on the stream are given preference over those that do not have as much of an impact. Project costs, benefits, permitting, and regulatory constraints are also considered.

#### **8.5.1.2 Funding**

The ILCA is partially financed by the Water Resources Cash Fund (WRCF). The WRCF receives monies from both the general fund and the Nebraska Environmental Trust (NET). Under statute, the WRCF may be used in overappropriated or fully appropriated areas for projects to study, develop, and implement management actions that result in reduction of consumptive use of water, enhancement of streamflows, or enhancement of groundwater recharge. Funding of projects through the PBC is shared between the Upper Platte River Basin NRDs and the NeDNR. Coalition members approve all project and study budgets as well as expenditures for studies. The Coalition will simultaneously seek outside sources of funding to increase the leveraging ability of the local dollars spent on projects. More on funding for this IMP is discussed in Chapter 6 above.

#### **8.5.1.3 Technical Work**

The five Upper Platte River Basin NRDs and NeDNR have a technical working group to address technical issues and statutory aspects of the Basin-Wide Plan and IMPs. The Upper Platte River Basin NRD managers and NeDNR will agree to technical analyses prior to beginning any work. The PBC will approve expenditures for technical work.

The technical working group evaluates all aspects of analysis, including the conceptual design, data evaluation, and evaluation of the results. It is then the responsibility of the technical group to translate the results of any analyses to the administrators for either incorporation into this IMP or evaluation towards meeting the IMP goals.

During this increment, the technical group will evaluate various aspects of data and models that may include the effects of conservation measures on depletion results, more efficient methods to track changes regarding irrigated lands, or areas where analyses may be simplified. The

technical group will follow the Basin-wide tenets outlined in Section 7.2 while carrying out any work necessary for the implementation of this IMP.

## 9.0 GOALS AND OBJECTIVES

The NeDNR and the five Upper Platte River Basin NRDs conducted a Robust Review as part of the actions required in the first increment. This analysis provided each Upper Platte River Basin NRD with the information necessary to assess their progress in meeting the goals and objectives of their individual first increment IMPs as well as the progress for the Upper Platte River Basin-Wide Plan. The outcome of the Robust Review showed that the SPNRD exceeded their IMP targets as defined for the first increment. The Robust Review also indicated that this second increment would be necessary to continue to meet the goals and objectives. The Robust Review results have provided IMP targets for this second increment.

Actions to support the successful implementation of the goals and objectives in this Chapter can be found in Chapter 10, Action Items. Refer to Figure 4 in Section 8.3 for a map of the planning reaches described within these goals and objectives.

### Goal 1: Reach and Maintain a Fully Appropriated Condition

To incrementally achieve and sustain a fully appropriated condition while maintaining economic viability, social and environmental health, safety, and welfare of the basin.

**Objective 1.1:** *Within this increment of this IMP, implement measures to address impacts of streamflow depletions to surface water appropriations and water wells constructed in aquifers dependent upon recharge from streamflow to the extent those depletions are due to water use initiated after July 1, 1997.*

Since this goal was part of the first increment IMP, SPNRD has already taken several actions to achieve it. A summary of these actions can be found in Section 8.2 of this IMP. The results of the Robust Review indicate that the SPNRD has achieved offsetting Post-1997 depletions. Therefore, the SPNRD will need to maintain the progress they have made in the first increment. This is covered in Objective 1.2.

If future analysis shows that depletions from post-1997 uses are greater than previously estimated and have not been fully offset, NeDNR and SPNRD will discuss how to address the remaining depletions within this increment.

**Objective 1.2:** *Maintain previous increment mitigation progress.*

This objective applies to both the near and long term. Within the current ten-year increment, the SPNRD and NeDNR will maintain current levels of accretions to the North Platte, South Platte, and Lodgepole Creek and seek opportunities to further reduce impacts to streamflows for the period 2059-2063.

NeDNR and the SPNRD will keep policies, projects, and practices in place, as appropriate, which provide offsets or supply equivalent offsets so that the current level of accretions is maintained. A summary of offset actions taken during the first increment can be found in Section 8.2 of this plan.

It is recognized that some actions undertaken in the first increment are temporary projects, which may end during the second increment. Funding may limit additional offset opportunities. Best

efforts must be made to find new projects or ways of providing offsets for projects that are not permanent.

### Targets

To track progress toward meeting Objective 1.2, targets are set based on the trend line of the 2019 Robust Review modeled results (Section 8.3) for the short term and long term. These are the values that are to be maintained through this increment. Future management actions and changes in water use will be analyzed using the technical tools available (according to the tenets in Section 7.2). In addition to technical analysis, the policies, projects, and practices continued or implemented will be taken into account. It is recognized that current model projections will be different from model results from analyses that incorporate actual future conditions therefore the technical analysis must account for variability and the actual practices and projects being implemented must be considered. The methodology for evaluating the targets and a description of triggers used to maintain current progress can be found in Chapter 10, Action Items.

#### 1. Short-term Planning Targets

**Table 1. SPNRD accretion targets for the South Platte River, Lodgepole Creek and the North Platte River for short term planning purposes based on 2019 Robust Review trend line.**

| SPNRD Annual Short-Term Accretion Targets |                            |                         |                            |
|---|----------------------------|-------------------------|----------------------------|
| Year                                      | South Platte River<br>(AF) | Lodgepole Creek<br>(AF) | North Platte River<br>(AF) |
| 2019                                      | 200                        | 4,300                   | 0                          |
| 2020                                      | 200                        | 4,300                   | 0                          |
| 2021                                      | 200                        | 4,300                   | 0                          |
| 2022                                      | 200                        | 4,300                   | 0                          |
| 2023                                      | 200                        | 4,300                   | 0                          |
| 2024                                      | 200                        | 4,400                   | 0                          |
| 2025                                      | 200                        | 4,400                   | 0                          |
| 2026                                      | 200                        | 4,400                   | 0                          |
| 2027                                      | 200                        | 4,400                   | 0                          |
| 2028                                      | 200                        | 4,400                   | 0                          |
| 2029                                      | 200                        | 4,500                   | 0                          |

The values shown in Table 1, given in acre-feet (AF), are the best estimate of accretion targets for the second increment of the IMP from the trend line of modeled accretions from the most recent Robust Review, which analyzed groundwater only irrigation development after 1997, expansion of municipal and industrial uses after 1997, and management activities through 2013 in SPNRD. The methods used to develop these targets for the SPNRD are described in the 2019 Robust Review report and in Chapter 8. A graph of the complete 2019 Robust Review results can also be found in Chapter 8. Using the trend line values as the targets recognizes the variability in the modeled Robust Review results. Since the variability is primarily caused by the climate used to simulate

the future, it is not expected that the observed conditions will match the modeled conditions; therefore any future analysis compared to these targets must also account for this variability and be adjusted accordingly with an updated trend line and interannual variability range. The accretion amounts shown in Table 1 and these targets are subject to change based upon the next Robust Review (described in Section 10.7.3.2), which will use the best scientific data and information available. The process for revising the IMP, if the targets change, is outlined in Section 10.9.

## **2. Long-term planning targets**

**Table 2. SPNRD accretion targets for the South Platte River, Lodgepole Creek and the North Platte River for long term planning purposes based on 2019 Robust Review trend line.**

| SPNRD Annual Long-Term Accretion Targets |                            |                         |                            |
|--|----------------------------|-------------------------|----------------------------|
| Year                                     | South Platte River<br>(AF) | Lodgepole Creek<br>(AF) | North Platte River<br>(AF) |
| 2059-2063<br>Average                     | 100                        | 5,000                   | 0                          |

The long-term targets are shown in Table 2. These are the average accretions for the five-year period of 2059-2063 from the most recent Robust Review modeled results trend line. A graph of the complete 2019 Robust Review results can be found in Chapter 8 of this IMP. Using the trend line values as the targets recognizes the variability in the modeled Robust Review results. Since the variability is primarily caused by the climate used to simulate the future, it is not expected that the observed conditions will match the modeled conditions; therefore any future analysis compared to these targets must also account for this variability and be adjusted accordingly. These targets are the current best estimates and are subject to change based upon the next Robust Review (described in Section 10.7.3.2), which will use the best scientific data and information available. The process for revising the IMP, if the targets change, is outlined in Section 10.9.

**Objective 1.3:** *Make progress toward a fully appropriated condition.*

During the first increment, two analyses were performed to estimate the balance of water supplies and demands within the Upper Platte River Basin. This included an estimate of all groundwater depletions to streamflow including depletions from uses prior to and after July 1, 1997 (Total Depletions) and the INSIGHT analysis. Both are described in Section 8.4.

NeDNR and the Upper Platte River Basin NRDs will continue to evaluate total depletions and water supplies and demands within the Basin. NeDNR and the Upper Platte River Basin NRDs will continue to work to develop an estimate for a fully appropriated condition

Impacts of streamflow depletions due to water use initiated prior to July 1, 1997, to 1) surface water appropriations and 2) water wells constructed in aquifers dependent upon recharge from streamflow may be addressed prior to a subsequent increment with the intent of achieving a fully appropriated condition.

**Objective 1.4:** *Review the implementation of this IMP to ensure that the IMP provisions are adequate to sustain progress toward and/or maintain a fully appropriated condition.*

**Objective 1.5:** *Once a fully appropriated condition is achieved, maintain such condition through the implementation of the IMP.*

### Goal 2: Interstate Compliance

Prevent or mitigate human-induced reductions in the flow of a river or stream and ensure that no act or omission of the SPNRD or the NeDNR would cause noncompliance by Nebraska with any interstate decree, compact, or other formal state contract or agreement pertaining to any groundwater or surface water use or supplies.

**Objective 2.1:** *Ensure that no act or omission of the SPNRD or the NeDNR would cause noncompliance by Nebraska with the NNDP included within PRRIP, for as long as PRRIP exists.*

**Objective 2.2:** *Ensure that the groundwater and surface water controls adopted in the District IMP are sufficient to ensure that the state will remain in compliance with the NNDP.*

**Objective 2.3:** *Collectively, as defined in the NNDP, offset the new depletions caused by new uses within the Upper Platte River Basin NRDs.*

**Objective 2.4:** *Ensure that for post-1997 new or expanded uses, including irrigation, municipal, industrial, rural domestic and other new water related activities are assessed and offset for compliance with the NNDP. This assessment will be part of the Robust Review, explained in Section 10.7.3.2 of this plan.*

### Goal 3: Consistency, Communication, and Updates

Keep the IMP current, maintain consistency with the Basin-Wide Plan, and keep water users informed of items related to plan implementation and updates.

**Objective 3.1:** *Amend this IMP as needed to remain consistent with the Basin-Wide Plan.*

**Objective 3.2:** *Participate in basin-wide planning activities*

**Objective 3.3:** *Improve information sharing with interested parties.*

**Objective 3.4:** *Conduct planning for subsequent increments of the IMP, as necessary.*

**Objective 3.5:** *If appropriate and necessary, follow the dispute resolution process in the Basin-Wide Plan.*

**Objective 3.6:** *The SPNRD and the NeDNR will communicate with the states of Wyoming and Colorado to address water management concerns that affect the SPNRD.*

## 10.0 ACTION ITEMS

Chapter 10 contains the action items that will be carried out to accomplish the goals and objectives of the IMP. The action items described in this Chapter are intended to be consistent with the requirements of *Neb. Rev. Stat. § 46-715(3)*.

These actions range from ongoing non-regulatory actions such as information and education efforts, to maintenance of current regulatory actions, and the potential for future increased controls if certain targets cannot be maintained through the other actions taken by the SPNRD or NeDNR. As described within this Chapter, more details on the statutes or rules followed by the SPNRD or NeDNR can be found at the offices of each respective agency. For purposes of transparency/simplicity, the full length of those documents are not repeated herein, so the reader is directed to each agency to read the full details on how any particular action item may be carried out.

### 10.1 Information and Education Programs

The SPNRD and the NeDNR will provide educational materials to the public and/or carry out educational activities that may include, but not be limited to, the following:

- The fully appropriated determination
- The overappropriated designation
- The IMP
- The Nebraska New Depletion Plan (NNDP)
- The Platte River Recovery and Implementation Program (PRRIP)
- Hydrologically connected groundwater and surface water
- Invasive species management
- Conversion of irrigated acres to dryland agriculture or wildlife habitat
- Limited irrigation cropping systems
- Soil residue and tillage management
- Alternative crops
- Water use measurement techniques
- Eco-tourism, crop diversification, changes in land use, to support diversity in revenue streams of water users within the basin, as a means of maintaining economic viability
- Educational programs to support the implementation of incentive programs
- Funding sources for programs that enhance water supply
- Water management in adjacent states

These educational materials and/or activities may include, but not be limited to, joint public meetings, pamphlets, and website information.

## 10.2 Incentive Programs

NeDNR and/or the SPNRD intend to establish, implement, and/or continue financial or other incentive programs to reduce consumptive use of water within the SPNRD to meet the goals and objectives of this IMP.

### A. State or Federal Programs

Incentive programs include any program authorized by state law and/or federal programs such as the Conservation Reserve Enhancement Program (CREP) and the Environmental Quality Incentive Program (EQIP).

### B. Other State or NRD Programs

The SPNRD and the NeDNR may investigate opportunities to reduce the consumptive use of water in order to enhance water supply as well as other water supply improvement projects. The SPNRD and the NeDNR may develop an incentive-based program if such an opportunity exists.

1. All projects and programs will:

- Use the best science readily available. This will follow the basin-wide tenets outlined in Section 7.2. These will be consistently evaluated according to the protocol developed by the PBC. Benefits will be assessed using the agreed upon methods and tools.
- Enhance groundwater quantity, groundwater quality, and recognition of the value of return flows.
- Remain in compliance with any state or federal laws, contracts, interstate compacts, or decrees that govern the water use of the irrigation districts.

2. The general process will be:

- For existing surface water appropriations, contact the appropriators to determine willingness to cooperate, lease and/or sell those appropriations. If willing, develop and execute contract(s) with appropriator(s).
- Work with irrigation districts, not just individual landowners served by the irrigation district, when potential projects affect the operation of the irrigation district.
- Retirement of surface water rights (permanent or temporary). Retired surface water rights are still viable rights under statute. While typically a surface water right which has not been used for more than five years may be cancelled due to nonuse, under *Neb. Rev. Stat. § 46-2229.04*, if the appropriation is not being used because it is part of a acreage reserve program, or other state or federal program, there is sufficient cause for nonuse and the right is still valid. If the land is no longer under a program, this applies for up to 15 years as long as there are not more than 5 consecutive years of nonuse while the land is not under a program.
- For existing groundwater uses, contact the landowner(s) to determine willingness to cooperate with the proposed project(s). If willing, develop and execute contract(s) with such landowner(s).
- Submit permit application(s) if required by Nebraska statutes.
- Implement the approved projects.

3. At this time, the specific other programs that have been identified are:

- Potential purchase or lease of surface water irrigation district appropriations in order to transfer those appropriations to groundwater recharge appropriations, and
- Exploration of water supply opportunities on the South Platte River.

### **10.3 Water Banking**

The SPNRD will establish a water bank. The SPNRD will purchase or otherwise acquire certified groundwater irrigated acres or other groundwater uses or surface water use appropriations. NRDs are the only entities that may create a water bank. The SPNRD will hold the water in its water bank for the purposes of:

- Offsetting new or expanded consumptive uses,
  - Saving water to meet statutory requirements or interstate agreement obligations,
  - Saving water to meet future incremental targets toward achieving a fully appropriated condition, or
  - Future sales to individuals as offsets for development of new consumptive uses of groundwater within the District.
- A. The SPNRD and the NeDNR will follow the basic tenets from Section 7.2 while implementing the water bank.
  - B. The SPNRD will contact the NeDNR prior to purchasing or acquiring surface water appropriations for deposit in the water bank. The NeDNR will conduct a field investigation of the surface water appropriation and notify the SPNRD of the results of that investigation within 90 days. The SPNRD will work collaboratively with the NeDNR in performing the analysis to evaluate the bankable volume of water resulting from the retirement of the surface water appropriation. The SPNRD will follow the appropriate statutes, rules, and regulations of the NeDNR for approval if the surface water appropriation is to be transferred to another use.
  - C. The SPNRD will obtain and maintain permanent easements, lease agreements or other agreements on all property from which surface water or groundwater uses have been retired for purposes of the water bank.
  - D. The SPNRD shall annually report all water-banking deposits, withdrawals, and other activities according to the specifications described in Section 10.7 of this IMP.
  - E. When carrying out any water banking activity, the SPNRD shall follow the procedures for any groundwater regulatory action (e.g. transfers, certification, or municipal and non-municipal industrial accounting) applicable to such activity. When carrying out any surface water related water banking activity, the SPNRD shall follow the appropriate state statute and NeDNR rules and regulations.

### **10.4 Conjunctive Management**

Conjunctive management projects<sup>17</sup> allow for the optimum use of hydrologically connected surface water and groundwater supplies, so that the variability seen in surface water supplies can be smoothed out over time, allowing water users to wisely store water during periods of surplus and, in a managed fashion,

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<sup>17</sup> See Section 8.1.3: Conjunctive Management Study for more information and a definition of “conjunctive management.”

withdraw that stored water in times of shortage, overall increasing the available supply through time. Conjunctive management projects can also create benefits such as, mitigating groundwater level declines, reducing flood flows, and offsetting depletions. The NeDNR and the SPNRD will identify conjunctive management opportunities and implement such projects with the purpose of meeting the goals and objectives of this IMP.

Conjunctive Management may include, but is not limited to:

- Surface water appropriations that encourage recharge during either the irrigation or non-irrigation season, or temporary excess flow appropriations for recharge
- Develop new infrastructure (e.g. dams or canals) that may include groundwater recharge projects, and recovery when appropriate
- Temporarily transfer surface water appropriations within the District to streamflow augmentation, instream flow appropriations, or an instream use<sup>[2]</sup>
- Develop other groundwater projects for the purpose of providing net accretions to the river
- Facilitate contractual agreements between water users
- Reduce consumptive use by permanently or temporarily retiring irrigated land

The Upper Platte River Basin NRDs and NeDNR will mutually develop procedures to determine when and where projects can be carried out (for example determining and communicating when and where excess flows are available), procedures for carrying out projects (permitting, contracting, and payment procedures), tracking projects and maintaining data records, sharing data, cooperating with other entities wishing to utilize excess flows, and methods for determining benefits from projects (annually for IMP/Basin-Wide Plan/PRRIP reporting and for Robust Review purposes). Conjunctive management projects can be passively managed or actively managed. Techniques which can be actively managed and returned to the stream do have benefits over those that are passive (timing and volume of return is uncontrolled, unmanaged, unknown). Actively managed projects, such as storage of excess water, can be returned to the stream at a specific time in controlled volumes. Passively managed projects, such as recharge of groundwater through excess flow diversions, return to the stream gradually over time and the rate and volume depends on the underlying aquifer material and proximity to the stream.

The ability to capture and use excess flows is dependent on advanced notice of the availability of excess flows. NeDNR will develop a protocol for assessing, predicting, and communicating 1) the potential of excess flows to basin water users, and 2) notice of actual availability of excess flows. The SPNRD and NeDNR will work collaboratively to record the excess flows diverted, the excess flows diverted into recharge sites, and the amount of water returning to the river at canal return flow structures. Additionally, SPNRD and NeDNR will collaboratively review and analyze the data from the excess flow diversions to determine the amount of recharge that occurred during the event within the canal and recharge pits. Data on canal recharge and conjunctive management projects will be shared as part of the annual reporting

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<sup>[2]</sup> *Neb. Rev. Stat. § 46-290(5)* in part states that “For any transfer or change approved [to augment flow in a specific stream reach for any instream use determined by the Department to be a beneficial use,] the Department shall be provided with a report at least every five years [...] to indicate whether the beneficial instream use for which the flow is maintained or augmented continues to exist”. Title 457 of the Department of Natural Resources Rules for Surface Water Chapter 9 Section 002.01 states “For purposes of 46-290(5) R.R.S. 1943, as amended, beneficial use for instream uses shall include: a. Water Quality Maintenance b. Water necessary for compliance with compacts, decrees or other state contracts.”

process, described in Section 10.7. The recharge will be analyzed in future Robust Reviews or other analyses.

In order to optimize the implementation of various conjunctive management projects where diversions of excess streamflow will occur, operational plans for each project should be developed. These operational plans should include enhanced monitoring and flow of information and data to effectively manage and utilize any available water. These operational plans will provide the NeDNR with objective criteria by which various projects may be prioritized in order to most effectively utilize available excess flows in the Platte River Basin. The public interest will be best served when the most effective projects are selected for diversion during excess flow periods. In addition, such plans and operational attributes will be useful in establishing good cause and passing public interest tests when petitions and applications are filed with the NeDNR.

## **10.5 Drought Planning**

The basin drought contingency plan will serve as a guide for plans developed by each individual Upper Platte River Basin NRD. NRD-level mitigation measures and response actions corresponding to the drought conditions will be identified and implemented at the individual NRD level.

Elements of the NRD plan include:

- Vulnerabilities
- Triggers
- Mitigation actions
- Response actions
- Plan administration

The SPNRD and NeDNR believe that the most significant impact on the economic viability of users in the District occurs during times of drought. Therefore, this second increment IMP will recognize that a focus on drought planning and mitigating the effects of depletions will be an important step toward consistently achieving a fully appropriated condition.

This action item is a focused effort to address drought preparedness during short and long-term drought conditions. Thus, the SPNRD will participate and support the development of a basin drought contingency plan for management of water supplies during times of shortages. Subsequently, the basin drought contingency plan will serve as a guide for a plan jointly developed by the SPNRD and NeDNR. Elements of a basin drought contingency plan may be considered for purposes of developing a Districtwide Drought Mitigation Plan to define drought locally and identify processes for policy development to mitigate the impacts of future drought events. The SPNRD and NeDNR will work with water users and consider their input when developing the Districtwide Drought Mitigation Plan. The Districtwide Drought Mitigation Plan shall be completed, adopted and implemented no later than one year following the completion of the basin drought contingency plan unless the NeDNR and the SPNRD jointly agree to an extension of not more than one additional year.

## **10.6 Controls and Triggers**

### **10.6.1 Groundwater Regulatory Actions (Controls)**

The specifics of the processes for controls can be found in the SPNRD's *Districtwide Ground Water Management Area Rules and Regulations*. Items covered in these rules which have additional

information above and beyond what is in the IMP include: 1) Certification of Irrigated Acres, 2) Transfers (all types), 3) Large User Permit, and 4) Variances. The latest version of the Rules and Regulations is available by contacting the SPNRD office or can be found on its website at [www.spnrd.org](http://www.spnrd.org).

The SPNRD will periodically review the controls being implemented to carry out the goals and objectives of this IMP. The SPNRD may adjust, modify, expand, or add controls, based on the annual reviews of the progress being made toward achieving the goals of this IMP, and pursuant to *Neb. Rev. Stat. § 46-715(5)(d)(ii)*. No controls may be removed, however, unless and until the SPNRD and the NeDNR amend this IMP. The controls may not be modified in such a manner as to conflict with the goals and objectives of this IMP. Although allocations are not one of the controls implemented as part of this IMP, they did assist the SPNRD in meeting the goals and objectives of the first increment IMP. If allocations are removed, the SPNRD and NeDNR will discuss the potential impacts on the implementation of this IMP and amend the IMP as necessary.

The evaluation criteria for all SPNRD actions (e.g. large user, municipal, industrial, variance, or transfer permits) that affect the amount of consumptive use of water and impacts to stream depletion will include, but not be limited to the consideration of the following:

- Whether the proposed action will cause an impact to existing groundwater or surface water users,
- Whether the proposed action will cause an increase in depletions to the river,
- Whether the proposed action will result in an increase in consumptive use,
- The amount, location and timing of any changes in depletions or accretions to the river due to the proposed action,
- Whether the proposed action will cause adverse effects on the state's ability to comply with PRRIP or other interstate compacts, decrees or agreements,
- Whether the proposed action is consistent with the purpose for which the Integrated Management Area was designated, and
- Whether the proposed action will protect the public interest and prevent detriment to the public welfare.

The NeDNR and the SPNRD will continue to coordinate with the Central Platte NRD, North Platte NRD Tri-Basin NRD, and Twin Platte NRD to implement a consistent method of calculating depletions or accretions to the stream following the basin-wide tenets outlined in Section 7.2, when such calculations are necessary to implement groundwater regulatory actions.

The SPNRD and the NeDNR shall use the methodology for calculating depletions and accretions consistent with the other Upper Platte River Basin NRDs when evaluating proposed actions to ensure that the criteria for compliance with PRRIP, including the timing, location and amount of the depletion and corresponding offset, are met. Any actions taken by the SPNRD related to the approval of actions through a permitting process will be documented and shared with the NeDNR pursuant to Section 10.7.1.

These controls apply to the fully appropriated and overappropriated areas of the SPNRD. Within both the fully appropriated and overappropriated areas, the SPNRD is currently implementing the following controls as authorized by *Neb. Rev. Stat. § 46-739*, and will continue to do so in the future for purposes of implementing this IMP.

#### **10.6.1.1 Moratorium**

The SPNRD has implemented a moratorium on the issuance of water well construction permits and on new or expanded groundwater uses. The SPNRD may grant a variance from the moratorium if there is an offset for any new or expanded use, or if there will be no increase in consumptive use due to the new or expanded use. In granting a variance, the SPNRD will consider the timing, location, and amount of the depletion, and the corresponding offset, in order to prevent adverse impacts on existing groundwater or surface water users.

#### **10.6.1.2 Metering**

Meters are used to measure the amount of groundwater being withdrawn from certain regulated wells in order to track water usage under allocations.

#### **10.6.1.3 Certification of Irrigation Uses**

All groundwater irrigation uses have been certified by the SPNRD. The SPNRD will consider the timing, location, and amount of any depletion associated with any modification to certified irrigated acres, as well as any associated offset in order to prevent adverse impacts to existing groundwater or surface water users.

#### **10.6.1.4 Transfers of Groundwater**

The purpose of a groundwater transfer is to allow for the consumptive use of groundwater to be changed either in location or in purpose without causing an increase in depletions to the river or an impact to existing surface water or groundwater users. The SPNRD may permit, regulate, or take action on the following types of groundwater transfers:

- Physical transfer of groundwater off of the overlying land
- Transfer of the type of use or addition of use
- Transfer of certified irrigated acres
- Transfer of allocations
- Transfer of groundwater from outside the District to inside the District
- Municipal transfer permit (if the applicant does not have a municipal transfer permit from the NeDNR)
- Industrial transfer permit (if the applicant does not have an industrial municipal transfer permit from the NeDNR), and 8) transfers out of state

#### **10.6.1.5 Large User Permit**

Any industrial or commercial user, any non-transient non-community public water supplier, or any transient non-community public water supplier who desires to withdraw and/or consumptively use groundwater in amounts greater than twenty-five million gallons per year shall, prior to commencing use, expanding use in amounts greater than twenty-five million gallons per year, changing the use of an existing groundwater well(s), commencing construction of a new or replacement groundwater well(s), or modifies an existing well to consumptively use greater than twenty-five million gallons per year must receive from the SPNRD a large user permit to authorize such withdrawal and/or use of groundwater.

1. If the user is supplied by a municipality, an agreement must be in effect between the SPNRD and the municipality regarding understandings, commitments, and

joint responsibilities related to the large user permit before the issuance of a large user permit.

2. Additional information regarding a large user permit can be found in the SPNRD Districtwide Rules and Regulations.

#### **10.6.1.6 Variances**

The SPNRD may grant a variance for good cause shown for any of the above listed controls. Any variance granted by the SPNRD must consider the timing, location, and amount of any depletion associated with the variance and any associated offset in order to prevent adverse impacts to existing groundwater or surface water users, or on the state's ability to comply with PRRIP.

Additional information regarding variances can be found in the SPNRD Districtwide Rules and Regulations.

#### **10.6.1.7 Municipal and Industrial Accounting Required for the Calculations of Baselines and the Determination of Allocations**

1. For purposes of compliance with the PRRIP, new or expanded M&I uses, calculated as part of the WWUM Model, will be evaluated each time a new Robust Review is performed. At such time, the SPNRD and NeDNR will agree on any additional management actions that may be required at that time to provide necessary offsets to maintain compliance with the NNDP.
2. The following controls regarding municipal and industrial uses are in regards to *Neb. Rev. Stat. § 46-740*, are not specified in the SPNRD's *Districtwide Ground Water Management Area Rules and Regulations*, and are not related to the obligations under PRRIP.
3. Municipal Use and Accounting prior to January 1, 2026
  - a. The SPNRD has calculated a baseline consumptive use for each municipality in the District based on historic consumptive use data for the interval August 1, 2001, through July 31, 2006. Consumptive use was determined from groundwater pumping volumes and, where applicable, wastewater discharge volumes, and converted to a per capita volume. A municipal baseline was determined as the total amount of groundwater pumped minus the total amount of wastewater discharged, if applicable. Annual changes in consumptive use will be tracked annually for each municipality through a reporting and database system administered by the SPNRD.
  - b. The difference between each subsequent annual calculation of consumptive use and baseline will be recorded. The total above or below the baseline will be evaluated once every five years beginning December 31, 2011. If at the end of each five-year increment the total consumptive use exceeds five times the annual baseline, the SPNRD will be responsible for offsetting all increases from the baseline consumptive use as estimated by population growth except under either of the following events: (1) a municipality's water use exceeds the amount of groundwater authorized by a permit that was issued pursuant to the *Municipal and Rural Domestic Ground Water Transfers Permit Act*, or (2) the increase is related to any new or expanded single commercial/industrial consumptive uses of more than twenty-five million gallons per year.

- c. Once every five years beginning December 31, 2011, the municipality shall be responsible for reporting to the SPNRD and offsetting to the river, any groundwater use that exceeds the amount authorized by a permit that was issued pursuant to the *Municipal and Rural Domestic Ground Water Transfers Permit Act*, and any new or expanded single commercial/industrial consumptive use if that new or expanded consumptive use is greater than twenty-five million gallons per year.
  - d. Any permanent reduction in consumptive use of water associated with municipal growth including governmental, industrial, and commercial growth (e.g., by taking irrigated acres out of production), between July 14, 2006, and January 1, 2026, shall accrue to the SPNRD's water bank to be used in whole or in part to offset increased consumptive use within the District. Acres taken out of production must be decertified and transferred to the SPNRD's water bank.
4. Municipal Use and Accounting on or after January 1, 2026
    - a. In accordance with *Neb. Rev. Stat. § 46-740*, SPNRD will set an allocation for a municipality, based upon development of their baseline, which shall be determined as the greater of either (a) the amount of water authorized by a permit, or (b) the municipality's greatest annual use for governmental, commercial, and industrial use prior to January 1, 2026, plus a per capita allowance.
    - b. After the allocation (baseline) is established on or after January 1, 2026, all tracking, reporting, and offsetting will continue as described above in this Section.
  5. Non-Municipal Industrial Use and Accounting prior to January 1, 2026
    - a. The SPNRD will calculate baseline consumptive use for each non-municipal commercial/industrial user in the District based on historic consumptive use data for the interval of August 1, 2001, through July 31, 2006. Consumptive use will be determined from groundwater pumping volumes and, where applicable, wastewater discharge volumes. The baseline will be used to determine changes in consumptive use annually.
    - b. These changes in consumptive use will be tracked for each non-municipal commercial/industrial user annually through a reporting and database system administered by the SPNRD.
    - c. The difference between each subsequent annual calculation of consumptive use and baseline will be recorded. The total above or below the baseline will be evaluated once every five years beginning December 31, 2011. If at the end of each five-year increment the total consumptive use exceeds five times the annual baseline, of any new or expanded single commercial/industrial use that is less than or equal to twenty-five million gallons per year, the SPNRD will be responsible for offsetting any reduction to streamflow or up to the amount of an industrial transfer permit, if applicable.
    - d. Once every five years beginning in 2011, if any new or expanded non-municipal commercial/industrial use exceeds twenty-five million gallons per

year and they do not have a transfer permit, the user will be responsible for offsetting all new or expanded consumptive uses. If the new or expanded non-municipal commercial/industrial use has a transfer permit, the user is responsible for offsetting all new or expanded uses above the amount granted in the industrial transfer permit.

- e. Any permanent reduction in consumptive use of water associated with a new non-municipal commercial or industrial use of less than twenty-five million gallons (e.g., by taking irrigated acres out of production), between July 14, 2006, and January 1, 2026, shall accrue to the SPNRD's water bank to be used in whole or in part to offset increased consumptive use within the District. Acres taken out of production must be decertified and transferred to the SPNRD's water bank.
6. Non-Municipal Industrial Use and Accounting on or after January 1, 2026
  - a. The base amount for an annual allocation to a non-municipal commercial or industrial water user shall be the amount specified above in this Section as the baseline.
  - b. Any increases in the consumptive use of water by a non-municipal commercial or industrial water user that result in a decrease in streamflow shall be offset by the user.

#### **10.6.2 Triggers**

In order to determine whether additional groundwater regulatory actions are needed, the annual stream accretion amounts shown in Table 1 under Goal 1 Objective 1.2 will be compared to the stream accretions resulting from the ongoing and future actions taken by SPNRD and any new depletions resulting from new uses and increased depletions resulting from existing uses. Based on the information shown in Table 1, the stream accretions from existing management actions, projects, or programs have been provided in amounts necessary to obtain a net sum of accretions of greater than or equal to zero in the current increment. Based on the current targets that show post-1997 depletions have been offset, additional regulatory actions will not be required as long as either: 1) the annual net sum of the accretions resulting from the actions taken by SPNRD are greater than or equal to the most recent Robust Review trend line values shown in Table 1; or 2) if the annual net sum of the accretions is not greater than the most recent Robust Review trend line values, the SPNRD maintains their current policies, projects, and practices (i.e., allocations, groundwater acre retirements, excess flow recharge projects) that resulted in the Robust Review trend line.

As previously stated, the trend line is the average of the Robust Review results that vary due to the model inputs used for the future simulations. The results of analyses of future conditions and actions taken are not expected to match the Robust Review results. Any analysis of future conditions must take into account the variability of actual future climate conditions. If new analysis indicates there are still post-1997 depletions that need to be offset, the NedNR and SPNRD will discuss what needs to be done to address those depletions. Post-1997 depletions must be offset by the end of this increment.

At this time, it is anticipated that annual progress and maintenance will be measured using an analytical accounting method, similar to that described in the guidance document developed by the

Upper Platte River Basin NRDs and the NeDNR<sup>18</sup> to estimate new accretions and depletions as compared to the values in Table 1 in Chapter 9 of this IMP.

The NeDNR and SPNRD recognize the potential for implementation of voluntary programs, incentive measures, or other projects to provide stream accretions that will help maintain post-1997 depletions and accretions to a net sum of greater than or equal the values shown in Table 1 in the next increment, and will work diligently to implement measures to provide additional stream accretions in a timely manner. The NeDNR and SPNRD also recognize that the current Robust Review results have limitations which will be addressed throughout the IMP increment and that as Robust Review results are updated to address those limitations that the target values described within the IMP Section 10.7 below may need to be updated which will result in the need to update future trigger values. A net sum of accretions and depletions of greater than or equal to the results of the Robust Review must be maintained. Regular progress will be determined by the following indicator and trigger milestones.

#### **10.6.2.1 Milestones**

To determine if an accretion to the Lodgepole Creek, North Platte River, and South Platte River equal to or exceeding the values in Table 1 has been maintained and to determine progress toward meeting the goals and objectives of this IMP, the NeDNR and the SPNRD will jointly perform a new Robust Review in 2023 and 2027 to evaluate the overall effects to streamflow and assess the indicator and triggers below. Any analysis to compare future actions with these triggers must take into account the variability of actual future climate conditions and make a comparison using trended results. The new Robust Review may change the values found in Table 1 and Table 2 under Goal 1 Objective 1.2 and therefore may change the target values and the indicator and triggers. The process for revising the IMP, if the targets and triggers change based on the next Robust Review, is outlined in Section 10.9. When evaluating the indicator and triggers, the new and continued policies, projects, and practices implemented to provide offsets will also be considered. Figure 14 displays a timeline of the evaluation of the indicator and triggers with the values from the current Robust Review shown.

##### **A. Indicator – 2023 Short-Term**

If, by the end of 2023, an accretion to the Lodgepole Creek, North Platte River, and South Platte River equal to or exceeding the values in Table 1 throughout the first ten-year increment has not been sustained, the NeDNR and SPNRD will jointly determine whether any additional regulatory actions will need to be put in place by the beginning of the 2025 irrigation season.

##### **B. Trigger 1 – 2027 Short-Term**

If, by the end of 2027, an accretion to the Lodgepole Creek, North Platte River, and South Platte River equal to or exceeding the annual values resulting from the most recent Robust Review that year and every year thereafter throughout the ten-year increment has not been met, the NeDNR and SPNRD will jointly determine what steps need to be taken to ensure that the agreed upon regulatory actions will be in place by the beginning of the 2028 irrigation season.

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<sup>18</sup> The protocol document, *Basin-wide Technical Committee Guidance Document – Procedures for Annual Accounting Review and Robust Review to Assist Integrated Management Planning and Facilitate Reporting to the Platte River Recovery Implementation Program*, can be found at <https://dnr.nebraska.gov/water-planning/other-upper-platte-river-documents>

### C. Trigger 2 – 2027 Long-Term

By the end of 2027, measures will be in place to achieve an accretion to the Lodgepole Creek, North Platte River, and South Platte River equal to or exceeding the 50-year long-term planning target. If this trigger has not been met, the NeDNR and SPNRD will jointly determine what steps need to be taken to ensure that the agreed upon regulatory actions will be in place by the beginning of the 2028 irrigation season.

Section 10.7 describes how progress toward achieving the indicator and triggers will be measured. The indicator and triggers values from Table 1 come from the 2019 Robust Review analysis results trend line through the model data. The trend line is the average of the model results that vary due to climate inputs. It is not expected that the future modeled data will match the 2019 Robust Review analysis results exactly due to differences in the model inputs used for the analysis and future observed conditions. Any analysis to compare future actions with these triggers must take into account the variability of actual future climate conditions and make a comparison using trended results.

#### **10.6.2.2 Groundwater Controls in Response to Triggers**

If the triggers are not met, the NeDNR and the SPNRD have identified the following groundwater controls as potential regulatory actions that may be implemented in response to triggers.

Prior to implementation of any of the regulatory actions listed below, the SPNRD and the NeDNR in consultation with affected water users, will agree to the method of implementation and the methods used to measure the success of the control(s) in reaching the goals and objectives of Chapter 9 of this IMP.

In order to reach these goals and objectives, a limit on the amount of consumptive use on certified irrigated acres within the boundaries of the District may be implemented. The methods by which a limit on the amount of consumptive use would be implemented include, but are not limited to, the following:

##### **A. Alternative Crop Mixes (*Neb. Rev. Stat. § 46-739(b)*)**

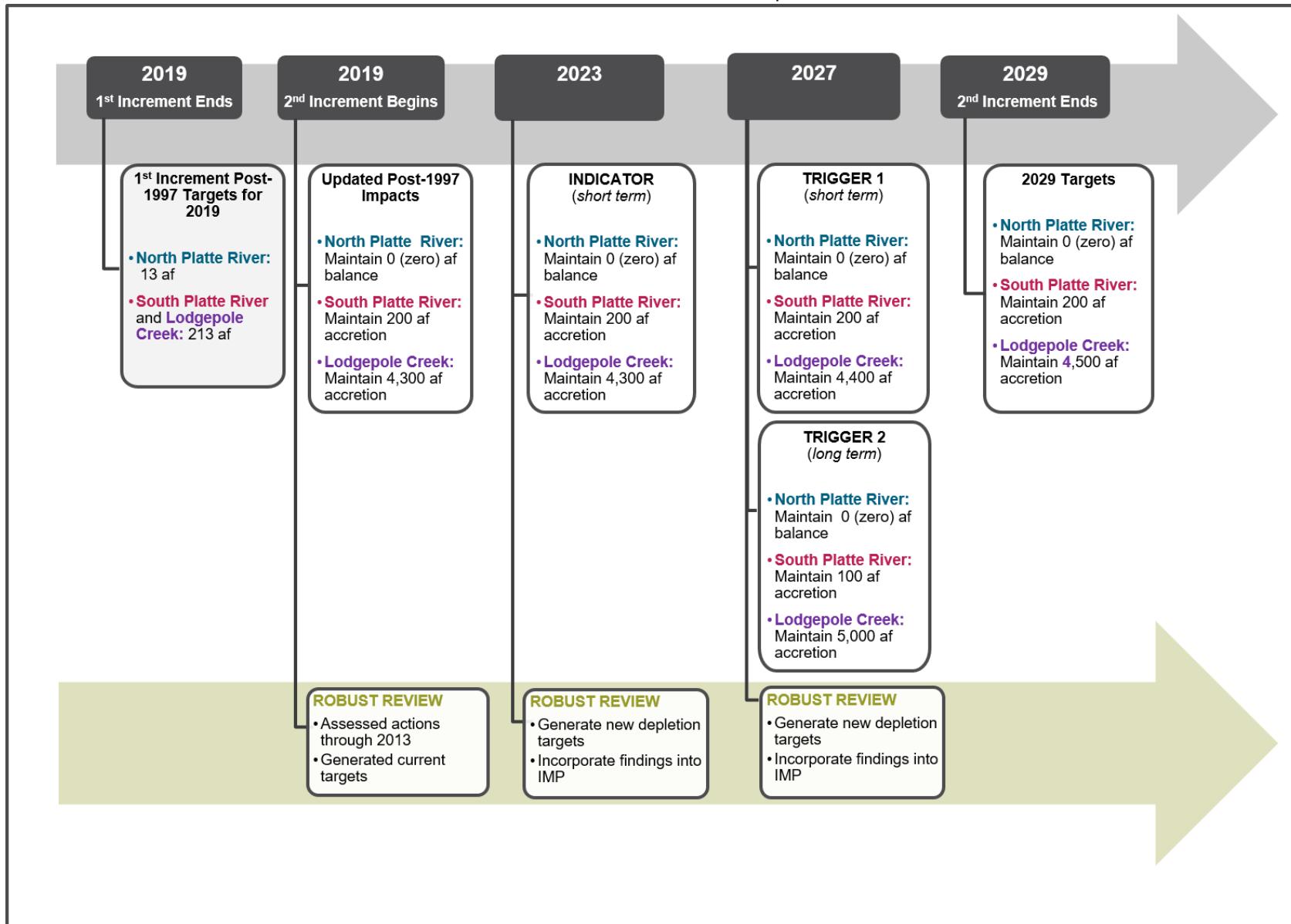
Alternative crop mix would mean planting a mix of crops over a specified period of years for the certified irrigated acres within the overappropriated area for which there would be an upper limit on the consumptive use allowed. The amount of consumptive use allowed would be determined by the SPNRD after consultation with the NeDNR.

##### **B. Reduction of Certified Irrigated Acres**

A reduction of certified irrigated acres would mean a set percentage reduction in certified irrigated acres within the overappropriated area. The amount of the reduction would be determined by the SPNRD and the NeDNR.

##### **C. Allocation**

An allocation would mean a uniform allotment of the withdrawal of groundwater to be applied to certified irrigated acres during a specified period within the overappropriated area. The amount of the allocation would be determined by the SPNRD and the NeDNR.



**Figure 14.** Timeline of milestones for the current increment; targets, indicators, triggers, and Robust Review analyses.

### **10.6.3 Surface Water Regulatory Actions (Controls)**

#### **10.6.3.1 Summary of Surface Water Controls**

The following surface water controls as authorized by *Neb. Rev Stat.* § 46-716 will be implemented and/or continued by the NeDNR. The NeDNR will periodically review the controls being implemented to carry out the goals and objectives of this IMP. The NeDNR may adjust, modify, expand, or add controls, based on the annual reviews of the progress being made toward achieving the goals of this IMP, and pursuant to *Neb. Rev. Stat.* § 46-715(5)(d)(ii). No controls may be removed, however, unless and until the SPNRD and the NeDNR amend this IMP. The controls may not be modified in such a manner as to conflict with the goals and objectives of this IMP.

- A. The NeDNR will continue the moratorium on new surface water appropriations in the portion of the Upper Platte River Basin within the boundaries of the District, unless a variance is granted by the NeDNR according to its rules.
- B. Transfers of surface water appropriations will be in accordance with statutes and NeDNR rules.
- C. The NeDNR shall continue to administer surface water appropriations according to the provisions of the permit, statute, NeDNR rules and regulations, and any applicable interstate compact decree or agreement.
- D. The NeDNR shall continue to monitor the use of surface water to prevent unauthorized uses.
- E. For conjunctive management projects as described in Section 10.4, the NeDNR may, via the permit approval process, require additional monitoring, measurements, and reporting of diversions, returns, seepage, and/or evaporation.
- F. Except as provided in (1) below, the NeDNR will not require surface water appropriators to apply or use conservation measures.
  1. If, at some point in the future, the NeDNR requires surface water appropriators to apply or use conservation measures, in accordance with *Neb. Rev. Stat.* § 46-716(2), the surface water appropriators will be allowed a reasonable amount of time, not to exceed one hundred eighty (180) days unless extended by the NeDNR, to identify conservation measures to be applied or used and to develop a schedule for such application and use.
- G. Except as provided in (1) and (2) below, the NeDNR will not require any other reasonable restrictions on surface water use.
  1. If, at some point in the future, the NeDNR requires other reasonable restrictions on surface water use, such restrictions must be consistent with the intent of *Neb. Rev. Stat.* § 46-716 and the requirements of *Neb. Rev. Stat.* § 46-231.
  2. If, at some point in the future, the NeDNR requires other reasonable restrictions on surface water use, in accordance with *Neb. Rev. Stat.* § 46-716(2), the surface water appropriators will be allowed a reasonable amount of time, not to exceed one hundred eighty (180) days unless extended by the NeDNR, to comment on the proposed restrictions.

### **10.6.3.2 Summary of Variance, Application, and Transfer Process Considerations**

The following are summaries of NeDNR's variance process, application review process, and transfer process. For full details of these processes please refer to the applicable statutes and NeDNR rules.

#### **A. Variance process for new surface water appropriations**

1. *Department Rules for Surface Water, Title 457*, provides a process in which a person may request permission to file an application for a new surface water right in a moratorium area.
2. Prior to filing an application in a moratorium area, a person must first petition the NeDNR for leave (request permission) to file an application in a moratorium area. These petitions are called a "variance," or a "variance petition."
3. Because the Platte River Basin is currently undergoing integrated management for the purposes of reducing depletions to streamflow, any new consumptive use or retiming of stream base flow must be examined for its potential effects on extant surface water and groundwater users and upon all matters of significant public interest and concern. This includes assessing both positive and negative impacts on the State's ability to comply with interstate agreements, programs, decrees and compacts, including PRRIP. Thus, any proposed project must be scrutinized to prevent conflict with (a) the goals and actions necessary to implement the IMPs adopted by the Upper Platte River Basin NRDs and the NeDNR and (b) the water needs of projects that will be implemented under PRRIP. Applications for potential beneficial uses that are not clearly non-consumptive will be presumed to be at least partially consumptive.
4. Therefore, an analysis of the effects of a proposed new diversion on existing uses and responsibilities is required in order to determine whether sufficient good cause exists to grant a variance to apply for a new use.
5. Within the process for granting a variance the NeDNR shall review the information provided with the petition and shall make a determination as to whether it is sufficient to indicate good cause for allowing further consideration of the application.
  - a. *Nebraska Revised Statute § 46-706* defines "good cause shown" as, "a reasonable justification for granting a variance for a consumptive use of water that would otherwise be prohibited by rule or regulation and which the granting agency, district, or organization reasonably and in good faith believes will provide an economic, environmental, social, or public health and safety benefit that is equal to or greater than the benefit resulting from the rule or regulation from which a variance is sought;"
6. The goals and objectives of this IMP will be considered when examining applications for new diversions of excess flows (unappropriated water) in the Platte River Basin. In fully appropriated and overappropriated areas, projects designed to meet the goals and objectives of the IMP are of primary importance. In addition to showing good cause in support of the goals and objectives, the effectiveness of each project will be considered. Operational plans that demonstrate effective use of water along with measuring and monitoring will be

prioritized. In assessing the public interest and whether a new project should receive an appropriation, the NeDNR must consider how the project will support the goals of the basin-wide plan and IMPs within the Platte River Basin and reasonable conditions that will need to be imposed on prospective appropriations to ensure that over the long term the best use continues to be made of the limited water resources in the basin. Administering new appropriations that are issued for the purpose of achieving these goals and objectives may require other excess flow diversion projects to be limited or curtailed. These requirements will be clearly established within each new appropriation when issued.

7. If the NeDNR grants the variance petition, the petitioner may then file the application for the project. The decision to grant the petition shall not bind the Director of NeDNR (Director) to approve any application to which it relates, or in any way be used as evidence of prejudice for the Director's future decisions concerning the specific approval requirements of such an application. The NeDNR will specify the conditions under which an application may be filed in order to protect the public interest.

#### **B. Application review process**

The NeDNR's application review process is driven by Nebraska statutes, including but not limited to *Neb. Rev. Stat.* §§ 46-233 through 46-235. The following is not an exhaustive list of all factors used to reach a decision on approval or denial of an application.

1. There must be unappropriated water available in the source of supply and the requirements of a variance petition approval must be met and agreed upon by the applicant.
2. The proposed use must be determined to be beneficial.
3. An appropriation must not be detrimental to the public welfare.
4. Denial of the application is not demanded by the public interest.
5. If the application will be approved, the NeDNR will impose conditions to protect other appropriators and the public interest.

#### **C. Transfer review process**

Pursuant to the statutes regarding transfers in *Neb. Rev. Stat.* Chapter 46, the Director shall review an application for a transfer proposing a change in the location of use; type of appropriation; and or purpose of use, including but not limited to the following:

1. The proposed use of water after the transfer or change will be a beneficial use of water;
2. A request to transfer the location of use is within the same river basin;
3. The change will not diminish the supply of water available or otherwise adversely affect any other water appropriator;
4. The quantity of water that is transferred for diversion or other use at the new location may be the historic consumptive use;
5. The appropriation is not subject to termination or cancellation;

6. If the transfer is to be permanent the preference category may not change;
7. If the transfer is to be temporary, it will be for no less than one year;
8. The transfer or change will not be inconsistent with any applicable state or federal law and will not jeopardize the state's compliance with any applicable interstate water compact or decree or cause difficulty in fulfilling the provisions of any other formal state contract or agreement;
9. The transfer will be in the public interest.
  - a. Consistent with *Neb. Rev. Stat. § 46-294*, the Director's considerations relative to the public interest shall include, but not be limited to, (1) the economic, social, and environmental impacts of the proposed transfer or change and (2) whether and under what conditions other sources of water are available for the uses to be made of the appropriation after the proposed transfer or change.
  - b. Transfers subject to *Department of Natural Resources Rules for Surface Water, Title 457 Neb. Admin. Code, Chapter 9, § 002*, are required to be determined to be in the public interest, "...the Director shall determine whether the benefits of the proposed transfer outweigh any adverse impacts that might occur giving consideration to the economic, social and environmental impacts and whether and under what conditions other sources of water are available for the uses to be made of the appropriation after the proposed transfer or change."
10. The director may impose any reasonable conditions deemed necessary to protect the public interest.

### **10.7 Monitoring and Evaluation**

The overarching purpose of the monitoring and evaluation Section of this IMP is to ensure that the SPNRD reaches and/or maintains a fully appropriated condition. The objective of the monitoring and evaluation Section is to gather and evaluate data, information, and methodologies that could be used to increase understanding of the surface water and hydrologically connected groundwater system, to test the validity of the conclusions and information upon which this IMP is based, and to assist decision makers in properly managing the water resources within the District. The described monitoring actions and evaluations are also important in ensuring the state remains in compliance with the NNDP and in keeping the IMP current.

Various methods will be employed to monitor and evaluate the implementation and progress of this IMP. Sections 10.7.1 and 10.7.2 describe the tracking and reporting of water use activities within the District by SPNRD and the NeDNR. The rest of Section 10.7 describes the analyses that will evaluate the progress that has been made toward: addressing streamflow depletions due to new uses begun subsequent to July 1, 1997 (Section 10.7.3); reaching a fully appropriated condition (Section 10.7.4); maintaining a fully appropriated condition (Section 10.7.5); and evaluating whether a subsequent increment is necessary to meet the goals and objectives of this IMP (Section 10.7.6). Statute describes both an annual review (*Neb. Rev. Stat. § 46-715(5)(d)(ii)*) and a second more robust review of new and expanded uses and associated mitigation actions (*Neb. Rev. Stat. § 46-715(5)(d)(iii)*), covered in Section 10.7.3.

### **10.7.1 Data and Tracking of Water Use Activities**

Data from the five Upper Platte River Basin NRDs will be reported in a consistent format across the basin and from year to year to simplify the process of compiling data for the annual review and the Robust Review. A database will be developed to house this data. This database will facilitate the updating of model datasets.

Occasionally, actions for which permits are issued may not actually be implemented. For example, a well permit may be issued but the well not actually drilled. Because of this, in order to maintain accurate records of actual land use, annual permit and land use data should be updated within the database at the end of the next calendar year to reflect which actions did and did not take place. This includes NeDNR sharing information on any surface water permits cancelled in the calendar year (including temporary permits that expired one year after they are issued). This will help in creating yearly land use datasets when it is time to conduct the Robust Review. Ideally, the permit data should reflect an annual snapshot of changes in land use for that year. This will help update annual land use datasets for the models that will be used for the Robust Review.

#### **A. NRD Tracking**

The SPNRD will be responsible for annually tracking and sharing with the NeDNR information on the following activities within the District:

- Certification of groundwater uses and any changes to these certifications
- Approved transfers, including all of the information provided with the application and used in the approval of the transfer, the location of the land area or well that is being transferred, and the location of the land area or well that will replace the original
- Relevant flow meter data collected by SPNRD staff on groundwater certified acres, by physical inspection or inspection using telemetry equipment and calculated water used on those acres; data is collected at the end of the water year so reporting may not align with other annual tracking;
- Any water well construction permits issued
- Any other permits issued by the SPNRD
- Any conditions associated with any permits issued
- Information gathered through the municipal and non-municipal industrial accounting process
- Any variances issued, including the purpose, the location, any required offset, the length of time for which the variance is applicable, and the reasoning behind approval of the variance
- Any retirements of irrigated acres or other activities by the SPNRD for the purpose of returning to a fully appropriated condition
- Information related to any water banking transactions
- Offsets provided for depletions resulting from increased consumptive use related to the above listed items

- This includes reporting on offsets and mitigation activities for the purpose of addressing post-1997 depletions and for the purpose of sustaining previous increment progress and reaching a fully appropriated condition. Such activities to be reported include canal diversions for the purpose of groundwater recharge, operation of stream augmentation projects, and irrigated acre retirements.
- Summary of available conservation plans of municipalities and industries within the basin including strategies that could be applied to other municipalities in the basin (at the Basin-Wide Annual Meeting).

#### B. NeDNR Tracking

The NeDNR will be responsible for annually tracking and sharing with the SPNRD information on the following activities within the District:

- Any surface water permits issued
- Any dam safety permits issued
- Any groundwater permits issued
- The associated offsets for any new permits issued
- Any retirements of irrigated acres or other activities by the NeDNR for the purpose of returning to a fully appropriated condition

As new data would show a need for further analysis and to the extent that SPNRD meter data or other methods of estimation are not available to determine the consumptive use of water due to livestock, human water use, sandpits and reservoirs less than 15 AF, the NeDNR will be responsible for tracking and reporting on the following activities within the District in the current increment:

- National Agricultural Statistics Service livestock data
- US Census Bureau population data
- Inventory of sandpits
- Inventory of reservoirs of less than 15 AF
- Any necessary offsets provided for depletions resulting from increased consumptive use related to the above listed items.

#### 10.7.2 Reporting

An annual review of the progress being made toward achieving the goals and objectives of the ten-year increment will include annual reporting by the NeDNR and the SPNRD of the information being tracked as described above.

Data will be used to assess the collective amount, timing, and locations of the depletions to streamflows resulting from new or expanded uses and of all mitigations. This will involve a simple analysis of impacts to streamflows resulting from permitted changes, which will not require model runs. These analyses will be done using the agreed upon methods and tools. Methods and tools used will be available to the stakeholders and the public. This information will be shared between SPNRD and NeDNR and presented at the Basin-Wide Annual Meeting.

The data collected will then be trimmed to the relevant PRRIP area, analyzed, and used for required annual and periodic reporting for the NNDP, helping facilitate Nebraska's compliance with the NNDP.

The reports from the SPNRD and the NeDNR should include information on the location, amount, and timing of the depletions caused by each permitted new or expanded water use, as well as the associated offset and the location, amount and timing of the offset's accretions to the river. The depletions and/or the accretions should be reported for each year throughout the ten-year increment.

These reports should be made available at least four weeks prior to each Basin-Wide Annual Meeting. The format of the reports will be standardized as agreed to by the NeDNR and the Upper Platte River Basin NRDs.

The reported information will be used as appropriate in the evaluation process as described below. Data from the NeDNR and SPNRD annual reports will be used to prepare reports to the Governance Committee of PRRIP on status and activities related to the NNDP. The NeDNR will generate these reports and will coordinate with the SPNRD to ensure the accuracy of data within any final report.

#### **10.7.3 Evaluation: Measuring the Success of Meeting the Goals and Objectives of this IMP**

Measuring the success of this IMP in addressing streamflow depletions due to new uses begun subsequent to July 1, 1997, and maintaining progress .

##### **10.7.3.1 Annual Review**

In order to meet the requirements of *Neb. Rev. Stat. § 46-715(5)(d)(ii)*, the data contained in the annual reports submitted by the SPNRD and the NeDNR will be reviewed and analyzed annually to assess the progress being made toward achieving the goals and objectives of Chapter 9 of this IMP for the current ten-year increment. The annual review will consider both the near-term and long-term effects of any permitted new consumptive uses. A 50-year stream depletion curve, based on the WWUM Model may be used to assess the impacts of any new uses contained within the annual reports to show the long-term potential impacts of annual changes.

##### **10.7.3.2 Robust Review**

In addition to the annual review, a more robust review of the progress being made toward achieving the goals and objectives of Chapter 9 of this IMP for the current ten-year increment will be carried out periodically. This analysis will be developed to meet the requirements of reporting for the NNDP as well as *Neb. Rev. Stat § 46-715(5)(d)(iii)* to determine whether the measures adopted in this IMP are sufficient to offset depletions due to post-July 1, 1997, water uses and sustain progress toward a fully appropriated level of water use . A Robust Review will be conducted in 2023 and 2027. The purpose of these Robust Reviews will be to address the indicator and triggers outlined in Section 10.6.2 of this IMP, which helps measure progress toward reaching the targets from Chapter 9. The process for this review is described below. The previous Robust Review will also serve as guidance for conducting the next one.

The general method for conducting the Robust Review will be as follows:

- A. The groundwater models used for this process will be calibrated to streamflows/baseflows and groundwater levels in the area with the ability to assess the impacts on a monthly basis. The groundwater models will be updated periodically to simulate the management practices that have been implemented to date. The evaluation period of these models will be 50 years into the future.
- B. The following groundwater model runs will be conducted to measure the success toward reaching Objective 1.2:

- 1. The 1997 Development Level Run**

A model run that simulates holding the number of irrigated acres and crop types or mix in 1997 constant through the current date and the fifty-year projection period. Unless more accurate data is available, to estimate 1997 levels of consumptive use, it will assume the full crop irrigation requirement for the crop types or mix. The run will be conducted using climate data through the current date and will include a fifty-year projection using an agreed to climate pattern.

- 2. The Historical Run**

A model run that simulates the actual annual changes of the irrigated acres, excess flow recharge events, retirements, allocation effects, augmentation projects, and other water management regulations or projects throughout the evaluation period starting in 1997 through the current date and the fifty-year projection period. The fifty-year projection period will repeat an agreed to land use, regulation, or project dataset. The model will use available flow meter data or, in the absence of flow meter data, assume the full crop irrigation requirement was met at all times. The run will be conducted using data through the current date and will include a fifty-year projection using an agreed to climate pattern.

- 3. Difference between the 1997 Development Level Run and the Historical Run**

The simulated output from each model run will be compared to determine the difference in the streamflow/baseflow that has resulted from post-1997 development. Effects on streamflows/baseflows from the combination of allocations and landuse changes are reflected in this comparison as both the meter data and landuse changes are incorporated to determine groundwater pumping.

- 4. Other Management Actions Analyses not covered by the Models**

If other management actions are taken to offset streamflow depletions due to new uses begun subsequent to July 1, 1997, accretions resulting from those retirements will be determined using agreed upon methodologies. This would include conjunctive management activities that are not otherwise captured in the models.

- 5. Evaluation Results**

For Objective 1.2 to be considered achieved, the results of combining the difference between the 1997 Development Level Run and the

Historical Run with the addition of management action accretions not covered by the models must be greater than or equal to zero.

$$(Q_h - Q_d) + (S_a) = D_{net}$$

Where:

$Q_h$  = Simulated streamflow/baseflow from the Historical Run

$Q_d$  = Simulated streamflow/baseflow from the 1997 Development Level Run

$S_a$  = Other Management Action Accretions

$D_{net}$  = Net Depletions

*Note: In equation above, streamflow/baseflow is positive*

#### C. Total Depletions Analysis

An additional groundwater model run will be conducted to measure total depletions. This will be the Pre-Development Run. The Pre-Development Run will compare the Historical Model Run with a simulation of no groundwater development to determine the total depletions associated with all groundwater only land use development. The run will be conducted using climate data through the current date and will include a fifty-year projection using the Historical Run's agreed-to climate pattern.

##### 1. Total Depletions Evaluation

$$(Q_h - Q_p) = D_t$$

Where:

$Q_h$  = Simulated streamflow/baseflow from the Historical Run

$Q_p$  = Simulated streamflow/baseflow from the Pre-Development Level Run

$D_t$  = Total Depletions

*Note: In equation above, streamflow/baseflow is positive*

- D. If integrated models are used to assess impacts to the total streamflow, the methods to be used will be developed jointly between NeDNR and the Upper Platte River Basin NRDs to properly design and constrain those analyses so that the results can be used to assess progress toward the goals and objectives of the IMP.
- E. Municipal, Industrial, Domestic, and Livestock use will be evaluated as part of the Robust Review

1. Data will continue to be collected on the water use of municipalities and industries within the basin.
  - a. Gather information on total pumping, consumptive use, and timing of any return flows and collect data on water use efficiency and conservation methods being employed.

#### **10.7.3.3 Allocations analysis**

While the effects of the allocations at offsetting post-97 depletions and providing additional accretions are captured in the Robust Review modeling described above, the SPNRD conducts an annual allocations analysis at a more frequent interval for the purpose of assessing the effectiveness of the allocations. This will allow the SPNRD to closely monitor whether their allocation continues to be effective. The general outline for the analysis is:

1. Incorporate meter data
2. Conduct historical model run, which includes the groundwater only metered pumping records,
3. Conduct modified run, which replaces the groundwater only metered pumping records with estimated pumping simulating full irrigation crop consumptive use of the crops grown on each parcel or certification.
4. Compare the stream baseflow of the historical model to the stream baseflow of a modified version. The comparison in stream baseflow between the two model runs estimated the additional flow that is present in the North Platte River, South Platte River, Lodgepole Creek, and associated tributaries as a result of the allocations and the subsequent reduction in consumptive use.
  - a. For planning purposes, the model is run for 50 years into the future by repeating an average or another representative climate pattern.
  - b. In the current increment variations of this analysis may also be completed to determine if there are any potential benefits from the allocations on commingled lands or other appropriate model runs. The evaluation of commingled lands may also require consideration of changes in surface water diversions and deliveries.

#### **10.7.4 Evaluation: Measuring the Success of Reaching a Fully Appropriated Condition**

A technical analysis to support and evaluate effectiveness of this IMP and adequacy in sustaining progress toward a fully appropriated level of water use must be conducted.

Because a fully appropriated condition is not currently determined, the NeDNR and the SPNRD will continue to work on outlining the process that will measure the success of reaching the fully appropriated condition once that condition has been determined. The NeDNR and SPNRD will continue to refine the methodology used to determine the difference between the current and fully appropriated levels of development in each of the Upper Platte River Basin NRDs.

The evaluation of the difference between current and fully appropriated levels of development is tied to statute and the current rules of the NeDNR for declaring a basin fully appropriated. Statute requires that this evaluation will:

- Take into account cyclical supply, including drought
- Identify the portion of the overall difference that is due to conservation measures
- Identify the portion of the overall difference that is due to water use initiated prior to July 1, 1997
- Identify the portion of the overall difference that is due to water use initiated or expanded on or after July 1, 1997

The current NeDNR rules for determining fully appropriated status include evaluation of the most junior appropriator's access to water, adjustments for lag effect of groundwater depletions and accretions on water supplies, and consideration of instream flows, among other guidance for conducting the analysis. The rules also provide flexibility for NeDNR to "...utilize a standard of interference appropriate for the use, taking into account the purpose for which the appropriation was granted..."<sup>19</sup> for uses which are not defined in the rule. These include storage and hydropower appropriations, which are significant appropriators in the Upper Platte River Basin. NeDNR and the Upper Platte River Basin NRDs have and will continue to work with impacted water users on the process for determining the difference between the current and fully appropriated condition of the basin.

The assessment of total depletions and the INSIGHT analysis of supplies and demands are examples of approaches that may be used to assist in this evaluation.

#### **10.7.5 Evaluation: Measuring the Success of Maintaining a Fully Appropriated Condition**

Because a fully appropriated condition is not currently determined, the NeDNR and the SPNRD will work on outlining the process that will measure the success of maintaining a fully appropriated condition once that condition has been determined. If during this increment it is determined that a fully appropriated condition has been reached, the SPNRD and NeDNR will continue to monitor the actions taken in the IMP to ensure that all goals and objectives are maintained.

#### **10.7.6 Evaluating the Need for a Subsequent Increment**

The NeDNR and the SPNRD will carry out the studies and the technical analysis as specified in *Neb. Rev. Stat. § 46-715(5)(d)(iii)* to determine whether or not a subsequent ten-year increment is necessary. This will include a process to test the validity of the conclusions and information upon which this IMP is based, as required by *Neb. Rev. Stat. § 46-715(2)(e)*.

Within the second ten-year increment, the NeDNR and the SPNRD will continue to refine the estimation methodology used to calculate the difference between the current and fully appropriated levels of development in accordance with *Neb. Rev. Stat. § 46-715(5)(c)*. The evaluation of fully appropriated levels of development will be supported through the following:

- A. Determine the changes in recharge from surface water diversions and the impacts of those changes on streamflow using readily available data.

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<sup>19</sup> Department of Natural Resources Rules for Surface Water, Title 457 Neb. Admin. Code, Chapter 24, § 001.01B

- B. Determine the changes in groundwater irrigation, municipal, industrial, domestic, livestock and other uses and the streamflow depletions caused by those changes using readily available data.
- C. Determine the effects of conservation measures on streamflows.
- D. Determine the timing and location of the net changes in streamflow.
- E. Determine when streamflow changes impact existing users, taking into account the effects of cyclical supply (e.g. drought).
- F. Evaluation of the existing balance of water uses and water supplies and associated economic viability, social and environmental health, safety, and welfare of the basin.
- G. The NeDNR and the SPNRD will review other data and/or methodologies relevant or significant to the process.

The process described above in Section 10.7.6.2 focuses impacts to hydrologically connected streamflows due to uses initiated prior to July 1, 1997. All uses initiated subsequent to July 1, 1997, will be evaluated using the process described in Section 10.7.3.

## **10.8 Studies to be Completed in the Current Increment**

### **10.8.1 Priority Studies**

The Basin-Wide Plan calls for several studies and collection of information within the basin. Those studies and information are also critical to the successful implementation of this IMP. The studies include:

- Collect data on commingled acres to identify, quantify, and proportion the source and quantity of water used on acres irrigated with both surface water and groundwater. Gather data on water use on such lands (both why and when irrigators use surface water or groundwater).
- Conduct a study that identifies water users that are affected during cyclical variations in water supply. This hydrologic element analysis will be conducted by NeDNR and the Upper Platte River Basin NRDs by evaluating data such as stream gage and diversion records, and well hydrograph data. Focused surveys of, as well as meetings with basin water users can be used to build on stakeholder input gathered throughout the planning process. Once impacted water users who are hydrologically affected by water supply variability are identified, economic impacts can be estimated.
- NeDNR and the Upper Platte River Basin NRDs will collaborate with impacted water users and other entities to gather relevant economic data. Potential partners include economists and other subject matter experts familiar with the economic drivers of the basin who can help identify data needs and formulate the tools and methodologies for assessing economic impacts. The tools and methodologies will be used to not only evaluate impacts of supply variability, but also evaluate human-made depletion impacts, management actions, regulatory actions, and potential projects or other activities considered during implementation that may affect water availability.

- Study economic impacts of drought, which will be a component of the drought plan
- Study potential for developing markets and transfer protocols for annual surface water and groundwater supplies.
- Study management options of storage water (both surface water reservoirs and aquifer storage, including existing and potential new storage) to provide flexibility and increase resiliency of water supplies.

### **10.8.2 Potential Studies**

There are many other factors that have the ability to impact streamflows. It is important to investigate these things to assess their potential effectiveness in achieving the goals and objectives of this IMP and identify new potential management actions. Pursuit of these studies will be contingent upon budget and staff resources.

The NeDNR and the SPNRD have identified the following potential studies:

- Crop rotation
- Vegetation management
- Irrigation scheduling
- A survey of the type and location of irrigation systems throughout the District
- Tillage practices
- Other best management practices
- Conjunctive management – continue to investigate effects of projects within the District and look for new opportunities
- Water budget analysis
- Invasive species
- Conservation measures – continue to investigate the effects of the implementation of these measures and their level of use within the District

## **10.9 Review and Modification of the IMP**

### **10.9.1 IMP Revisions**

During implementation of the IMPs, NeDNR and the Upper Platte River Basin NRDs will monitor IMP actions consistent with the analyses and methods contained in the Basin-Wide Plan and amend the IMP if activities are determined by the parties to not be capable of meeting goals. If NeDNR and an Upper Platte River Basin NRD determine that management actions have not provided or maintained the offsets required to meet the goals of the Basin-Wide Plan, they will agree to increase offset activities to the extent possible and revise the individual NRD's IMP if necessary. These revisions may include additional controls to meet goals of the IMP.

- A. The SPNRD and the NeDNR will jointly determine whether amendments to this IMP are necessary. Any proposed modifications will be discussed at the Basin-Wide

Annual Meeting. Situations that may prompt revision or modification of this IMP are described below.

1. The SPNRD and the NeDNR may amend this IMP after the annual review of progress being made toward achieving the goals and objectives of Chapter 9 of this IMP.
  2. If the Robust Review indicates annual depletion or accretion values different from those in Goal 1 Table 1, revisions may be necessary. For example, the IMP may be revised to attach the results of a future Robust Review including updated targets and triggers.
  3. NeDNR and the SPNRD may amend this IMP as more data and information become available, as provided in *Neb. Rev. Stat. § 46-715(5)(d)(ii)*.
  4. If the Basin-Wide Plan is revised and therefore this IMP needs to be revised for consistency, this IMP will be revised in accordance with *Neb. Rev. Stat. § 46-715(5)*.
- B. An advisory or stakeholder group may be convened for input on proposed IMP changes, at the discretion of the SPNRD and NeDNR.
  - C. If the SPNRD and NeDNR agree on revisions to this IMP, then a hearing will be held to solicit formal comment. Revisions to this IMP shall be provided to all other Upper Platte River Basin NRDs in the overappropriated basin for comment before revisions are approved.

#### **10.9.2 Basin-Wide Plan Disputes**

- A. If a dispute is presented at the Basin-Wide Annual Meeting as described in the Basin-Wide Plan, the Upper Platte River Basin NRDs and the NeDNR will determine whether or not the dispute has hydrologic impact. If it is determined that the dispute does have hydrologic impact, then the Upper Platte River Basin NRDs and the NeDNR will determine whether the dispute pertains to all of the Upper Platte River Basin NRDs or just to individual NRD(s).
- B. If the dispute pertains to all of the Upper Platte River Basin NRDs, the Upper Platte River Basin NRDs will conduct an investigation and the NeDNR to determine what management actions will address the dispute(s) in the Basin-Wide Plan and/or the IMPs. If the management action pertains to this IMP, it will be revised accordingly.
- C. If the dispute is not a basin-wide issue, but pertains to the SPNRD, the NeDNR, the SPNRD, and any other affected Upper Platte River Basin NRD(s), working with the affected water user(s), shall develop management solutions as appropriate to address the issue(s).
- D. Disputes related to the implementation of the IMP will also be discussed

#### **10.9.3 Additional Ten-Year Increment**

Based on the results of the technical analyses described in Section 10.7.3, the SPNRD and the NeDNR will evaluate the need for a subsequent increment. This includes determining whether post-July 1, 1997, depletions have been offset and the progress made toward achieving a fully appropriated condition or maintaining such a condition.

If it is determined from these technical analyses that a subsequent ten-year increment is needed to meet the goals and objectives of this IMP, then pursuant to *Neb. Rev. Stat.* § 46-715(5)(d)(iv), the goals and objectives for the subsequent ten-year increment will be developed using the consultative and collaborative process described in *Neb. Rev. Stat.* § 46-715(5)(b). The subsequent ten-year increment IMP shall be completed, adopted, and take effect not more than ten years after adoption of this IMP.

NeDNR and the individual Upper Platte River Basin NRDs will engage stakeholders in a collaborative process in the development of goals and objectives for subsequent increment of the individual IMPs if necessary. The need for a subsequent increment will be determined through the Robust Review process completed at the end of the second increment and described in Section 10.7.3. Should a subsequent increment be necessary, the planning process will be initiated by NeDNR and each Upper Platte River Basin NRD developing a public participation plan that outlines the stakeholder engagement process for the NRD's IMP, including identification of participants/parties, definition of roles, decision making protocols, planning processes, and timelines. This public participation plan serves as a reference guide for participants as well as the public throughout the planning process. This effort is analogous to the basin-wide collaborative process described in the Basin-Wide Plan, but focused on the individual Upper Platte River Basin NRD stakeholder collaboration. The public participation plan developed for the second increment Basin-Wide Plan development can be found as an appendix to the *Second Increment Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska*.

**Appendix A:**  
**Glossary of Terms**



## Glossary of Terms

### South Platte Natural Resources District IMP

| Term                   | Definition  |
|------------------------|---|
| <b>Accretion</b>       | Addition to streamflow that results from an offset/mitigation action or project.  |
| <b>Acre-foot (AF)</b>  | Volume of water required to cover one acre of land to a depth of one foot (43,560 cubic feet), equivalent to 325,851 gallons.   |
| <b>Action Item</b>     | A specific task that the NRD or NeDNR (or both) will undertake to achieve the goals and objectives of the Integrated Management Plan.   |
| <b>Appropriation</b>   | A permit granted by NeDNR to use surface water for a beneficial use in a specific amount, purpose, and location, and is based on first-in-time, first-in-right.   |
| <b>Aquifer</b>         | A geological formation or structure of permeable rock or unconsolidated materials that stores and/or transmits water, such as to wells and springs.   |
| <b>Basin-Wide Plan</b> | Following <i>Nebraska Revised Statute § 46-715</i> , a Basin-Wide Plan is required to be developed for areas designated as overappropriated. Overall, basin-wide plans provide a more general framework than IMPs, focusing on regional, cross-boundary issues and opportunities such as those related to hydrologic connectivity and management strategies that cross the NRDs' borders. |
| <b>Beneficial Use</b>  | That use by which water may be put to use to the benefit of humans or other species.  |
| <b>Certified Acres</b> | Lands identified and registered with the District greater than one acre which has water applied for irrigation.   |

|                               |   |
|-------------------------------|---|
| <b>COHYST</b>                 | Originally developed in 1998 as part of COHYST (the Cooperative Hydrology Study), the COHYST 2010 Model and Western Water Use Management (WWUM) Model were later split into separate models because the geology, climate, and land management of the central portion of the state were determined to be significantly different from those of the western reaches of the state. The COHYST 2010 Model includes a portion of the Platte River Basin, extending westward from Chapman to the upstream end of Lake McConaughy. While the original COHYST model was initially focused only on groundwater modeling, the COHYST 2010 Model now also takes surface water into account. The final model includes a surface water operations model, a groundwater flow model, and a soil-water balance model. |
| <b>Conjunctive Management</b> | The coordinated and combined process that utilizes the connection between surface and groundwater to maximize water use, while minimizing impacts to streamflow and groundwater levels in an effort to increase the overall water supply of a region and improve the reliability of that supply.  |
| <b>Consumptive Use</b>        | The amount of water that is consumed under efficient practices, which satisfies the appropriation without waste. The amount of water removed from available supplies without return to a water resources system.  |
| <b>Depletion</b>              | Reduction to streamflow that results from a new use of either groundwater or surface water.   |
| <b>District</b>               | The Central Platte Natural Resources District (CPNRD). A political subdivision of the State responsible for protection and management of the natural resources within the boundaries of the district.   |
| <b>EQIP</b>                   | The Environmental Quality Incentives Program is a voluntary program through the Natural Resources Conservation Service (NRCS) that provides agricultural producers with financial resources to plan and implement improvements, or conservation practices to improve air and water quality, healthier soil, and better wildlife habitat, all while improving agricultural operations.   |

|                                 |   |
|---------------------------------|---|
| <b>Fully Appropriated</b>       | From <i>Nebraska Revised Statute§ 46-713</i> , subsection (3): A river basin, subbasin, or reach shall be deemed fully appropriated if NeDNR determines based upon its evaluation conducted pursuant to subsection (1) of this section and information presented at the hearing pursuant to subsection (4) of section 46-714 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. |
| <b>Goal</b>                     | A general statement of broad direction or intent with no time line.   |
| <b>Groundwater</b>              | Water which occurs in or moves, seeps, filters, or percolates through ground under the surface of the land, and shall include groundwater which becomes commingled with waters from surface sources.  |
| <b>Hydrologically Connected</b> | A geographic area where groundwater and surface water are interconnected and withdrawals of one source may influence the availability of the other. In <i>Nebraska Revised Statutes</i> , hydrologically connected waters are those where deep well pumping over a 50-year period will deplete stream flows by 10 percent of the amount pumped over that time.  |
| <b>INSIGHT</b>                  | Developed and maintained by NeDNR, INSIGHT stands for an Integrated Network of Scientific Information and GeoHydrologic Tools. The purpose of INSIGHT is to provide an annual snapshot of water conditions across the state. Hydrologic data are consolidated from several different sources, including the NeDNR, U.S. Geological Survey, U.S. Bureau of Reclamation, and local natural resources districts and presented in charts for the following categories: water supplies, water demands, nature and extent of use, and water balance. These data are presented in a consistent format and become more local as the user drills down from the statewide level to the basin-wide and subbasin levels using the database interface.   |

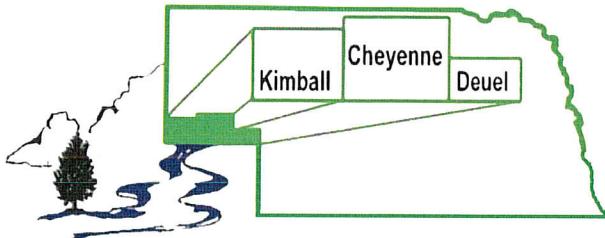
|   |  |
|---|--|
| <b>Instream Use</b>                     | Water that is appropriated for use within the stream and is not withdrawn from a surface water source.   |
| <b>Integrated Management Plan (IMP)</b> | A plan cooperatively developed by NeDNR and an NRD for the purpose of managing a river basin, subbasin, or reach to achieve and sustain a balance between groundwater and surface water uses and water supplies for the long term.   |
| <b>Irrigation</b>                       | The artificial application of water to promote the growth of vegetation.   |
| <b>Irrigation Well</b>                  | A well that provides water for purposes of irrigation for more than two acres of crops and other plants.   |
| <b>LB 962</b>                           | A bill passed by Nebraska Legislature in 2004 that allows leases of surface water, changes administration of surface water rights, establishes a proactive approach to the integrated management of hydrologically connected groundwater and surface water, and creates funds to direct money toward data gathering, research, conservation, and implementation of integrated management plans in fully and overappropriated basins. |
| <b>Moratorium</b>                       | A legally authorized suspension of drilling of groundwater wells or approval of new surface water appropriations.  |
| <b>NeDNR</b>                            | The Nebraska Department of Natural Resources (NeDNR) a State agency that has the authority over surface water, floodplain management, dam safety, and providing data and analyses needed to make wise resource decisions.  |
| <b>NET</b>                              | Nebraska Environmental Trust was established to conserve, enhance, and restore the natural environments of Nebraska, by funding projects that leverage private investment in conservation and emphasize long-lasting results.  |
| <b>NNDP</b>                             | Nebraska New Depletions Plan. The plan, in accordance with PRRIP, describes the actions taken to prevent or mitigate for new depletions to target streamflows, to the extent those new depletions are caused by uses begun or expanded on or after July 1, 1997. Responsibility for implementing the plan is shared between the State of Nebraska and the Platte River Natural Resources Districts.                                  |
| <b>Objective</b>                        | A statement that defines a specific outcome that a group seeks to accomplish in working toward a goal.   |

|                         |  |
|-------------------------|--|
| <b>Offset</b>           | A reduction in water use that corresponds with an increased use of water. An offset may be used as a management strategy to balance uses and supplies. The offset will have a corresponding amount, time, and location. Also referred to as mitigation.  |
| <b>Overappropriated</b> | From <i>Nebraska Revised Statute § 46-713 (4)(a)</i> : A river basin, subbasin, or reach shall be deemed overappropriated if, on July 16, 2004, the river basin, subbasin, or reach is subject to an interstate cooperative agreement among three or more states and if, prior to such date, the NeDNR has declared a moratorium on the issuance of new surface water appropriations in such river basin, subbasin, or reach and has requested each natural resources district with jurisdiction in the affected area in such river basin, subbasin, or reach either (i) to close or to continue in effect a previously adopted closure of all or part of such river basin, subbasin, or reach to the issuance of additional water well permits in accordance with subdivision (1)(k) of section 46-656.25 as such section existed prior to July 16, 2004, or (ii) to temporarily suspend or to continue in effect a temporary suspension, previously adopted pursuant to section 46-656.28 as such section existed prior to July 16, 2004, on the drilling of new water wells in all or part of such river basin, subbasin, or reach. |
| <b>PBC</b>              | Platte Basin Coalition (or Coalition) is a interlocal cooperation agreement among Upper Platte River Basin NRDs and NeDNR to meet the terms of PRRIP, requirements of the Groundwater Management and Protection Act, and the provisions in the IMPs and the Basin-Wide Plan by obtaining funding for projects to study, develop, and implement management actions to reduce consumptive uses of water.   |
| <b>PRRIP</b>            | Platte River Recovery Implementation Program. Developed by the federal government along with basin states of Nebraska, Colorado, and Wyoming and signed in 2006. Local, state and federal government agencies work with groups across the basin to build a framework for a long-term program that will satisfy Endangered Species Act requirements for water users in the basin. The primary focus of PRRIP is to enhance, restore, and protect habitat lands for the endangered whooping crane, interior least tern, pallid sturgeon, and the threatened piping plover.   |
| <b>Recharge</b>         | A hydrologic process where water moves downward from surface water to ground water, both naturally through the hydrologic cycle or through intentional practices.  |

|                                       |  |
|---------------------------------------|--|
| <b>Stakeholder Advisory Committee</b> | Representatives of various interest groups and professional fields who provided comments and suggestions on various aspects of the Integrated Management Plan.   |
| <b>Storage</b>                        | The capture and holding of water in above-ground man-made structures, or below ground in geologic strata for subsequent use for various purposes.  |
| <b>Streamflow</b>                     | The discharge that occurs in a natural channel of a surface stream course.   |
| <b>Surface Water</b>                  | Water which occurs or moves on the surface of the planet such as in a stream, river, lake, wetland, or ocean.  |
| <b>Transfer</b>                       | To allow for the historic consumptive use of water to be changed, in location and/or purpose without causing an increase in depletions to the river or an impact to existing surface water or groundwater uses.  |
| <b>Use</b>                            | The legally accepted use of a well or water appropriation.   |
| <b>Variance</b>                       | To allow an exception to the stay on new irrigated acres and new consumptive uses while providing adequate mitigations or transfers to assure that there is no net increase in depletions to the river or impacts to existing surface water or groundwater uses; any request that is contrary to existing rules or regulations will require a variance. Any person wanting to apply for a new surface water appropriation within a moratorium or stay area must file a variance petition with NeDNR requesting leave to file an application. |
| <b>Water Bank</b>                     | A mechanism used to facilitate the transfer of water between parties, often using market-driven transactions. Water banks can be institutional, physical, or mixtures of both.   |
| <b>WWUM</b>                           | Western Water Use Management Model assists NeDNR and NRDs with meeting the objectives of local integrated management plans and the Platte River Recovery Implementation Program by assessing the impact of water uses and management practices on long-term water supplies.  |

**Appendix B:**  
Exchange Letters Between SPNRD and NeDNR





# South Platte Natural Resources District

551 Parkland Drive, PO Box 294 Sidney, Nebraska 69162  
(308) 254-2377 FAX (308) 254-2783 [www.spnrd.org](http://www.spnrd.org)

February 2, 2018

Jeff Fassett, Director  
Nebraska Department of Natural Resources  
301 Centennial Mall South  
PO Box 94676  
Lincoln, NE 68509-4676

RE: Initiation of South Platte Natural Resources District's Second 10-Year Increment Integrated Management Plan

Dear Mr. Fassett:

This letter is to confirm that the South Platte Natural Resources District (SPNRD) and the Department of Natural Resources (NeDNR) have jointly determined that the development of a second 10-year increment Integrated Management Plan (IMP) for the SPNRD is necessary. In accordance with *Nebraska Revised Statutes §§ 46-715 through 46-718*, the second increment IMP will be developed using a consultative and collaborative process to identify IMP goals and objectives. Following adoption of the first increment IMP in 2009, SPNRD and NeDNR have made collaborative efforts to implement the goals and objectives set forth in the IMP and have met regularly to review progress. The development of a second increment IMP will allow further progress to be made toward meeting the IMP's goals and objectives pursuant to *Neb. Rev. Stat. §46-715(2)* and to reduce the overall difference between the current and fully appropriated levels of development identified in *Neb. Rev. Stat. §46-715(5)(c)*.

As you are aware, work on the development of the Upper Platte River Basin's second increment basin-wide plan will be winding down in 2018, allowing for the Upper Platte NRDs and NeDNR to direct their time and attention to the development of second increment individual NRD IMPs. By initiating the planning and development process for SPNRD's individual IMP now, partners will benefit from having knowledge of the second increment basin-wide plan's proposed goals and objectives, thereby maintaining consistency between the two plans as well as a concurrent plan development schedule.

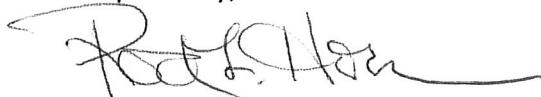
SPNRD would like to meet with your staff in the coming weeks to discuss a project timeline and whether or not we would like to consider hiring outside assistance for coordination and/or facilitation tasks associated with the development of the individual

SPNRD Second Increment IMP Process

Page 2 of 2

IMP. Ryan Reisdorff will be the SPNRD staff contact leading coordination of the individual IMP development. You may reach him at 308-254-2377 and [rreisdorff@spnrd.org](mailto:rreisdorff@spnrd.org). Please work with Ryan in scheduling a suitable date and time to discuss this matter.

Respectfully,



Rod L. Horn, General Manager  
South Platte Natural Resources District



Good Life. Great Water.

DEPT. OF NATURAL RESOURCES



Pete Ricketts, Governor

February 12, 2018

Rod L. Horn  
General Manager  
South Platte NRD  
PO Box 294  
Sidney, NE 69162

Dear Mr. Horn:

The Nebraska Department of Natural Resources (Department) is pleased to receive the South Platte Natural Resources District's (District) February 2, 2018 letter to initiate the second 10-year increment integrated management plan per *Nebraska Revised Statutes §§ 46-715 through 46-718*.

Melissa Mosier, of the Department, will be in touch with your District IMP contact person, Ryan Reisdorff, to discuss the project timeline and whether to consider hiring outside assistance for coordination and/or facilitation.

We look forward to continued work on the integrated management plans and in furthering the effective working relationship between the District and the Department.

Sincerely,

Gordon W. "Jeff" Fassett  
Director

Gordon W. "Jeff" Fassett, P.E., Director

**Department of Natural Resources**

301 Centennial Mall South      OFFICE 402-471-2363  
P.O. Box 94676      FAX 402-471-2900  
Lincoln, Nebraska 68509

[dnr.nebraska.gov](http://dnr.nebraska.gov)

**Appendix C:**  
Stakeholder Advisory Committee Process,  
Members, and Meeting Dates



## Plan Development

### Public Involvement

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Public involvement during the South Platte Natural Resources District's Second Increment Integrated Management Plan development process was designed to encompass broad stakeholder values, interests, future needs and priorities, and raise awareness to encourage broad community support for water quantity management within the District and Basin.

The Stakeholder Advisory Committee was formed through local solicitations and nominations. The District and the Department sent out letters to 22 individuals who were nominated as potential members of the Advisory Committee through District contacts. 18 interested individuals contacted the District and were appointed to the Stakeholder Advisory Committee. The Eighteen-member Stakeholder Advisory Committee included diverse representation from agriculture, irrigation districts, well drillers, public power producers, industry/business, environmental groups, and municipalities.

### Meeting Topics

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The main Plan development consisted of stakeholder meetings which were open to the public. During stakeholder meetings numerous concepts and topics were discussed, but certain topics were repeatedly discussed by stakeholders across meetings that led to Plan goals, objectives, and action items. To the extent possible, these ideas have been grouped and are listed below in alphabetical order.

- Continue to enhance groundwater modeling
- Economic viability of the SPNRD
- Education
- Effects to stream-flow from on-farm efficiency
- Equitability among users
- Keeping current progress made
- Keeping allocations separate from IMP
- Upstream and downstream partnerships
- Water sustainability

### Members of the Stakeholder Advisory Committee

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At the end of Plan development, the Stakeholder Advisory Committee had 18 members, whose names are listed below.

|                |                  |                 |
|----------------|------------------|-----------------|
| Alan Adamson   | Randy Faessler   | Rol Rushman     |
| Mike Behrends  | Bernie Fehringer | Ed Sadler       |
| Jared Derry    | Randy Horst      | Jeff Shafer     |
| Kevin Derry    | Nathan Knobbe,   | Carson Sisk     |
| Rick Dickinson | Mark McGreer     | Marc Sprenger   |
| Mike Drain     | John Perry       | Dave Weiderspon |

In addition to the Stakeholder Advisory Committee meetings, NeDNR and the SPNRD held coordination meetings to plan stakeholder meetings. Meeting dates are listed in the table below.

| <b>Stakeholder Advisory Committee Meetings</b> | <b>Coordination Meetings</b> |
|--|------------------------------|
| June 20, 2018                                  | February 23, 2018            |
| August 15, 2018                                | March 15, 2018               |
| November 14, 2018                              | April 3, 2018                |
| February 27, 2019                              | April 25, 2018               |
|  | October 16, 2018             |
|  | November 17, 2015            |
|  | December 4, 2018             |
|  | December 17, 2018            |
|  | January 2, 2019              |
|  | January 24, 2019             |
|  | February 14, 2019            |

**Appendix D:**

Order Declaring Formal Moratoriums in the Matter of the Platte River Basin above the Mouth of the Loup River, the North Platte River Basin, and the South Platte River Basin, et al.

Dated July 14, 2004



STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES

In the Matter of the Platte River )  
Basin, the North Platte River )  
Basin, the South Platte River )  
Basin, the Republican River ) ORDER DECLARING FORMAL MORATORIUMS  
Basin, the White River Basin, )  
and the Hat Creek River Basin. )

This matter came on for consideration before the Director of the Department of Natural Resources in part because of the provisions of Section 53, subsection (4) of LB962 (2004 Nebraska Legislature) and in part because of the need to formalize actions previously taken by the Department relative to the issuance of additional appropriations in several river basins in the state. The Director FINDS:

1. On February 27, 1979, by a memorandum to staff, the Director of the Department of Water Resources (now the Department of Natural Resources) ordered staff to deny all applications for natural flow for consumptive purposes in the Lodgepole Creek basin. The memorandum states the action was taken because the Director did not believe the public interest was served by continued issuance of permits for natural flow and that the moratorium would avoid the additional State costs from the added administration and cancellation of permits in the future. Documents in the Department's records indicate that storage and storage use appropriations could still be considered and approved. Such action was to take effect immediately and remain in effect until further notice. Lodgepole Creek is a tributary to the South Platte River.
2. On December 13, 1979, the same Director of the Department of Water Resources issued another memorandum to staff directing them to deny all applications for the direct use of natural flow from Pumpkinseed Creek and tributaries for irrigation purposes. The memorandum states that applications for storage and applications to use stored water for irrigation purposes could be processed. The reason given for this action was public interest and that it would avoid additional state costs from added administration and cancellation work in future years. Pumpkinseed Creek is a tributary to the North Platte River.
3. On November 30, 1990, the Department declared a formal moratorium on the Niobrara River from the Nebraska-Wyoming state line downstream to the headgate of the Mirage Flats Canal. The moratorium included all applications to use natural flow for irrigation, storage, and other beneficial uses. The Order states that the Department shall not approve any applications for permits for new water appropriations on this stream reach while the moratorium remains in effect, and any interested person may petition the Department to reconsider the moratorium designation.

4. Through actions taken since approximately 1993, the Department of Natural Resources has effectively maintained other informal moratoriums through its discussions with possible applicants and through its orders regarding applications filed. The actions taken and the Department's policy have been as follows:
  - a. North Platte River and tributaries above Lake McConaughy. The Department has denied applications on the basis of a preliminary determination that there is insufficient unappropriated water. Applicants were given an opportunity to request a hearing to prove that unappropriated water was available. The basis for this preliminary determination was that in most years Lake McConaughy has not filled. This determination resulted in additional restrictions in the Pumpkinseed Creek area.
  - b. South Platte River and tributaries, North Platte River and tributaries below Lake McConaughy and Platte River and tributaries above Cozad Canal. The Department has denied applications that would reduce natural flow during the irrigation season on the basis of a preliminary determination that there is insufficient unappropriated water during the irrigation season. Applicants were given an opportunity to request a hearing to prove that unappropriated water was available. The basis for the preliminary determination was the fact that in most years the Department has closed appropriations that were junior to a 1927 water right for Thirty Mile Canal, and in many years for a 1894 water right for Cozad Canal.
  - c. Platte River and tributaries above the mouth of the Loup River. The Department has denied applications that would reduce the natural flow for the instream water appropriations that have a 1993 water right on the preliminary determination that there is insufficient unappropriated water for these water rights that have 1990 or 1993 priority dates. Applicants were given an opportunity to request a hearing to prove that unappropriated water was available.
  - d. White River Basin and Hat Creek Basins. Again, the Department has denied applications that would reduce the natural flow of the stream. The Department's preliminary determination was based on the total lack of flow existing in most locations of these basins and the number of old water rights that do not receive the full allotment allowed under their appropriations. Applicants were given opportunity to request a hearing to prove that unappropriated water was available.
5. No applications for permanent water rights in the Republican River Basin have been filed or granted since 1994. In discussions with possible applicants since then, Department staff discussed the need for showing the availability of unappropriated water. On May 19, 2003, the United States Supreme Court approved a final settlement

stipulation with Kansas and Colorado regarding the Republican River Compact. While that settlement does not specifically require that the Republican River Basin be made subject to a formal moratorium on the issuance of such rights, such a moratorium is consistent with that settlement and with Nebraska's required compliance with that Compact.

It is therefore CONCLUDED that it is in the public interest to declare an official moratorium on the issuance of new surface water appropriations for all of those areas described above for which the Department previously has not formally declared such a moratorium, that is the areas described in paragraphs Nos. 1, 2, 4 and 5 above. The Nebraska Constitution, Article XV, Section 6 states, "The right to divert unappropriated waters of every natural stream for beneficial use shall never be denied except when such denial is demanded by the public interest." By declaring the official moratorium the public is well served by notice of such intentions and requirements. Further, the public would not be well served by the continuance of granting permits where sufficient water is not available. This action would result in "paper water rights" that would cause additional costs to the taxpayer because of the costs of processing such applications, the costs of administering such applications, and the costs of canceling such appropriations in the future. However, there may be certain situations where the public interest would be served by allowing new water rights, and because of the type of project and/or its operation, if an applicant can show that unappropriated water is available. A process for allowing such action should be authorized.

It is therefore ORDERED that:

1. A moratorium on all new surface water appropriations is hereby declared for the following basins or subbasins in Nebraska:
  - a. The Republican River Basin, including all subbasins
  - b. The North Platte River Basin including all subbasins
  - c. The South Platte River Basin including all subbasins
  - d. The Platte River Basin above the mouth of the Loup River including all subbasins
  - e. The White River Basin including all subbasins
  - f. The Hat Creek Basin including all subbasins
2. Interested persons may petition the Department to reconsider the moratorium designation as it relates to a specific project. The petition for reconsideration must clearly state the basis for such request. For sufficient cause shown, the Director may re-examine the action imposed by this Order at any time.

DEPARTMENT OF NATURAL RESOURCES

  
\_\_\_\_\_  
Roger K. Patterson, Director

July 14, 2004

CERTIFICATE OF SERVICE

A copy of the foregoing ORDER DELARING FORMAL MORATORIUMS was mailed on July 14, 2004 to the following:

|  |  |
|--|--|
| Lower Republican Natural Resources District<br>P.O. 618<br>Alma, Nebraska 68920-0618                               | Beerline Canal Company<br>R.R. 2, Box 15<br>Broadwater, Nebraska 69125                                 |
| Middle Republican Natural Resources District<br>P.O. Box 81<br>Curtis, Nebraska 69025-0081                         | Birdwood Irrigation District<br>25362 W. North River Road<br>Hershey, Nebraska 69143                   |
| Upper Republican Natural Resources District<br>P.O. Box 1140<br>Imperial, Nebraska 69033-1140                      | Blue Creek Irrigation District<br>5277 Road 197<br>Lewellen, Nebraska 69147                            |
| Tri-Basin Natural Resources District<br>1308-2 <sup>nd</sup> Street<br>Holdrege, Nebraska 68949-2803               | Bostwick Irrigation District<br>P.O. Box 446<br>Red Cloud, Nebraska 68970-0446                         |
| Central Platte Natural Resources District<br>215 North Kaufman Avenue<br>Grand Island, Nebraska 68803-4915         | Bridgeport Irrigation District<br>P.O. Box 1028<br>Bridgeport, Nebraska 69336-1028                     |
| Twin Platte Natural Resources District<br>P.O. Box 1347<br>North Platte, Nebraska 69103-1347                       | Browns Creek Irrigation District<br>P.O. Box 40<br>Broadwater, Nebraska 69125-0040                     |
| South Platte Natural Resources District<br>P.O. Box 294<br>Sidney, Nebraska 69162-0294                             | Castle Rock Irrigation District<br>P.O. Box 6<br>McGrew, Nebraska 69353-0006                           |
| North Platte Natural Resources District<br>P.O. Box 36<br>Gering, Nebraska 69341                                   | Central Irrigation District<br>P.O. Box 497<br>Scottsbluff, Nebraska 69363                             |
| Upper Niobrara White Natural Resources District<br>430 East 2 <sup>nd</sup> Street<br>Chadron, Nebraska 69337-2433 | Central Nebraska Public Power and Irrigation District<br>P.O. Box 740<br>Holdrege, Nebraska 68949-0740 |
| Alliance Irrigation District<br>P.O. Box 412<br>Bridgeport, Nebraska 69336-0412                                    | Chimney Rock Irrigation District<br>P.O. Box 398<br>Bayard, Nebraska 69334-0398                        |
|  | Cody-Dillon Ditch Company<br>6396 North Splinter Road<br>North Platte, Nebraska 69101                  |
|  | Court House Rock Company<br>HC 85 Box 156<br>Bridgeport, Nebraska 69336-9530                           |

Cozad Ditch Company, Inc.  
P.O. Box 286  
Cozad, Nebraska 69130-0286

Empire Canal Company  
C/o Tim Riggs  
P.O. Box 69336  
Bridgeport, Nebraska 69336

Enterprise Irrigation District  
P.O. Box 1558  
Scottsbluff, Nebraska 69361-1558

Farmers Irrigation District  
1505 Second Avenue  
Scottsbluff, Nebraska 69361

Frenchman-Cambridge Irrigation District  
P.O. Box 116  
Cambridge, Nebraska 69022-0116

Frenchman Valley Irrigation District  
P.O. Box 297  
Culbertson, Nebraska 69024

Gering Irrigation District  
981 Rundell Road  
Gering, Nebraska 69341

Gering-Ft. Laramie Irrigation District  
P.O. Box 69341-0541  
Gering, Nebraska 69341

H & RW Irrigation District  
P.O. Box 297  
Culbertson, Nebraska 69024

Hooper Irrigation District  
19576 Road 50  
Lewellen, Nebraska 69147

Keith-Lincoln County Irrigation District  
P.O. Box 308  
Sutherland, Nebraska 69165-0308

Lisco Irrigation District  
15170 Hwy 26  
Lisco, Nebraska 69148-8827

Midland-Overland Canal Company  
18920 Hwy 26  
Oshkosh, Nebraska 69154

Minatare Mutual Canal and Irrigation Company  
P.O. Box 367  
Minatare, Nebraska 69356

Mitchell Irrigation District  
120322 County Road F  
Mitchell, Nebraska 69357

Nebraska Public Power District  
P.O. Box 499  
Columbus, Nebraska 68602-0499

Nine Mile Irrigation District  
P.O. Box 597  
Bayard, Nebraska 69334-0597

Northport Irrigation District  
RR 1 Box 164  
Bridgeport, Nebraska 69336-0535

Paisley Irrigation District  
5277 Road 197  
Lewellen, Nebraska 69147

Pathfinder Irrigation District  
P.O. Box 338  
Mitchell, Nebraska 69357

Paxton-Hershey Water Company  
25751 West Suburban Road  
Hershey, Nebraska 69143

Pioneer Irrigation District  
RR 1 Box 44  
Haigler, Nebraska 69030

Platte Valley Irrigation District  
P.O. Box 104  
Hershey, Nebraska 69143

Riverside Irrigation Company  
RR 3 Box 33  
Culbertson, Nebraska 69024-9318

Short Line Irrigation District  
P.O. Box 575  
Bayard, Nebraska 69334-0575

Six Mile Ditch Company  
P.O. Box 243  
Gothenburg, Nebraska 69138

South Side Irrigation Company  
P.O. Box 174  
Cozad, Nebraska 69130-0174

Steamboat Irrigation District  
180038 County Road 29  
Gering, Nebraska 69341

Suburban Irrigation District  
P.O. Box 885  
North Platte, Nebraska 69103

Thirty Mile Canal Company  
75885 Road 414  
Cozad, Nebraska 69130

Twin Loups Irrigation Company  
P.O. Box 98  
Scotia, Nebraska 68875-0098

Twin Loups Reclamation District  
P.O. Box 98  
Scotia, Nebraska 68875-0098

Union Irrigation District  
5277 Road 197  
Lewellen, Nebraska 69147

Western Irrigation District  
1351 Road West 40  
Brule, Nebraska 69127

White River Irrigation District  
P.O. Box 446  
Crawford, Nebraska 69339

Whitney Irrigation District  
P.O. Box 185  
Whitney, Nebraska 69367

Winters Creek Canal Company  
230710 Highland Road  
Scottsbluff, Nebraska 69361

**Appendix E:**

Order Designating Overappropriated River Basins, Subbasins, or Reaches, and Describing Hydrologically Connected Geographic Area, in the Matter of the Platte River Basin upstream of the Kearney Canal Diversion, the North Platte River Basin, and the South Platte River Basin.

Dated September 15, 2004



STATE OF NEBRASKA  
DEPARTMENT OF NATURAL RESOURCES

|                                  |                                  |
|----------------------------------|----------------------------------|
| In the Matter of the             | ) ORDER DESIGNATING              |
| Platte River Basin upstream of   | ) OVERAPPROPRIATED RIVER BASINS, |
| the Kearney Canal Diversion, the | ) SUBBASINS, OR REACHES, AND     |
| North Platte River Basin, and    | ) DESCRIBING HYDROLOGICALLY      |
| the South Platte River Basin     | ) CONNECTED GEOGRAPHIC AREA      |

This matter came on for consideration before the Director of the Department of Natural Resources (the "Department") pursuant to Section 53, subsection (4) of LB 962 (2004 Nebraska Legislature), codified at Neb. Rev. Stat. Section 46-713(4), which requires the Department to designate which river basins, subbasins, or reaches are overappropriated within sixty days after the operative date of that section. Furthermore, the designation shall include a description of the geographic area within which the Department has determined that surface water and ground water are hydrologically connected and the criteria used to make such determination.

Section 46-713(4)(a) provides as follows:

A river basin, subbasin, or reach shall be deemed overappropriated if, on July 16, 2004, the river basin, subbasin, or reach is subject to an interstate cooperative agreement among three or more states and if, prior to such date, the department has declared a moratorium on the issuance of new surface water appropriations in such river basin, subbasin, or reach and has requested each natural resources district with jurisdiction in the affected area in such river basin, subbasin, or reach either (i) to close or to continue in effect a previously adopted closure of all or part of such river basin, subbasin, or reach to the issuance of additional water well permits in accordance with subdivision (1)(k) of section 46-656.25 as such section existed prior to July 16, 2004, or (ii) to temporarily suspend or to continue in effect a temporary suspension, previously adopted pursuant to section 46-656.28 as such section existed prior to July 16, 2004, on the drilling of new water wells in all or part of such river basin, subbasin, or reach.

The Director FINDS:

1. In 1997, the States of Nebraska, Wyoming, and Colorado and the U.S. Department of the Interior signed the Cooperative Agreement for Platte River Research and Other Efforts Relating to Endangered Species Habitats Along the Central Platte River, Nebraska (the "Cooperative Agreement").
  - a. Pursuant to the Cooperative Agreement, Nebraska has prepared the Nebraska New Depletion Plan (the "New Depletion Plan"), a purpose of which is to describe the actions Nebraska proposes to take to prevent or mitigate for new depletions to the extent those new depletions are caused by new and expanded uses of water since the target date of July 1, 1997.

2.
  - a. On February 27, 1979, by a memorandum to staff, the Director of the Department of Water Resources (now the Department of Natural Resources) ordered staff to deny all applications for natural flow for consumptive purposes in the Lodgepole Creek basin.
  - b. On December 13, 1979, the same Director of the Department of Water Resources issued another memorandum to staff directing them to deny all applications for the direct use of natural flow from Pumpkinseed Creek and tributaries for irrigation purposes.
  - c. Through actions taken since approximately 1993, the Department of Natural Resources has effectively maintained other informal moratoriums through its discussions with possible applicants and through its orders regarding applications filed in the North Platte River and its tributaries, the South Platte River and its tributaries, and the Platte River and its tributaries above the mouth of the Loup River.
  - d. On July 14, 2004, the Department issued an Order Declaring Formal Moratorium on the issuance of new surface water appropriations in the Platte River Basin above the mouth of the Loup River, the North Platte River Basin, and the South Platte River Basin.
  - e. Numerous new wells have been registered with the Department since the Department stopped issuing surface water rights as described in this Section.
3. The Department has made written requests to each Natural Resources District ("NRD") with jurisdiction in the affected area, as follows:
  - a. By letter dated July 13, 2004, to Jim Olson, Chair of the North Platte NRD, the Department requested the North Platte NRD to continue in effect a previously adopted closure of the Pumpkin Creek integrated ground water management subarea to the issuance of additional water well permits and to continue in effect a previously adopted temporary suspension on the drilling of new water wells in the remainder of the Natural Resources District.
  - b. By letter dated July 13, 2004, to Alicia Haussler, Chair of the Central Platte NRD, the Department requested the Central Platte NRD to continue in effect a temporary suspension of well construction that took effect November 20, 2003 in a portion of the Natural Resources District, and to extend the temporary suspension to include all of the area the Department had preliminarily determined to be hydrologically connected to the overappropriated basin.

- c. By letter dated July 13, 2004, to Bradley Lundein, Chair of the Tri-Basin NRD, the Department requested the Tri-Basin NRD to either close the geographic area the Department preliminarily determined to be hydrologically connected to the overappropriated basin, as identified on a map enclosed with the Department's letter, to the issuance of additional water well permits, or temporarily suspend the drilling of new water wells within that identified area.
  - d. By letter dated July 13, 2004, to Keith Rexroth, Chair of the South Platte NRD, the Department requested the South Platte NRD to continue in effect a previously adopted closure of the Lodgepole Creek integrated ground water management subarea to the issuance of additional water well permits and to continue in effect a previously adopted temporary suspension on the drilling of new water wells in the remainder of the Natural Resources District.
  - e. By letter dated July 13, 2004, to Jim Rubenthaler, Chair of the Twin Platte NRD, the Department requested the Twin Platte NRD to continue in effect a previously adopted temporary suspension of well construction in a portion of the Natural Resources District, and to extend the temporary suspension to include all of the area the Department had preliminarily determined to be hydrologically connected to the overappropriated basin, as identified on a map enclosed with the Department's letter.
4. Included with the Department's July 13, 2004 correspondence listed in Section 3 of this Order were maps identifying the portions of each of the Natural Resources Districts within which the Department was preliminarily considering the surface water and ground water to be hydrologically connected to the overappropriated basin.
  5. The criteria used to make the determination of hydrologically connected surface water and ground water for purposes of the overappropriated designation is as follows:
    - a. The area within which pumping of a well for 40 years will deplete the North Platte River, South Platte River, Platte River or a base flow tributary thereof by at least 28% of the amount pumped in that time (referred to as the "28/40 line"). The 28/40 line is also relevant for management purposes in terms of the Cooperative Agreement, which is one of the criteria on which the overappropriated designation rests. The New Depletion Plan prepared as a result of the Cooperative Agreement requires that the NRDs responsible for its implementation have groundwater management areas that cover all land area within the Platte River Basin and also the area within the 28/40 line.
    - b. To the extent not included as a result of the 28/40 line, any other land area that is within the North Platte NRD's current integrated ground water management subarea of the Pumpkin

Creek subbasin, or the South Platte NRD's current integrated ground water management subarea of the Lodgepole Creek subbasin. This criteria is relevant because the Cooperative Hydrology Study ("COHYST") Model, discussed below, does not have modeling for all parts of Nebraska. In areas not covered by COHYST, NRD information analysis relating to integrated management areas was relied upon in order to determine the areas to be considered hydrologically connected for the relevant management purposes.

6. The preliminary map sent on July 13<sup>th</sup> to each NRD was based on data from the United States Geological Survey's Regional Aquifer Study Assessment. In the July 13, 2004 letters to the NRDs, the Department reserved the ability to utilize data from the COHYST Model, when available, in making the final designation, as such data was anticipated to be the best data available.
7. The COHYST Model is now available. The Department has examined the results of the current COHYST Model's 28/40 line. The Department determines that the current COHYST Model is the best data available for purposes of obtaining the 28/40 line.
8. The Department held public information meetings and public hearings for the purpose of collecting evidence and testimony concerning the final determination of certain NRDs as "fully appropriated" in their entirety. The public hearings were held in North Platte on August 31, 2004, in Sidney on September 1, 2004, and in Kearney on September 9, 2004. Prior to each hearing, Department personnel indicated that testimony could be given during the hearing on the extent of the area within which the surface water and groundwater supplies for the river basin, subbasin or reach are determined to be hydrologically connected for purposes of the overappropriated designation. The Department duly considered such testimony and evidence produced at the hearings.

It is therefore CONCLUDED that it is in the public interest to designate the Platte River Basin above the Kearney Canal Diversion, the North Platte River Basin, and the South Platte River Basin as overappropriated, and to designate the area within which surface water and ground water are hydrologically connected for purposes of the overappropriated designations.

It is therefore ORDERED that:

1. The Platte River Basin above the Kearney Canal Diversion, the North Platte River Basin including Pumpkinseed Creek, and the South Platte River Basin including Lodgepole Creek are hereby designated as overappropriated.
2. Surface water and ground water are determined to be hydrologically connected for purposes of the overappropriated designations in the area within the 28/40 line, based on data from the COHYST Model. It is further ordered that each full Public Land Survey System section, fifty percent or more of which is within the area having as its outer boundary the 28/40 line, shall be designated as hydrologically connected for purposes of the overappropriated designations. The legal description of the geographic area within

which the Department has determined that the surface water and ground water are hydrologically connected for purposes of the overappropriated designations is attached hereto as Appendix I. Appendix II attached hereto is a map showing the designated overappropriated basins and the geographic area within which the Department has determined that surface water and groundwater are hydrologically connected for purposes of the overappropriated designations.

3. Interested persons may petition the Department to reconsider the designation of the overappropriated basins, the determination of the geographic area within which the Department has determined that surface water and groundwater are hydrologically connected for purposes of the overappropriated designations, or the criteria used to make the determination of hydrologic connectivity for purposes of the overappropriated designations. The petition for reconsideration must clearly state the basis for such request. For sufficient cause shown, the Director may re-examine the action imposed by this Order at any time.

DEPARTMENT OF NATURAL RESOURCES

September 15, 2004

  
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Roger K. Patterson, Director

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# Legal Description of the Geographic Area within which Surface Water and Ground Water are Hydrologically Connected for Purposes of the Overappropriated Designation

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| <b>Township Range</b> | <b>Sections</b>   |
|-----------------------|---|
| 6 N 18 W              | 05,06,07,08,17,18   |
| 6 N 19 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18   |
| 6 N 20 W              | 01,02,03,04,05,06,10,11,12,13   |
| 7 N 18 W              | 05,06,07,08,17,18,19,20,29,30,31,32   |
| 7 N 19 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 7 N 20 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 7 N 21 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,17,18,22,23,24,25,26,36  |
| 7 N 22 W              | 01,02,03,04,05,06,07,08,10,11,12,13,17  |
| 8 N 18 W              | 04,05,06,07,08,09,17,18,19,20,29,30,31,32   |
| 8 N 19 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 8 N 20 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 8 N 21 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 8 N 22 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 8 N 23 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,22,23,24,25,26,27,35,36                                  |
| 8 N 24 W              | 01,02   |
| 9 N 18 W              | 29,30,31,32,33,34   |
| 9 N 19 W              | 25,26,31,32,33,34,35,36   |
| 9 N 20 W              | 31,32   |
| 9 N 21 W              | 17,18,19,20,21,22,26,27,28,29,30,31,32,33,34,35,36  |
| 9 N 22 W              | 03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36       |
| 9 N 23 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 9 N 24 W              | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,34,35,36             |
| 9 N 25 W              | 01,02,03,04,05,06,09,10,11,12,13,14,24  |
| 10 N 22 W             | 30,31,32  |
| 10 N 23 W             | 07,08,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36  |
| 10 N 24 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 10 N 25 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 10 N 26 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,21,22,23,24,25,26,27,36                               |
| 10 N 27 W             | 01,02,03,11,12  |
| 11 N 24 W             | 06,07,18,19,20,28,29,30,31,32,33,34   |
| 11 N 25 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 11 N 26 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 11 N 27 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,33,34,35,36          |
| 11 N 28 W             | 01,02,03,04,05,10,11,12,13,14   |

| <b>Township Range</b> | <b>Sections</b>   |
|-----------------------|---|
| 12 N 25 W             | 17,18,19,20,21,26,27,28,29,30,31,32,33,34,35,36   |
| 12 N 26 W             | 02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36    |
| 12 N 27 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 12 N 28 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 12 N 29 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,21,22,23,24,25,26                                     |
| 12 N 30 W             | 01,02,03,04,05,06,08,09,10,11,12,13   |
| 12 N 31 W             | 01,02,03  |
| 12 N 39 W             | 03,04,05,06,07  |
| 12 N 40 W             | 01,02,03,04,05,06,07,08,09,10,11,12,14,15,16,17,18  |
| 12 N 41 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18   |
| 12 N 42 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24                                     |
| 12 N 43 W             | 01,02,03,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24  |
| 12 N 44 W             | 06,07,08,09,15,16,17,18,19,20,21,22,24  |
| 12 N 45 W             | 01,02,10,11,12,13,14,15,22,23,24  |
| 12 N 52 W             | 01,02,03,04,05,06,07,08,09,17,18,19,20  |
| 12 N 53 W             | 01,02,03,04,09,10,11,12   |
| 13 N 26 W             | 18,19,20,27,28,29,30,31,32,33,34,35   |
| 13 N 27 W             | 03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36       |
| 13 N 28 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 29 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 30 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 31 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 32 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29                      |
| 13 N 33 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,28,29,30                            |
| 13 N 34 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30                   |
| 13 N 35 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31                |
| 13 N 36 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,32,33,34,35,36    |
| 13 N 37 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30                   |
| 13 N 38 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34       |
| 13 N 39 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 40 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 41 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 13 N 42 W             | 12,13,14,22,23,24,25,26,27,28,31,32,33,34,35,36   |
| 13 N 44 W             | 19,30,31,32   |
| 13 N 45 W             | 07,08,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,35,36   |
| 13 N 46 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13  |
| 13 N 47 W             | 1   |
| 13 N 48 W             | 01,02,03,04,05,06   |
| 13 N 49 W             | 01,02,03,04,05,06   |
| 13 N 50 W             | 01,02,03,04,05,06,07,08,09,10,11,12,18,19   |
| 13 N 51 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,28,29,30,31,32                      |
| 13 N 52 W             | 01,02,03,04,09,10,11,12,13,14,22,23,24,25,26,27,28,31,32,33,34,35,36  |
| 14 N 27 W             | 30,31,32,33   |

| <b>Township</b> | <b>Range</b> | <b>Sections</b>   |
|-----------------|--------------|---|
| 14 N            | 28 W         | 16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36   |
| 14 N            | 29 W         | 03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36       |
| 14 N            | 30 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 31 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 32 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 33 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 34 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 35 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 36 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 37 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 38 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 39 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 14 N            | 40 W         | 01,02,03,04,10,11,12,13,24,25,26,27,29,30,31,32,33,34,35,36   |
| 14 N            | 41 W         | 25,26,27,32,33,34,35,36   |
| 14 N            | 46 W         | 30,31,32,33,34  |
| 14 N            | 47 W         | 11,13,14,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  |
| 14 N            | 48 W         | 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  |
| 14 N            | 49 W         | 13,24,25,26,27,28,29,30,31,32,33,34,35,36   |
| 14 N            | 50 W         | 07,17,18,19,20,21,25,26,27,28,29,30,31,32,33,34,35,36   |
| 14 N            | 51 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,24,25,36  |
| 14 N            | 52 W         | 01,02,03,04,05,06,07,08,09,10,11,12,33,34,35,36   |
| 14 N            | 53 W         | 01,02,03,04,05,06,11,12   |
| 14 N            | 54 W         | 01,02,03,04   |
| 14 N            | 56 W         | 04,05,06  |
| 14 N            | 57 W         | 01,02,03,04,05,06   |
| 14 N            | 58 W         | 01,02,03,04,05,06,07,08,09,10,11,12,15,16,17,18,19,20,21,22   |
| 14 N            | 59 W         | 01,02,11,12,13,14   |
| 15 N            | 29 W         | 30,31,32  |
| 15 N            | 30 W         | 07,08,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36  |
| 15 N            | 31 W         | 02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36    |
| 15 N            | 32 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 15 N            | 33 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 15 N            | 34 W         | 01,02,03,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                   |
| 15 N            | 35 W         | 13,14,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36   |
| 15 N            | 36 W         | 17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36   |
| 15 N            | 37 W         | 04,05,06,07,08,09,10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36             |
| 15 N            | 38 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 15 N            | 39 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 15 N            | 40 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 15 N            | 41 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,35,36                |
| 15 N            | 42 W         | 01,02,03,11,12,13,24  |
| 15 N            | 51 W         | 32,33   |
| 15 N            | 52 W         | 31,32,33  |

| <b>Township</b> | <b>Range</b> | <b>Sections</b>   |
|-----------------|--------------|---|
| 15 N            | 53 W         | 27,28,29,30,31,32,33,34,35,36   |
| 15 N            | 54 W         | 19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36  |
| 15 N            | 55 W         | 17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36   |
| 15 N            | 56 W         | 21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36   |
| 15 N            | 57 W         | 25,26,27,28,29,30,31,32,33,34,35,36   |
| 15 N            | 58 W         | 25,35,36  |
| 16 N            | 31 W         | 31,32   |
| 16 N            | 32 W         | 03,04,05,06,07,08,09,10,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36                      |
| 16 N            | 33 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 16 N            | 34 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,33,34,35,36       |
| 16 N            | 35 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,22,23,24,25   |
| 16 N            | 36 W         | 01,02,12  |
| 16 N            | 37 W         | 30,31,32  |
| 16 N            | 38 W         | 20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  |
| 16 N            | 39 W         | 19,20,25,26,27,28,29,30,31,32,33,34,35,36   |
| 16 N            | 40 W         | 07,08,09,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                               |
| 16 N            | 41 W         | 07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                   |
| 16 N            | 42 W         | 04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36          |
| 16 N            | 43 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30                   |
| 16 N            | 44 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,21,22,23,24,25  |
| 16 N            | 45 W         | 01,02,03,05,06,07,11,12,13  |
| 16 N            | 46 W         | 01,02,03,04,11,12   |
| 17 N            | 32 W         | 05,06,07,08,09,16,17,18,19,20,21,22,27,28,29,30,31,32,33,34   |
| 17 N            | 33 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 17 N            | 34 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 17 N            | 35 W         | 01,12,13,14,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36   |
| 17 N            | 42 W         | 03,04,05,06,07,08,09,10,14,15,16,17,18,19,20,21,22,23,26,27,28,29,30,31,32,33,34                            |
| 17 N            | 43 W         | 01,02,12,18,19,20,21,27,28,29,30,31,32,33,34,35,36  |
| 17 N            | 44 W         | 03,04,05,06,07,08,09,10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36          |
| 17 N            | 45 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 17 N            | 46 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,34,35,36          |
| 17 N            | 47 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,21,22,23,24,25,26                                     |
| 17 N            | 48 W         | 01,02,12  |
| 17 N            | 50 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18   |
| 17 N            | 51 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18   |
| 17 N            | 52 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18   |
| 17 N            | 53 W         | 01,02,03,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36          |
| 17 N            | 54 W         | 10,11,12,13,14,15,21,22,23,24,25,26,27,28,34,35,36  |
| 18 N            | 32 W         | 30,31,32  |
| 18 N            | 33 W         | 16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36   |
| 18 N            | 34 W         | 13,14,21,22,23,24,25,26,27,28,29,31,32,33,34,35,36  |
| 18 N            | 42 W         | 05,06,07,08,16,17,18,19,20,21,22,27,28,29,30,31,32,33,34  |
| 18 N            | 43 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,32,33,34,35,36    |

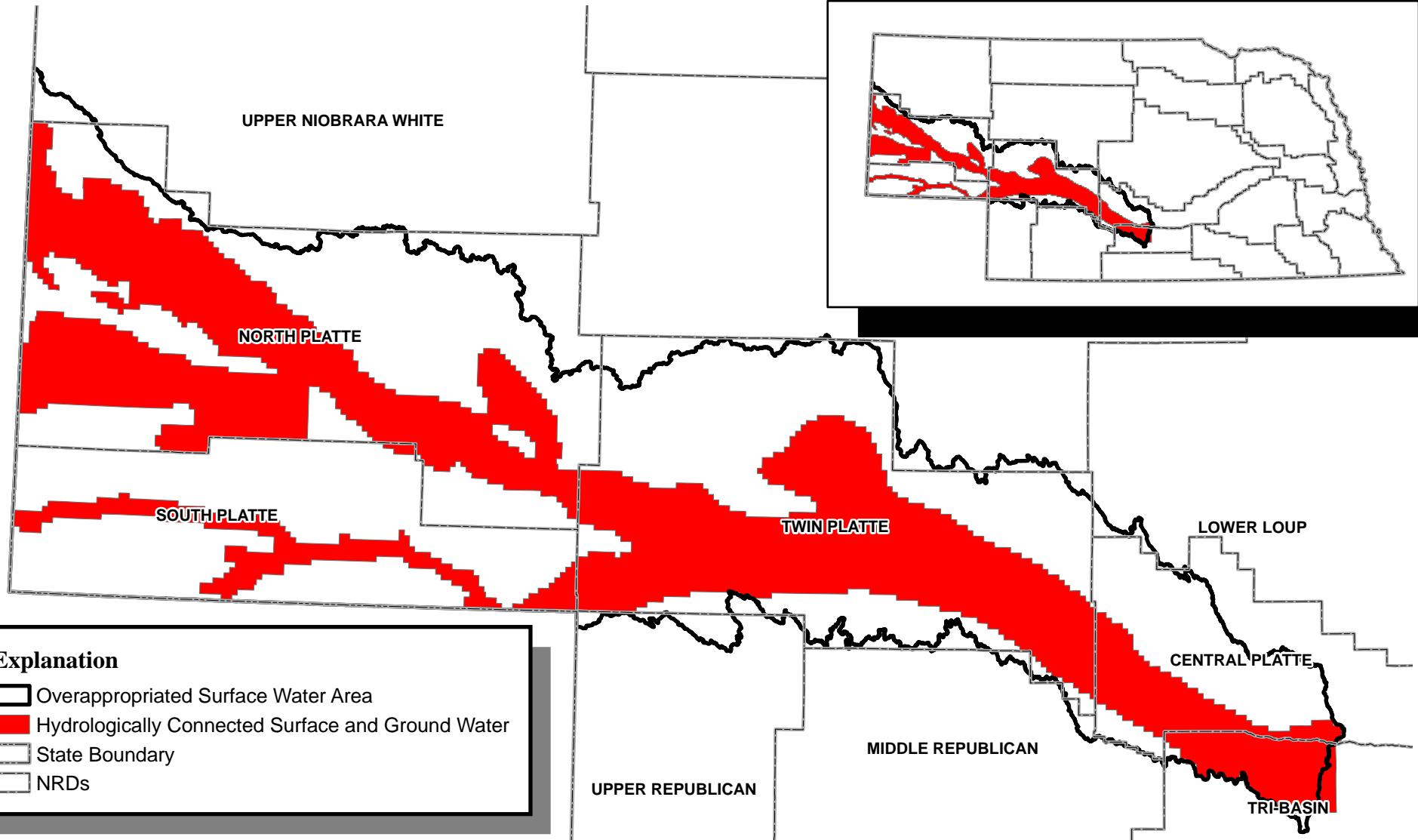
| <b>Township Range</b> | <b>Sections</b>   |
|-----------------------|---|
| 18 N 44 W             | 01,02,03,10,11,12,13,14,15,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34                                  |
| 18 N 45 W             | 07,08,09,10,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                         |
| 18 N 46 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 18 N 47 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 18 N 48 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 18 N 49 W             | 01,02,12,13   |
| 18 N 50 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 18 N 51 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 18 N 52 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 18 N 53 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,21,22,23,24,25,26,27,34,35,36                         |
| 18 N 54 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23  |
| 18 N 55 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24                                     |
| 18 N 56 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24                                     |
| 18 N 57 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24                                     |
| 18 N 58 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34       |
| 19 N 42 W             | 31  |
| 19 N 43 W             | 05,06,07,08,09,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36                               |
| 19 N 44 W             | 01,02,03,04,05,08,09,10,11,12,13,14,15,16,17,20,21,22,23,24,25,26,27,28,33,34,35,36                         |
| 19 N 47 W             | 29,30,31,32,33,34   |
| 19 N 48 W             | 04,05,06,07,08,09,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                      |
| 19 N 49 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,33,34,35,36       |
| 19 N 50 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 19 N 51 W             | 01,02,03,11,12,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  |
| 19 N 52 W             | 16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  |
| 19 N 53 W             | 06,07,08,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                            |
| 19 N 54 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 19 N 55 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 19 N 56 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 19 N 57 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 19 N 58 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 20 N 43 W             | 31  |
| 20 N 44 W             | 21,22,23,25,26,27,28,29,32,33,34,35,36  |
| 20 N 48 W             | 29,30,31,32   |
| 20 N 49 W             | 06,07,08,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                                  |
| 20 N 50 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 20 N 51 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 20 N 52 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,32,33,34,35,36       |
| 20 N 53 W             | 01,02,03,06,11,12,13  |
| 20 N 54 W             | 31,32   |
| 20 N 55 W             | 16,17,18,19,20,21,22,25,26,27,28,29,30,31,32,33,34,35,36  |
| 20 N 56 W             | 04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36          |
| 20 N 57 W             | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 20 N 58 W             | 01,02,03,09,10,11,12,13,14,15,16,21,22,23,24,25,26,27,28,31,32,33,34,35,36                                  |

| <b>Township</b> | <b>Range</b> | <b>Sections</b>   |
|-----------------|--------------|---|
| 21 N            | 49 W         | 30,31,32  |
| 21 N            | 50 W         | 06,07,16,17,18,19,20,21,22,25,26,27,28,29,30,31,32,33,34,35,36  |
| 21 N            | 51 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 21 N            | 52 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 21 N            | 53 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,32,33,34,35,36    |
| 21 N            | 54 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,23,24   |
| 21 N            | 55 W         | 01,02,07,08,11,12,13,14,16,17,18,19,20,21,22,23,24,28   |
| 21 N            | 56 W         | 10,11,12,13,14  |
| 21 N            | 57 W         | 04,05,31,32,33,34   |
| 21 N            | 58 W         | 36  |
| 22 N            | 51 W         | 18,19,20,26,27,28,29,30,31,32,33,34,35,36   |
| 22 N            | 52 W         | 02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36    |
| 22 N            | 53 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 22 N            | 54 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 22 N            | 55 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 22 N            | 56 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,22,23,24,25,26   |
| 22 N            | 57 W         | 01,02,03,04,06,19,29,30,31,32   |
| 22 N            | 58 W         | 01,02,03,04,10,11,12,13,14,23,24,25   |
| 23 N            | 52 W         | 19,29,30,31,32,33   |
| 23 N            | 53 W         | 06,07,08,09,10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36                   |
| 23 N            | 54 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 23 N            | 55 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 23 N            | 56 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 23 N            | 57 W         | 01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36 |
| 23 N            | 58 W         | 01,02,03,04,09,10,11,12,13,14,15,16,21,22,23,24,25,26,27,28,33,34,35,36                                     |
| 24 N            | 53 W         | 31  |
| 24 N            | 54 W         | 19,30,31,32,33,34,35,36   |
| 24 N            | 55 W         | 02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36    |
| 24 N            | 56 W         | 01,02,03,04,05,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36       |
| 24 N            | 57 W         | 04,05,06,07,08,09,10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36             |
| 24 N            | 58 W         | 01,02,03,04,09,10,11,12,13,14,15,16,21,22,23,24,25,26,27,28,33,34,35,36                                     |
| 25 N            | 55 W         | 29,30,31,32,33,34   |
| 25 N            | 56 W         | 25,26,27,34,35,36   |
| 25 N            | 57 W         | 05,06,07,08,16,17,18,19,20,21,22,27,28,29,30,31,32,33,34  |
| 25 N            | 58 W         | 01,02,11,12,13,14,23,24,25,26,35,36   |
| 26 N            | 57 W         | 05,06,07,08,09,16,17,18,19,20,21,28,29,30,31,32   |



Planning Section

# Overappropriated Surface Water and the Geographic Area Determined to Have Surface Water Hydrologically Connected to Ground Water for the Purpose of Overappropriated Designation.



## Explanation

- Overappropriated Surface Water Area
- Hydrologically Connected Surface and Ground Water
- State Boundary
- NRDs

This map represents the areas described in the Order issued by the Department of Natural Resources on September 15, 2004 designating the surface water resources within the Platte River Basin above the Kearney Canal Diversion, the North Platte River Basin including Pumpkinseed Creek and the South Platte River Basin including Lodgepole Creek as overappropriated. Also represented is the geographic area within which it has been determined that surface water is hydrologically connected to ground water for the purpose of designating the surface water resources within this same area. Additional information regarding the designation can be found in the Order issued by the Department of Natural Resources on September 15, 2004.

0 12.5 25 50 75 100 Miles

Map Produced by Kevin J. Schwartman, March 3, 2009

## **Appendix F:**

Order of Final Determination of River Basins, Subbasins, or Reaches as  
Fully Appropriated, and Describing Hydrologically Connected  
Geographic Area, in the Matter of the Portion of the Platte River Basin  
Upstream of the Loup River Confluence, the North Platte River Basin,  
and the South Platte River Basin within the South Platte Natural  
Resources District, the Twin Platte Natural Resources District, and the  
Central Platte Natural Resources District.

Dated September 30, 2004



STATE OF NEBRASKA  
DEPARTMENT OF NATURAL RESOURCES

Date: 9/30/2004  
Reference #:231  
Code 1: leg  
Code 2:  
Comment: Fully appropriated/Platte

In the Matter of the Portion of the ) ORDER OF FINAL  
Platte River Basin Upstream of ) DETERMINATION OF RIVER BASINS,  
the Loup River Confluence, ) SUBBASINS, OR REACHES AS  
the North Platte River Basin, and ) FULLY APPROPRIATED, AND DESCRIBING  
the South Platte River Basin within ) HYDROLOGICALLY CONNECTED  
the South Platte Natural Resources ) GEOGRAPHIC AREA  
District, the Twin Platte Natural )  
Resources District and the Central )  
Platte Natural Resources District )

This matter came on for consideration before the Director of the Department of Natural Resources (the "Department") pursuant to Section 54, subsection (5) of LB 962 (2004 Nebraska Legislature), codified at Neb. Rev. Stat. Section 46-714(5). That section requires the Department to: (1) notify the appropriate natural resources districts, within thirty days after the final hearing required by Section 46-714(4), of the Department's final determination as to whether a river basin, subbasin, or reach is fully appropriated; and (2) if the final determination is that the river basin, subbasin, or reach is fully appropriated, at the same time (a) decide whether to continue or to terminate the stays on new surface water uses and on increases in the number of surface water irrigated acres and (b) designate the geographic area within which the Department considers surface water and ground water to be hydrologically connected to the river basin, subbasin, or reach, and describe the methods and criteria used in making that determination.

The Director FINDS:

1. Prior to July 16, 2004, the Director of the Department made preliminary determinations, pursuant to subsection (2) of Neb. Rev. Stat. Section 46-656.28, as it existed prior to that date, that there was reason to believe that the use of hydrologically connected ground water and surface water in the South Platte Natural Resources District, the Twin Platte Natural Resources District, and the Central Platte Natural Resources District, was contributing to or was in the reasonably foreseeable future likely to contribute to a conflict, dispute, or difficulty listed in such subsection. Each preliminary determination related to the entirety of the specific natural resources district. The preliminary determination was in response to the written request of each of these natural resources districts that the Department consult with and conduct studies on the natural resources district, and hold a hearing on the preparation of a joint action plan. Prior to July 16, 2004, the Director did not make a determination that a joint action plan should not be prepared, and the preparation of a joint action plan was not completed for any of the subject natural resources districts.

2. On July 16, 2004, the South Platte Natural Resources District, the Twin Platte Natural Resources District, and the Central Platte Natural Resources District became subject to the provisions of subsection (3) of Section 60 of LB 962, codified at Neb. Rev. Stat. Section 46-720, and also Sections 53 to 59 of LB 962, codified at Neb. Rev. Stat. Sections 46-713 to 46-719.
3. Pursuant to Neb. Rev. Stat. Section 46-713, the Department duly provided notices to the public of its preliminary determinations that the South Platte Natural Resources District, the Twin Platte Natural Resources District, and the Central Platte Natural Resources District were each fully appropriated in their entirety.
4. The Department and each of the referenced natural resources districts sent letters as follows:
  - a. Letter dated August 11, 2004 from the Department and the South Platte Natural Resources District;
  - b. Letter dated August 11, 2004 from the Department and the Twin Platte Natural Resources District;
  - c. Letter dated August 11, 2004 from the Department and the Central Platte Natural Resources District.

The appropriate letter which was sent to each irrigation district, reclamation district, public power and irrigation district, mutual irrigation company, canal company, or municipality that relies on water from the affected river basin, subbasin, or reach, and to other water users and stakeholders deemed appropriate by the Department or the affected natural resources district. Each letter offered the recipient the opportunity to consult with the Department and the appropriate natural resources district on the question as to whether the Department should make a final determination that the portion of the Platte, North Platte or South Platte Basin within that district is fully appropriated. The Department received, and duly considered, letters in response to the request for consultation.

5. The Department issued notice of, and held, two public information meetings in each natural resources district, as follows:
  - a. South Platte Natural Resources District public information meetings were held on August 25, 2004, and September 1, 2004.
  - b. Twin Platte Natural Resources District public information meetings were held on August 26, 2004, and August 31, 2004.

Appendix F  
Fully Appropriated Designation

- c. Central Platte Natural Resources District public information meetings were held on August 27, 2004, and September 9, 2004.
6. Pursuant to statute, the Department issued notice of, and held, public hearings in each natural resources district, as follows:
  - a. South Platte Natural Resources District public hearing was held on September 1, 2004.
  - b. Twin Platte Natural Resources District public hearing was held on August 31, 2004.
  - c. Central Platte Natural Resources District public hearing was on September 9, 2004.
7. Public testimony was taken at each public hearing, and the record in each public hearing was held open for at least one full week following the date of the public hearing, in order to allow the receipt of any additional written testimony into the record.
8. A transcript was made for each public hearing, and the Department duly considered the testimony and evidence produced at the hearings.
9. In 1997, the States of Nebraska, Wyoming, and Colorado and the U.S. Department of the Interior signed the Cooperative Agreement for Platte River Research and Other Efforts Relating to Endangered Species Habitats Along the Central Platte River, Nebraska (the "Cooperative Agreement"). Pursuant to the Cooperative Agreement, Nebraska has prepared the Nebraska New Depletion Plan (the "New Depletion Plan"), a purpose of which is to describe the actions Nebraska proposes to take to prevent or mitigate for new depletions to the extent those new depletions are caused by new and expanded uses of water begun since the date of July 1, 1997.
10.
  - a. On February 27, 1979, by a memorandum to staff, the Director of the Department of Water Resources (now the Department of Natural Resources) ordered staff to deny all applications for natural flow for consumptive purposes in the Lodgepole Creek basin.
  - b. On December 13, 1979, the Director of the Department of Water Resources issued another memorandum to staff directing them to deny all applications for the direct use of natural flow from Pumpkinseed Creek and tributaries for irrigation purposes.
  - c. Through actions taken since approximately 1993, the Department of Natural Resources has effectively maintained other informal moratoriums through its discussions with possible applicants and through its orders regarding applications filed in the North

Platte River and its tributaries, the South Platte River and its tributaries, and the Platte River and its tributaries above the mouth of the Loup River.

- d. On July 14, 2004, the Department issued an Order Declaring Formal Moratorium on the issuance of new surface water appropriations in the Platte River Basin above the mouth of the Loup River, the North Platte River Basin, and the South Platte River Basin.
  - e. Numerous new wells have been registered with the Department since the Department stopped issuing surface water rights as described in this Section.
  - f. Departmental administration would have occurred frequently during the previous twenty years in the Platte River Basin upstream of the confluence with the Loup River, and in the North Platte River Basin and the South Platte River Basin if the surface water rights existing on July 16, 2004, had been in existence during the previous twenty years
11. a. South Platte Natural Resources District ordered a temporary suspension of well construction for all of the South Platte Natural Resources District, except for the Lodgepole Creek integrated management subarea, which temporary suspension took effect on January 14, 2004. The moratorium for the Lodgepole Creek integrated management subarea took effect on November 7, 2002.
- b. Twin Platte Natural Resources District ordered a temporary suspension of well construction in a portion of the natural resources district; that temporary suspension took effect July 1, 2004.
- c. Central Platte Natural Resources District ordered a temporary suspension of well construction in a portion of the natural resources district; that temporary suspension took effect November 20, 2003.
12. The method used to determine the hydrological connection for purposes of the final fully appropriated determination was to review and evaluate available and relevant data from the United States Geological Survey, the University of Nebraska Conservation and Survey Division, the data used in the development of the Cooperative Hydrology Study ("COHYST") Model, and other information that was included in the record of the public hearings referenced in finding Number 6 above.
13. In determining the hydrologically connected areas for purposes of the final fully appropriated determination, consideration was given to the following criteria:

- a. the boundaries of the area for which each of the natural resources districts initiated the joint action planning process under previous Section 46-656.28, which in the case of each of the natural resources districts was all areas within such natural resources district's boundaries; and
- b. the extent to which the methods used to determine hydrologic connectivity demonstrated that withdrawal of ground water from within the area would, at some future time, impact the surface water supply of the fully appropriated basin.

It is therefore CONCLUDED that it is in the public interest to (1) make a final determination that the portions of each of the Platte River Basin upstream of the Loup River confluence, the North Platte River Basin, and the South Platte River Basin within each of the South Platte Natural Resources District, the Twin Platte Natural Resources District and the Central Platte Natural Resources District are fully appropriated, (2) to continue the stays on new surface water uses and on increases in the number of surface water irrigated acres, and, (3) to designate the area within which surface water and ground water are hydrologically connected for purposes of the final determination of fully appropriated.

It is therefore ORDERED that:

1. The portions of each of the Platte River Basin upstream of the Loup River confluence, the North Platte River Basin and the South Platte River Basin that are within each of the South Platte Natural Resources District, the Twin Platte Natural Resources District and the Central Platte Natural Resources District are hereby determined to be fully appropriated, final determination.
2. The stays on new surface water uses and on increases in the number of surface water irrigated acres, that were effective as a result of the provisions of Section 46-720 and the Department's July 16, 2004, preliminary determination that the affected natural resources districts were fully appropriated, are continued as a result of this determination, and shall remain in effect until (a) they are terminated pursuant to law, (b) an integrated management plan for the affected area has been adopted and has taken effect, (c) the Department has completed a reevaluation of the area and has determined that the affected area is not fully appropriated, or (d) the stays expire pursuant to law. To the extent the geographic area subject to such stays is now within the land area designated as the overappropriated basin on September 15, 2004, or within the land area considered to be hydrologically connected for purposes of the overappropriated designation, such stays shall continue in effect as stays for that overappropriated basin and area considered to be hydrologically connected for purposes of the overappropriated designation.

3. The geographic area within which the Department has determined ground water to be hydrologically connected to the surface water for the purposes of the final fully appropriated determination includes the entire geographic area of the South Platte Natural Resources District, the Twin Platte Natural Resources District, and the Central Platte Natural Resources District. Because none of the geographic area subject to the Department's preliminary determination of fully appropriated is excluded from the area for which this final determination is made, the stays on the construction of new water wells and on increases in acres irrigated with ground water will remain in effect unless terminated by the applicable district pursuant to subsection (7) and (8) of Section 46-714.
4. Interested persons may petition the Department for a rehearing to reconsider the final determination that the portions of the Platte River Basin upstream of the Loup River confluence, the North Platte River Basin and the South Platte River Basin within the South Platte Natural Resources District, the Twin Platte Natural Resources District and the Central Platte Natural Resources District are fully appropriated, the determination of the geographic area within which the Department has determined that surface water and ground water are hydrologically connected for purposes of the final determination of fully appropriated, or the criteria used to make the determination of hydrologic connectivity for purposes of the final determination of fully appropriated. Such petition for a rehearing must be filed within fifteen days of this order and must clearly state the basis for such request. For sufficient cause shown, the Director may re-examine the action imposed by this Order at any time.

DEPARTMENT OF NATURAL RESOURCES

September 30, 2004

  
\_\_\_\_\_  
Roger K. Patterson, Director

Appendix F  
Fully Appropriated Designation

CERTIFICATE OF SERVICE

A copy of the foregoing ORDER DETERMINING FULLY APPROPRIATED RIVER BASINS, SUBBASINS, OR REACHES, AND DESCRIBING HYDROLOGICALLY CONNECTED GEOGRAPHIC AREA was mailed on September 30, 2004, to the following:

Central Platte Natural Resources District  
215 North Kaufman Avenue  
Grand Island, Nebraska 68803

South Platte Natural Resources District  
P.O. Box 294  
Sidney, Nebraska 69162

Twin Platte Natural Resources District  
P.O. Box 1347  
North Platte, Nebraska 69103